



Faculty of Computer Science and Information Technology

***CALMCAPSULE:
AN ONLINE PLATFORM FOR MANAGING NEGATIVE EMOTIONS***

YASMIN IRDINA AFZA BINTI SAFUANI

Bachelor Of Software Engineering with Honours

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YASMIN IRDINA AFZA BINTI SAFUANI

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requirements for the degree of
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**CALMCAPSULE:
PLATFORM ATAS TALIAN UNTUK PENGURUSAN EMOSI NEGATIF**

YASMIN IRDINA AFZA BINTI SAFUANI

Projek ini merupakan salah satu keperluan untuk
Ijazah Sarjana Muda Kejuruteraan Perisian dengan Kepujian

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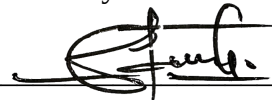
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DECLARATION

I, Yasmin Irdina Afza Binti Safuani, with the matric number 78588, hereby declare that the report titled 'CalmCapsule: An Online Platform for Managing Negative Emotions' is my original work, completed independently as part of the partial fulfilment for the degree of Bachelor of Software Engineering with Honours at the Faculty of Computer Science and Information Technology, Universiti Malaysia Sarawak (UNIMAS).

This report reflects the work carried out solely by me under the supervision of Associate Professor Dr. Mohamad Nazim Jambli. I also confirm that the content of this report has not been submitted for any other academic award at UNIMAS or any other institution. Any materials, ideas, or findings from external sources have been appropriately cited and referenced to avoid plagiarism.



Yasmin Irdina Afza Binti Safuani (78588)

Software Engineering
Faculty of Computer Science and Information Technology
Universiti Malaysia Sarawak

Date: 23rd June 2025

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ABSTRACT

University students face increasing challenges with negative emotions including stress, anxiety, and anger, significantly impacting their academic performance and overall wellbeing. Traditional mental health resources often present barriers such as cost, accessibility, and social stigma, leaving many students without adequate emotional support. Digital interventions, particularly those incorporating expressive writing and structured reflection, have shown promising results in emotional regulation and mental health improvement. This research presents CalmCapsule, a web-based platform that integrates journaling, guided reflection, peer support, and emotional tracking to provide students with comprehensive tools for negative emotion management. The platform addresses the gap in accessible, user-friendly digital mental health solutions specifically designed for the student population, offering a structured approach to emotional self-regulation without the barriers associated with traditional therapeutic interventions.

ABSTRAK

Pelajar universiti kini berdepan pelbagai cabaran emosi negatif seperti tekanan, kebimbangan dan kemarahan yang semakin meningkat. Keadaan ini secara langsung memberi kesan kepada prestasi akademik dan kesejahteraan keseluruhan mereka. Selain itu, pelajar menghadapi halangan mendapatkan sokongan kesihatan mental di luar kampus seperti kos yang tinggi, masalah hubungan dan stigma sosial masyarakat. Akibatnya, ramai pelajar tidak menerima bantuan emosi yang mencukupi. Intervensi digital, khususnya yang menggabungkan penulisan ekspresif dan refleksi berstruktur, telah menunjukkan potensi memberangsangkan dalam pengawalan emosi dan peningkatan kesihatan mental. Justeru, kajian ini memperkenalkan CalmCapsule, sebuah platform berasaskan web yang mengintegrasikan jurnal penulisan, panduan refleksi, sokongan rakan sebaya dan penjejakan emosi. Platform ini direka sebagai alat menyeluruh untuk pengurusan emosi negatif dalam kalangan pelajar. CalmCapsule bertujuan mengisi jurang dalam penyediaan solusi kesihatan mental digital yang mudah diakses dan mesra pengguna, khusus untuk golongan pelajar. Ia menawarkan pendekatan sendiri yang tersusun dalam pengawalan emosi tanpa halangan yang sering dikaitkan dengan kaedah terapi tradisional.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Negative emotion management—such as anger, stress, and anxiety—is increasingly acknowledged as critical for both mental and physical health. According to studies, untreated negative emotions can impair a person’s general wellbeing and cause a variety of physical health problems (Pham et al., 2021). Some online platforms, such virtual mood walls, offer users an open area to express their emotions to promote emotional wellness. It has been demonstrated that this greatly lowers participants’ negative emotions. For instance, a study conducted with people who had chronic illnesses found that using a virtual mood wall to express their feelings daily significantly reduced their negative emotions (Liu et al., 2019). These platforms emphasize the value of easily accessible psychological outlets, especially for those without access to expert assistance.

But despite these developments, the current solutions frequently don’t allow for customization or accessibility for the general public, particularly students. A lot of these systems are dependent on advanced technology or specialist tools, which limits their applicability for larger user bases, such as college students, who might encounter high levels of stress and negative emotions but lack easily accessible or student-friendly solutions for handling them. Hence, here is a need for a user-friendly, structured emotional support platform that integrates into normal student life without requiring expensive technology or equipment.

CalmCapsule is a web-based platform that aims to help university students manage their emotional wellness, with particular focus on negative emotions such as stress, anger, and anxiety through journaling and self-reflection. The Cambridge Dictionary defines journaling as “the act of writing what you have done each day, sometimes including your private thoughts, feelings, and goals”. This practice allows people to record their daily experiences and emotions, which helps them have a better knowledge of their moods and behaviours. Self-reflection is also described as “the activity of thinking about your own feelings and behaviour, and the reasons that may lie behind them”. Self-reflection fosters emotional health and personal development by allowing people to understand their own behaviours and feelings. According to Merriam-Webster’s Collegiate Dictionary, a “capsule” is defined as “a compact often sealed and detachable container or compartment”. The term “capsule” in the context of CalmCapsule refers to the way the journaling process is organized, with each capsule standing for a different

month of the year. The system is designed with 12 Capsules every year, one for each month. Users can add daily journal entries within each monthly Capsule, with the option to write more than once each day. Each entry supports emotion labelling, allowing users to precisely tag their emotions. CalmCapsule provides guided prompts based on the user's selected emotions, to encourage deeper self-reflection and help users better analyse their experiences. After saving an entry, CalmCapsule gives emotion-based advice based on the user's emotions, offering specific suggestions for managing their feelings.

The platform provides structured guidance through carefully crafted reflection prompts and advice content, developed specifically for emotional wellness support. Both the guided reflection prompts and emotion-based advice are manually created and written by mental health professional or qualified administrator rather than generated by AI systems, ensuring therapeutic relevance and appropriateness for university students' emotional needs.

In addition to journaling, CalmCapsule offers a forum where users can share their experiences anonymously, seek advice, and connect with peers who are suffering similar issues, creating a supportive community. The system also includes an Emotional Trend Review, which highlights users' emotional patterns based on the most frequent emotion approach. The system counts all emotions reported during a given time period (weekly or monthly), highlights the most commonly recorded emotion, and displays users' top emotions to help them better understand their emotional patterns. By combining these functions, CalmCapsule offers students who wish to manage their own mental health a convenient alternative to specialised resources or in-person therapy.

1.2 Problem Statement

Negative emotions such as anger, stress, and anxiety are serious psychological concerns that impair people's overall functioning and well-being, particularly among university students. According to a study on university students from two Malaysian public universities, 22.1% reported experiencing suicidal ideation, and 1.6% reported nearly committing suicide, only stopping at the last moment (Choi et al., 2021). Another study found that 42.8% of students experience moderate to severe emotional or behavioural control issues, which are often connected to stress and anger (Arifin et al., 2023). If unmanaged, these emotional struggles can lead to serious mental health problems. Barriers like cost, insurance, and societal judgement

frequently limit access to in-person psychological treatments like cognitive-behavioural therapy (CBT) for emotional regulation (Saini, 2009). However, online mental health interventions have shown comparable effectiveness in reducing symptoms of depression, anxiety, and anger (Smyth et al., 2018), and expressive writing or positive affect journaling (PAJ) methods also enhance mental health outcomes (Smyth et al., 2018).

While the platform is titled ‘Managing Negative Emotions,’ it recognizes that effective emotional management requires a comprehensive understanding of one’s entire emotional range. Research indicates that successful negative emotion regulation depends on individuals’ ability to recognize emotional patterns, identify triggers, and understand the context surrounding negative emotional episodes. By tracking all emotions from positive (Happy) to neutral (Just Okay, Unsure) to negative (Sad, Angry), users can better identify emotional baselines, recognize early warning signs of negative emotional states, and develop more effective strategies for managing stress, anxiety, and anger.

In response to these issues, this project proposes a low-cost, stigma-free digital solution, CalmCapsule: An Online Platform for Managing Negative Emotions. CalmCapsule gives people a safe place to explore and manage their feelings by offering a structured method for daily journaling and self-reflection that encompasses their complete emotional spectrum. The platform helps users manage stress, anxiety, and other negative emotions by encouraging comprehensive emotional awareness through journaling, guided reflection prompts based on emotions, emotion-based advice, anonymous forums for sharing and emotional trend reviews. This ultimately promotes emotional stability and well-being through better understanding and management of negative emotional states.

1.3 Project Objectives

The general aim of this project is to create CalmCapsule: An Online Platform for Managing Negative Emotions, which helps users manage emotions like anger, anxiety, and stress through journaling and self-reflection. The specific objectives are:

1. To gather and identify requirements for the CalmCapsule system, with a focus on user requirements, platform objectives, and key features.
2. To iteratively design and develop the system, assuring consistent implementation of functional and user-friendly features.

3. To evaluate the ability of the proposed online platform for managing negative emotions.

1.4 Brief Methodology

The Agile Development Methodology was chosen for this project because of its flexibility, iterative approach, and ability to develop functional elements rapidly while embracing shifting requirements. Agile values versatility and adaptability, making it particularly effective in dynamic circumstances. Agile, as opposed to traditional waterfall methodologies, encourages quicker development cycles and increased stakeholder satisfaction through constant feedback and cooperation (Binu, 2022). Furthermore, its iterative nature enables teams to improve their approaches and outcomes in each cycle, ensuring that the final output meets consumer demands (Kuhl, 2014). The Agile methodology for this project consists of the following phases:

1. Plan: Develop objectives, requirements, and resources by doing survey.
2. Design: Create high-level system designs and user stories that are consistent with the project's goals.
3. Develop: Iteratively build the system while utilising continuous integration approaches.
4. Testing: Perform rigorous testing at each iteration to ensure functionality and performance.
5. Deploy: Provide functional increments of the system for user input.
6. Review: Consider the process and outcomes, using feedback to improve the next cycle.

This planned yet flexible strategy ensures that the project produces high-quality system efficiently while remaining adaptable to changes.

1.5 Project Scopes

This project focuses on developing CalmCapsule: An Online Platform for Managing Negative Emotions, a web-based platform designed to help university students boost their emotional well-being through journaling and self-reflection. While the platform's primary focus is on managing negative emotions such as stress, anxiety, and anger, it adopts a holistic approach by tracking five basic emotions (Happy, Just Okay, Unsure, Sad, and Angry) as they represent a comprehensive spectrum of daily emotional experiences. This comprehensive emotional tracking is essential because understanding positive emotions (Happy) and neutral states (Just

Okay, Unsure) provides important context for identifying patterns, triggers, and baselines that lead to negative emotional states (Sad, Angry). This choice makes it simple for users to identify and monitor their full emotional range, facilitating introspection and insightful emotional trend analysis that ultimately supports better management of negative emotions. As an academic prototype, the project will use agile methods until the testing phase, with no deployment or real-world implementation. The target users for this project are as follows:

- **University Students**

Primary users who utilize the platform for journaling, guided self-reflection, emotional trend reviews, and receiving emotion-based advice, with particular focus on managing negative emotional states through comprehensive emotional awareness.

- **Admin**

Responsible for basic moderating, such as managing user accounts, managing anonymous sharing forum, and updating content (educational resources, emotion-based advice, guided reflection prompts, and greetings). The admin is assumed to have qualified expertise in emotional well-being and mental health support to provide appropriate advice and content for university students.

For this academic prototype, CalmCapsule operates with a single predefined administrator account that manages all system functions including user account management, content moderation, and forum oversight. The admin credentials are configured directly in the system during development phase, eliminating the need for complex admin registration workflows in this prototype version. While the current implementation serves one admin through predefined access, the system architecture includes scalable administrative features such as report assignment workflows, demonstrating comprehensive system design principles that would support multiple administrators in future production deployments.

1.6 Significance of Project

The significance of this project stems from its ability to provide university students with an organised and user-friendly digital platform for managing their emotions through journaling and guided self-reflection. While not designed for public use, CalmCapsule is an important prototype and research tool for illustrating how structured journaling and emotion-based advice can encourage emotional well-being. By offering features such as guided reflection prompts in journaling to help with deeper self-reflection, emotion-based advice, and emotional trend

reviews, the platform promotes self-awareness and helps students better understand and regulate their emotions. Additionally, the project highlights the potential of digital intervention in mental health assistance by demonstrating how technology may be used to offer easily accessible and stigma-free tools for emotional management. The insights acquired from this project will help to shape future developments in digital well-being solutions, opening the path for more effective emotional support systems.

1.7 Project Schedule

The project schedule offers an outline that guides the project towards successful completion, with flexibility for adjustments, when necessary, throughout the development process. A thorough timeline has been prepared to highlight major milestones and deadlines, assuring timely progress.

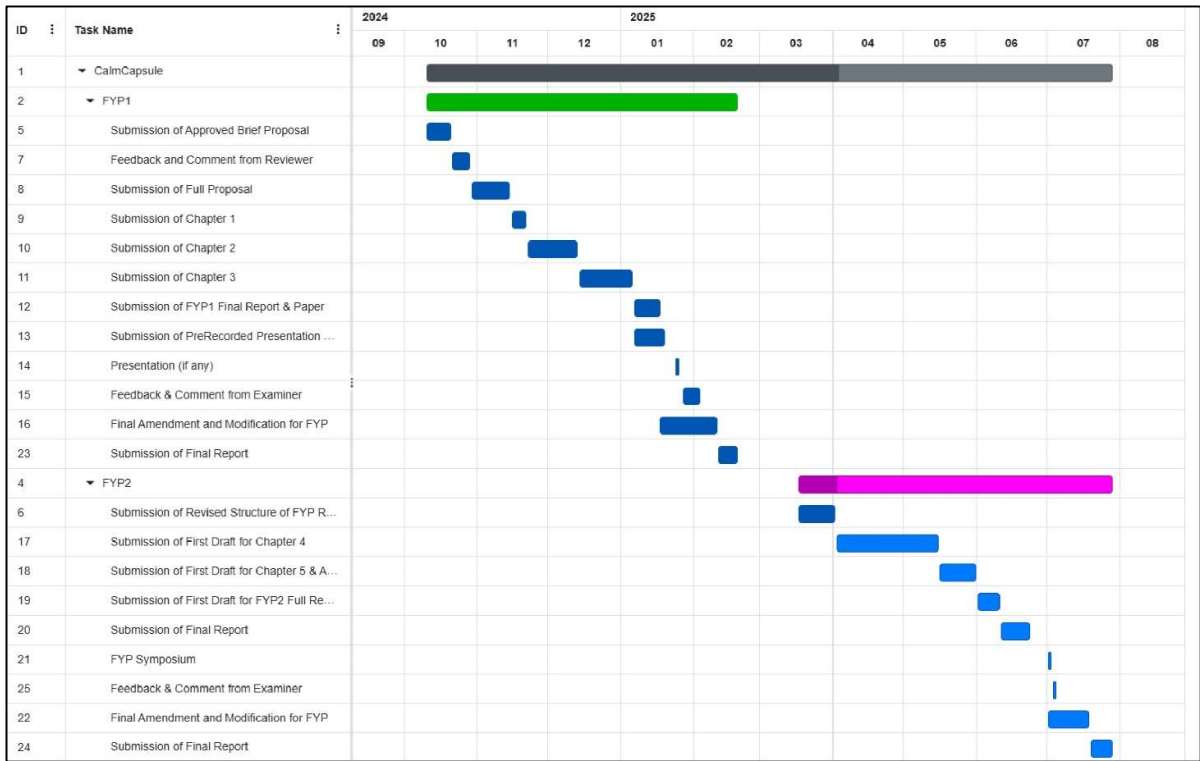


Figure 1.1 Gantt Chart of Project Schedule

1.8 Project Expected Outcome

CalmCapsule: An Online Platform for Managing Negative Emotions seeks to give university students a functional prototype for managing emotions like stress, anxiety, and anger, via journaling, guided self-reflection, and emotion-based advice. The platform addresses negative emotion management through comprehensive emotional tracking, recognizing that understanding one's complete emotional spectrum, including positive and neutral states, is crucial for effectively identifying and managing negative emotional patterns. The main functionalities of the system include journaling with comprehensive emotion labelling, guided reflection prompts, emotion-based advice, anonymous sharing forum, educational resources, and emotional trend review that helps users recognize patterns in their negative emotional experiences. Although the public won't have access to the system, this project will provide insightful information about how students can monitor and reflect on their emotions in a structured, digital setting, with particular emphasis on improving their ability to manage negative emotional states. The following are the expected outcomes of this project:

- This platform is intended to help students develop better emotional regulation strategies for managing negative emotions by encouraging continuous journaling and self-reflection across their full emotional spectrum.
- This platform is designed to increase awareness of emotional well-being and allow students better understand their emotional patterns over time.
- This project will add to the ongoing conversation about implementing digital tools in mental health management, with a focus on journaling and self-reflection as primary strategies for emotional well-being.

Ultimately, CalmCapsule will serve as a research prototype, laying the groundwork for future development and potential platforms that promote emotional resilience, self-awareness, and overall mental health.

1.9 Project Outline

This project report is divided into three (3) comprehensive chapters that provide an in-depth and structured look at the CalmCapsule platform development process.

Chapter 1: Introduction

This chapter provides an overview of the project, covering the introduction, problem statement, scope, brief methodology, expected outcomes, significance of the project, project schedule, and project outline.

Chapter 2: Literature Review

This chapter reviews relevant studies and literature to establish the significance of managing negative emotions effectively. It looks at current web platforms and applications that serve comparable goals and evaluates their features, usability, and functionality. A comparative study is performed to identify gaps and opportunities that CalmCapsule intends to address, ensuring a solid foundation for development.

Chapter 3: Requirement Analysis and Design

This chapter provides an in-depth discussion of the methodology utilised, focussing on the Agile framework, including stages such as plan, design, develop, test, deploy and review. The main stage discussed in this chapter will be analyzing the system design of the proposed online platform.

Chapter 4: Implementation

This chapter will outline the creation of CalmCapsule: An Online Platform for Managing Negative Emotions. There will be a discussion of the technologies used, development tools, and system architecture. The main features and functionalities that have been put in place, such as journaling, guided self-reflection, emotion-based guidance, an anonymous sharing forum, and an emotional trend review, will also be explained. There will also be documentation of the difficulties that arose during implementation and the ways in which they were resolved.

Chapter 5: Testing and Evaluation

This chapter will focus on CalmCapsule: An Online Platform for Managing Negative Emotions' testing procedure, which is carried out iteratively at the conclusion of each sprint in accordance with the Agile Methodology. The main goal is to save time and give regular feedback while guaranteeing software quality, functionality, usability, and compatibility. To find problems like bugs, logical inconsistencies, and UI/UX design faults, a variety of testing methodologies will be used, such as functional testing, compatibility testing, usability testing, and scenario-based testing. Standardized user feedback will be used into the evaluation to gauge the system's effectiveness and pinpoint areas in need of development. The testing results,

along with recorded errors and possible fixes, will be given to ensure that the platform satisfies user expectations and serves its intended purpose.

Chapter 6: Conclusion and Future Works

This chapter will give an overview of the project, highlighting CalmCapsule's main achievements and outcomes. Additionally, it will draw attention to prospective advancements and enhancements in the future, such as new features or functionalities that might improve user experience. Any issues that arose during the project and how they were resolved will also be highlighted.

1.10 Chapter Summary

This chapter provides an overview of the CalmCapsule project, outlining its objective, its significance, and the problem it addresses. The issue of negative emotions like stress, anxiety, and anger, especially among college students, is introduced at the beginning of the chapter, along with the dearth of easily accessible strategies for properly managing these feelings. The scope, objectives, and expected outcomes of the project are discussed, as well as a brief description of the methodology, which uses the Agile Development Methodology for development. This chapter also includes the project schedule and the project outline, providing a clear roadmap for the subsequent chapters.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides a comprehensive review of the existing systems with functionalities similar to the proposed system, CalmCapsule. The selected systems are evaluated to understand their approach to managing emotional well-being through features such as journaling, emotional awareness, and social engagement. Criteria for assessment are established to evaluate these systems systematically, focusing on their strengths, weaknesses, and unique features. A detailed comparison is then made between these existing systems and the proposed system, supported by a feature comparison table and analysis. This analysis highlights the added value and differentiation of the proposed system in addressing emotional well-being.

In addition to the review of similar systems, this chapter discusses the tools and technologies selected for the development of CalmCapsule. The review of tools includes an explanation of their relevance, key features, and suitability for the project. By examining the software choices, the chapter justifies their inclusion in the development process while acknowledging available alternatives. These insights provide a solid foundation for understanding the technological and functional framework of CalmCapsule.

2.2 Review of Similar Existing Systems

In this section, four systems with functionalities similar to the proposed CalmCapsule are reviewed and analysed. The selected systems are Daylio, Reflectly, Reflection.app, and Calm, each offering unique features in the realm of mental health and wellness applications. These systems are chosen for their emphasis on mental well-being, journaling, and mood tracking, which align closely with the main purpose of CalmCapsule in promoting mental health by emphasizing self-reflection.

By combining mood and habit tracking, Daylio enables users to keep an eye on their emotions and behaviours using straightforward, pre-established categories. Reflectly provides pre-made journaling topics and mood-tracking tools with an emphasis on emotional awareness and self-reflection. Reflection.app improves self-reflection by offering daily diary entries and customisable prompts based on user needs. Last but not least, Calm offers prewritten meditations and mood-soothing content and focusses on stress and relaxation management. These systems have been chosen to provide a thorough understanding of how CalmCapsule compares in terms of user engagement, emotional support, and journaling features.

2.2.1 Daylio

Daylio is a mood-tracking and simple journaling application designed to encourage users to monitor their emotions and daily activities. By combining visual tools with simple self-reporting mechanisms, the app provides users with insights into their emotional well-being and behavioral patterns. The app's intuitive interface and accessibility make it suitable for a broad audience, including those with minimal technological experience. Users track their moods daily using a five-point smiley system, which allows them to select a mood from “great” to “awful” (Chaudhry, 2016). This system is simple and encourages users to log their emotions multiple times a day. Along with mood tracking, Daylio enables users to document activities associated with their moods and add notes for further detail. The combination of these elements aids in identifying patterns and understanding emotional triggers.

The app's reminder system ensures consistent tracking by sending non-intrusive notifications to prompt users to log their moods and activities. This reminder system is designed to be unobtrusive, displaying a banner with the 5-point smiley system on the phone screen.

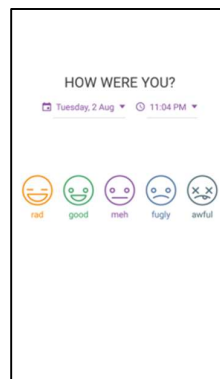


Figure 2. 1 Daylio's Five-Point Smiley System for Mood Quantification

In terms of data visualization, Daylio excels by helping users identify emotional trends over time. The app presents mood data through several views, including a linear aggregation of daily entries (Chaudhry, 2016), which enables users to view their mood records at a glance. This visualization helps individuals track their emotional progress and make connections between their moods and activities. Additionally, Daylio generates mood statistics (Figure 2.4) that offer insights into the frequency of moods and activities, allowing users to understand how their emotions fluctuate over time. A calendar view (Figure 2.5) color-codes each day based on the

recorded mood, further enhancing the visual representation of mood patterns. These tools are especially helpful for long-term reflection and identifying trends in emotional well-being.

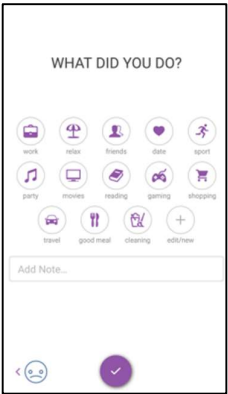


Figure 2. 2 Activities Selection and Notes Logging

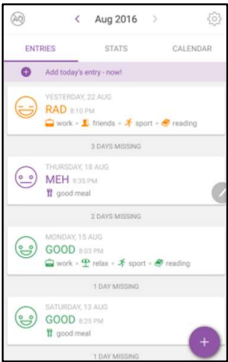


Figure 2. 3 Individual Mood Entries in a Linear View

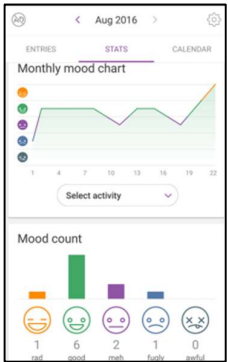


Figure 2. 4 Mood Statistics Generated by Daylio

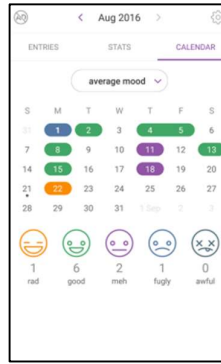


Figure 2. 5 Calendar View of Mood Records

Research on mood-quantification tools like Daylio supports its effectiveness for individuals looking to gain a better understanding of their emotional patterns. Chaudhry (2016) notes that Daylio's design, which allows users to track their moods even during difficult emotional states, is crucial for collecting data during moments when it is most valuable. The app's simplicity in design makes it accessible to those who may find traditional journaling or tracking tools overwhelming. Moreover, users can utilize Daylio to identify activities that influence their emotional states, such as determining which actions trigger negative moods. This feature is particularly beneficial for individuals with mood disorders like depression, bipolar disorder, or anxiety, as it helps pinpoint emotional triggers and supports better emotional regulation. Additionally, people using medication can track the effects on their moods, and those with cyclical mood patterns, such as women tracking emotions related to their menstrual cycle, can also benefit from the app.

While Daylio offers many advantages, it also has limitations. Users can identify emotional trends, but the app does not offer emotion-specific advice based on the data entered. This lack of dynamic personalization may limit its effectiveness for users who seek deeper engagement or personalized guidance for managing their emotions.

2.2.2 Reflectly

Reflectly is a mood-tracking and journaling application designed to foster self-awareness through daily reflections and emotional documentation. It offers users an intuitive interface to log their mood, reflect on their experiences, and identify patterns over time. The app's simplicity and focus on structured journaling make it an accessible tool for those seeking a

low-maintenance approach to mental wellness. Reflectly's mood check-ins serve as the core feature, where users select their mood on a spectrum ranging from "really terrible" to "super awesome". After selecting a mood, users then choose from preset icons like exercise, relationships, food, or health to identify factors influencing their mood. Additional emotions or details can be logged through free-text notes, allowing for deeper personal reflection.

Reflectly provides an open-ended journaling space where users can freely record their thoughts and experiences without character limits. This feature allows users to express themselves fully, fostering a deeper connection with their emotions.

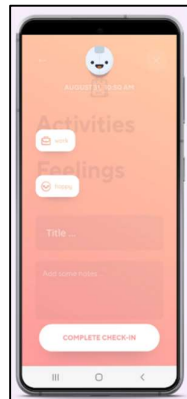


Figure 2. 6 Journal Entry of Reflectly

Reflectly's design aligns with research supporting the benefits of reflective journaling and mood tracking. Studies suggest that journaling helps with emotional processing, critical thinking, and self-awareness, especially when users engage in consistent reflection (Sendall & Domocol, 2012). Reflectly's daily mood tracking and journaling prompts support these practices, making it effective in promoting self-reflection. Additionally, the app's visualization tools, such as mood graphs, help users identify emotional trends and patterns, encouraging long-term engagement with the app. These features are consistent with findings by Vicary et al. (2017), who emphasize the importance of visualizing emotional data to promote insight and behavior change.

However, the app's simplistic experience may also not meet the needs of users who are seeking a deeper emotional exploration or more dynamic insights. The app's focus on positivity through motivational quotes and daily reminders can sometimes overshadow the acknowledgment of negative emotions, which are crucial for comprehensive emotional processing.

2.2.3 Reflection.app

Reflection.app is a digital journaling platform that can be accessed by mobile or web. By offering a convenient setting for regular journaling, it seeks to foster self-awareness and improve mental health. The platform's focus on a clear and uncluttered design makes it usable by a wide range of users. The main purpose of Reflection.app is to support a conventional journaling experience, emphasizing the systematic recording of ideas, emotions, and experiences. The ability to make text-based entries gives users a flexible and recognizable way to express themselves. The software also lets users add images and videos to their journal entries, making it more immersive and interesting for those who like a more visual approach.

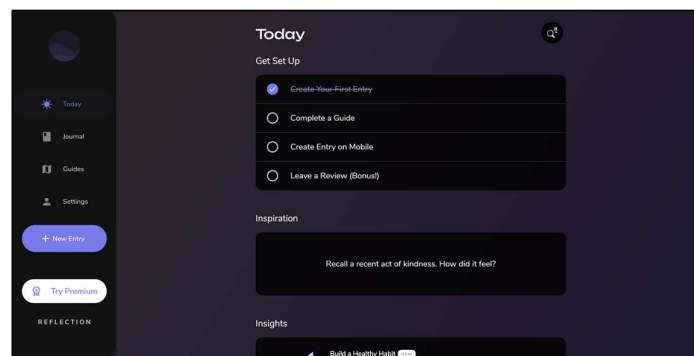


Figure 2. 7 Reflection.app Main Page

Reflection.app offers a carefully chosen collection of thought-provoking prompts to promote consistent and significant reflection. These theme-based challenges encourage self-discovery by helping users get past possible writer's block and provide fresh insights into their experiences. Thematic categories that offer prompts relevant to particular areas of self-reflection could include examining mental health, negotiating relationships, or personal growth.

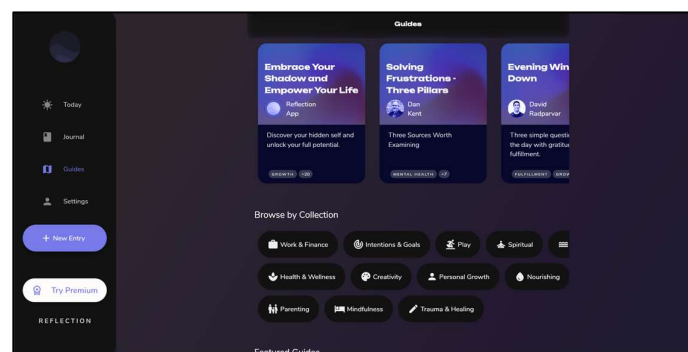


Figure 2. 8 Reflection.app Guide (Prompts) to Start Journaling

With its emphasis on accessibility, conventional journaling techniques, and guided prompts, Reflection.app provides a thorough platform for developing self-awareness and advancing mental health. The platform's focus on a distraction-free design and ability to adapt to a wide range of user preferences make it a useful tool for fostering regular journaling habits and promoting deep reflection.

2.2.4 Calm

The Calm app is designed to enhance mental well-being by offering mindfulness meditation, relaxation techniques, and tool for better sleep and stress management. It provides a user-friendly interface and a vast library of content, making it suitable for both beginners and experienced users. Calm introduces mindfulness practices through structured programs like the “7 Days of Calm” and extended series such as the “21 Days of Calm”, offering users an accessible way to build a consistent meditation habit. Research has shown that using Calm can reduce stress, improve sleep, and enhance mindfulness and self-compassion (Huberty et al., 2019).

Calm offers a variety of features tailored to promote mental health and relaxation. Key functionalities include guided meditations for stress management, emotional balance, and mindfulness, as well as sleep aids like “Sleep Stories”, which are audio narratives designed to help users unwind. Calm doesn't have journaling features. However, it has the Check-Ins that provides a specific area for users to monitor their feelings, gratitude, mindfulness reflections, and sleep quality. It offers choices like Mood, Sleep, Gratitude, and Daily Calm Reflection, enabling users to record their experiences and learn more about their wellbeing. Additional tools, such as breathing exercises, gratitude practices, and customizable nature sounds, create a holistic experience. The app also provides progress tracking through features like a streak calendar, session history, and user stats, enabling individuals to monitor their mindfulness journey over time.

The app's interface is thoughtfully designed to provide a calming user experience. Its visual elements, including serene nature scenes and muted colour tones, are complemented by soothing auditory cues such as rain sounds and soft music. Smooth animations and straightforward navigation further enhance usability. Features like breath guidance, which uses visual cues for inhaling and exhaling, reflect the app's emphasis on mindfulness and user engagement.



Figure 2. 9 Calm's Interface Overview.

Calm's benefits are supported by research. Studies have demonstrated that regular use of the app over an eight-week period significantly reduces stress, improves sleep quality, and enhances emotional resilience (Huberty et al., 2019; Huberty et al., 2021). User surveys also highlight the popularity of features like "Sleep Stories", which have been particularly effective in alleviating insomnia. These findings underscore Calm's role in supporting mental health and emotional well-being for a diverse user base.

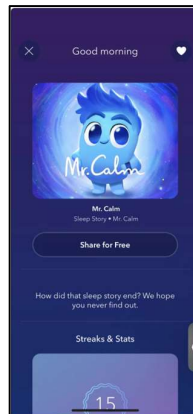


Figure 2. 10 One example of "Sleep Stories" in Calm

2.3 Comparison of Similar Existing Systems

2.3.1 Criteria to be Assessed

The following criteria provide a general framework for evaluating similar existing systems, ensuring they are both effective and user centred. These benchmarks are grounded in Morris' (2012) guidelines for behaviour change, which were developed to optimize digital tools for promoting positive habits and emotional growth. Morris' guidelines emphasize key principles like personalization, goal setting, feedback, simplicity, and user engagement, making them particularly suited for evaluating apps designed to encourage journaling and mental well-being. By applying these guidelines, we ensure that apps not only motivate consistent use but also support emotional awareness, resilience, and self-reflection. The criteria that have been chosen for this project are as follows:

1. Personal Identity Alignment

Encouraging users to reflect on personal goals and values can foster self-awareness and promote alignment between actions and aspirations. Feature such as guided prompts for self-reflection in journaling enable users to clarify their goals and track progress toward becoming their ideal selves.

2. Empathy and Collaborative Design

Providing supportive guidance tailored to user-reported emotions fosters a sense of connection and empathy. Emotion-specific advice based on reported emotional states can help simulate empathetic responses and build a sense of alliance with users.

3. Social Influence Integration

Integrating motivational content, user testimonials, or optional group interactions can inspire users and build a sense of community. Features like forum for users to share stories anonymously provide a space for mutual support and encouragement, leveraging the power of social influence.

4. Behavioural Risk Awareness

Highlighting the risks of neglecting mental health through educational resources emphasizes the importance of consistent engagement. These materials can effectively inform users of potential consequences and encourage proactive self-care.

5. Emotional Awareness and Self-Regulation

Encouraging users to consistently interact with their emotions fosters emotional awareness and self-regulation. Feature like guided reflection prompts, which offer reflection guidance depending on the user's selected emotions, help to develop deeper self-reflection. The emotional trend review function also helps users find emotional trends and areas for improvement by analysing and displaying their most reported feelings over a chosen time period (weekly or monthly). Together, these characteristics promote emotional development, self-awareness, and improved emotional control over time.

2.3.2 Comparison Between Existing and Proposed Systems

This section presents a comparison of five existing systems, Daylio, Reflectly, Reflection.app, Calm, and the proposed system CalmCapsule. The comparison highlights important features that align with the benchmark criteria discussed in the previous section for promoting emotional well-being and mental health.

Table 2. 1 Comparison of Features Existing Systems and Proposed System

System Feature	Daylio	Reflectly	Reflection.app	Calm	CalmCapsule
Journaling	√	√	√	X	√
Guided Prompts for Reflection	X	√	√	√	√
Emotion- based Advice	X	√	X	X	√
Educational Resources	X	X	X	√	√
Emotional Trend Review	√	√	X	X	√

Anonymous Sharing Forum	X	X	X	X	√
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The following analysis explores the key features of the five systems highlighting their alignment with the established benchmarks for emotional well-being and mental health support. This analysis will provide insights into how each system addresses specific user needs, with a particular focus on journaling, emotional awareness, and social support.

1. Journaling

Journaling is a fundamental feature of systems like Daylio, Reflectly, Reflection.app, and CalmCapsule, however it is not included in Calm. With its emphasis on simple mood and habit tracking, Daylio enables users to keep tabs on their everyday emotions and actions. Reflectly encourages emotional awareness and personal development by combining journaling with self-reflection exercises. Reflection.app offers versatility for different journaling techniques by allowing users to generate customisable diary entries that are suited to their individual needs. However, Calm places more emphasis on mindfulness and relaxation methods than journaling tools.

CalmCapsule takes an organised approach to journaling by organising entries into monthly Capsules, allowing users to document their emotions and thoughts daily. Emotion labelling is supported by every entry, enabling users to tag their emotions for improved emotional tracking. Users can also write in their Capsule several times a day, which guarantees they can express themselves as needed. This systematic approach to journaling promotes self-awareness, consistency, and emotional processing.

2. Guided Prompts for Reflection

One crucial component for motivating users to participate in self-reflection and emotional processing is the presence of guided prompts. While Daylio lacks guided prompts, the systems under analysis (Reflectly, Reflection.app, Calm, and CalmCapsule) do. These prompts are used by Reflectly and Reflection.app to assist users in gaining insightful understanding and aligning their behaviour with their personal values and goals. As part of its mindfulness curriculum, Calm also provides pre-made suggestions that are seamlessly integrated into its stress-reduction strategy. CalmCapsule enhances the journaling

experience by incorporating guided prompts tailored to the emotion selected by the user. These prompts consist of manually crafted reflection questions and instructions designed by qualified professionals to help individuals explore their thoughts, emotions, and experiences in depth, rather than AI-generated prompts. To accommodate different reflection needs, CalmCapsule offers two types of prompts: general prompts, which focus on everyday life situations, and academic prompts, which guide users to reflect on experiences related to their educational context (e.g., “What happened in class today that made you feel angry?”). By providing emotion-specific and context-sensitive guidance, CalmCapsule fosters meaningful self-reflection and supports users, specifically students, in understanding their emotional patterns more effectively.

3. Emotion-based Advice

One unique aspect that distinguishes CalmCapsule is its emotion-based advice system. Only Reflectly and CalmCapsule, out of all the systems examined, provide advice based on users’ moods; Daylio, Reflection.app, and Calm do not. Reflectly employs AI to provide emotion-specific insights, whereas CalmCapsule provides manually written advice based on the emotions individuals record in their journals. This manual approach ensures that the advice remains therapeutically sound and contextually appropriate, as each piece of guidance is carefully developed and written by qualified administrator rather than generated through automated or AI systems. After users save a journal entry, the system displays relevant advice matching their selected emotion (Happy, Just Okay, Unsure, Sad, or Angry), providing helpful coping mechanisms, motivational messages, or supportive guidance to assist users in managing their emotions effectively.

4. Educational Resources

Among the platforms reviewed, only Calm and CalmCapsule offer educational resources emphasising the value of mental health. These tools promote the regular use of self-care practices and assist users in comprehending the significance of emotional well-being. CalmCapsule incorporates educational content into the platform to assist users in understanding the risks of ignoring emotional well-being and the advantages of proactive emotional control. These resources offer useful information on stress management, identifying emotional triggers, and creating constructive coping mechanisms. By highlighting the challenges and advantages of preserving emotional health, CalmCapsule

raises awareness of mental health issues and motivates users to stick with their self-improvement path.

5. Emotional Trends Review

Emotional trend reviews are an important part of understanding personal emotional patterns over time. Among the systems reviewed, CalmCapsule, Reflectly, and Daylio give users the ability to monitor and examine their emotional trends. Daylio helps people find connections between their emotions and everyday activities by displaying statistics charts and visualisations of mood patterns. Reflectly uses insights driven by artificial intelligence to identify recurrent feelings, possible causes, and offer tailored commentary on users' emotional patterns. CalmCapsule implements this feature through a comprehensive 'Emotional Trend Review' that provides visual line graph representations of users' emotional patterns over selected time periods (weekly or monthly). The system assigns numerical values to each emotion (Happy = 5, Just Okay = 4, Unsure = 3, Sad = 2, Angry = 1, No Entry = 0) and displays daily emotional data points on interactive graphs. When multiple journal entries exist for a single day, the system automatically calculates the average emotional value to provide accurate trend representation. Additionally, CalmCapsule provides detailed summaries including the average emotion score for the selected period and frequency counts for each emotion type, helping users become more self-aware of their emotional patterns and identify changes in their emotional well-being over time, particularly in recognizing trends related to negative emotional states.

6. Anonymous Sharing Forum

The inclusion of anonymous forum for sharing is unique to CalmCapsule. None of the other systems provide a platform for users to connect and share their experiences anonymously, limiting their ability to build a supportive community. This feature in CalmCapsule addresses a critical gap by fostering a sense of connection and collective growth among users. This feature is intended to encourage open conversations about their day's events while maintaining privacy, making sure that users feel heard and understood in a friendly and nonjudgmental online community.

Overall, the proposed system, CalmCapsule, emerges as a comprehensive digital self-reflection and journaling platform that solves the shortcomings of its competitors. By integrating daily

journaling with guided reflection prompts, emotion-based advice, emotional trend reviews, and an anonymous forum for peer support, CalmCapsule provides a structured yet flexible approach to mental wellness. These features promote frequent self-reflection, increased emotional awareness, and a sense of community, making it more than just a journaling tool. CalmCapsule not only meets but also exceeds current standards by offering personalised insights and promoting emotional resilience, establishing itself as a comprehensive and user-centric approach to emotion management and wellbeing development.

2.4 Review of Tools and Technology

This section will look into the software tools chosen for the development of the proposed system. Every software is supported by its attributes, background, and applicability to the project's needs.

2.4.1 Sublime Text

Sublime Text is a powerful text editor renowned for its speed and efficiency in handling code, markup, and prose across multiple platforms, including Windows, macOS, and Linux. The latest version, Sublime Text 4, introduces GPU rendering for improved performance on high-resolution displays and features like multiple selection editing, split views, and a command palette for streamlined workflows. Its robust package ecosystem allows users to customize their coding environment extensively (Malik, 2024). Sublime Text's lightweight nature and extensive functionality make it an excellent choice for rapid development cycles, supporting a variety of programming languages. Its active community contributes plugins and extensions, ensuring continuous improvements and robust support, making it particularly suitable for projects requiring flexibility and speed (Khan, 2024). Sublime Text will be instrumental in building the backend components of CalmCapsule, where its speed and ease of editing large files will optimize the early stages of development.

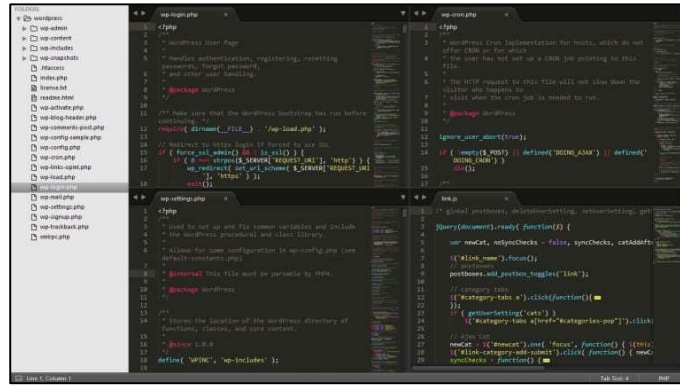


Figure 2. 11 Sublime Text's Interface

2.4.2 XAMPP

XAMPP is an open-source tool that simplifies the setup of a local server environment by bundling Apache, MySQL, PHP, and Perl into one easy-to-install package. It is particularly advantageous for testing and developing web applications locally before deploying them to production environments (Ask.com News, 2024).

The choice of XAMPP is justified by its comprehensive suite of development tools that support dynamic web application development. It is compatible with multiple operating systems, offering flexibility and ease of use for developers at all skill levels. Additionally, the strong support community provides a wealth of resources for troubleshooting and optimization (Ask.com News, 2024).

CalmCapsule's reliance on database management and dynamic webpage functionality requires a reliable testing environment like XAMPP to verify server-side code and database interactions efficiently during early development. To simplify database management, phpMyAdmin, a web-based interface included in XAMPP, was also used to create, modify, and manage the MySQL database structure for the system.

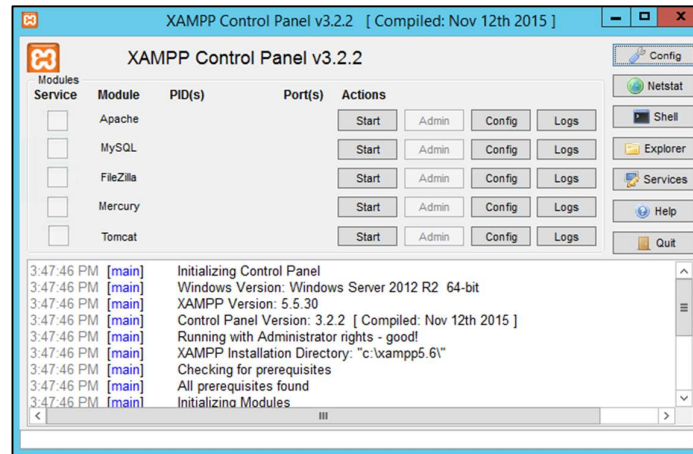


Figure 2. 12 XAMPP Control Panel's Interface

2.4.3 Figma

Figma is a leading cloud-based design tool renowned for its collaborative interface design capabilities. It enables real-time teamwork by allowing multiple users to simultaneously edit, comment, and provide feedback in a shared workspace. This approach enhances efficiency and fosters iterative design processes. The tool supports a wide range of functionalities, including interface design, prototyping, and design system management, making it an essential resource for modern digital product design. Its trend toward fostering collaboration aligns with the industry's growing emphasis on teamwork and agile methodologies in the creative and development process (Ibrahim et al., 2023).

In addition to these strengths, Figma's robust library management enables designers to create reusable components, ensuring consistency across projects. Its seamless integration into the design-to-development workflow, with features like automatic code generation and asset exports, minimizes the transition time between creative and technical teams (Dordevic, 2024). These capabilities make Figma a valuable tool for achieving both creative innovation and operational efficiency. For CalmCapsule, Figma will play a critical role in designing user-centric interfaces and prototypes, ensuring the platform offers an engaging and intuitive experience.

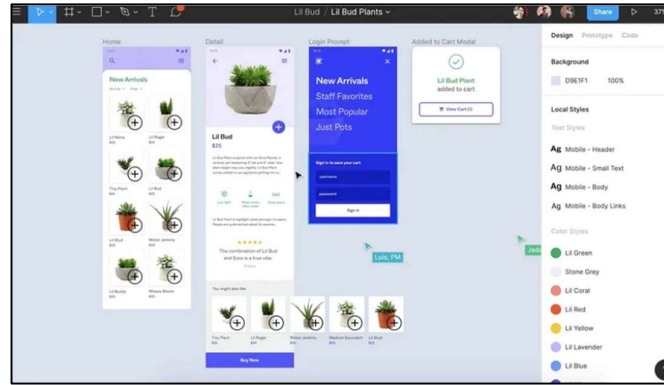


Figure 2. 13 Figma's Interface

2.4.4 Canva

Canva is a versatile, freemium cloud-based graphic design platform known for its user-friendly interface and collaborative capabilities. It allows users to create a wide variety of visual content, including presentations, social media graphics, videos, and infographics, without requiring advanced design skills. Teams can collaborate in real time, leveraging tools such as shared workspaces, comments, and brand kits to streamline the creative process (Canva, n.d.).

With the introduction of Magic Studio, Canva has expanded its functionality to include powerful AI-assisted tools. Among these, Magic Design stands out by generating complete design layouts from simple text prompts or uploaded images in seconds. This feature can create social media posts, branded presentations, and polished videos, helping users significantly reduce design time, even those without formal design training (Basu, 2025). Free users can access up to ten lifetime uses of Magic Design, including AI-generated video and presentation tools (Basu, 2025). In the development of *CalmCapsule*, Canva was utilized to design visual assets and interface elements, such as icons, backgrounds, and the user manual, ensuring a cohesive and emotionally supportive aesthetic throughout the platform.

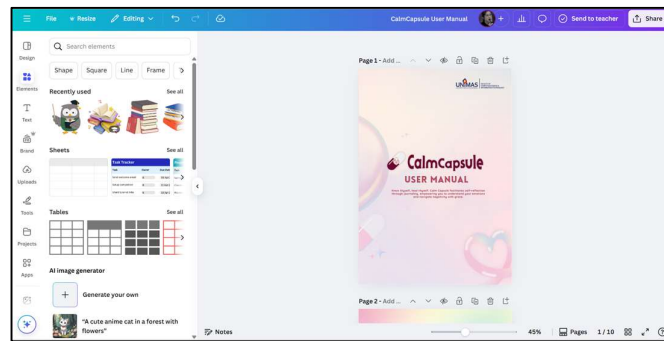


Figure 2. 14 Canva's Interface

2.5 Chapter Summary

This chapter reviewed existing systems with similar functionalities to the proposed system, CalmCapsule, analysing their strengths and limitations through a set of established benchmarks. A feature comparison table highlighted how the proposed system addresses gaps in current offerings, emphasizing its unique capabilities. Additionally, the chapter examined the tools and technologies selected for CalmCapsule's development, justifying the choice of software such as Sublime Text, XAMPP, phpMyAdmin, Figma, and Canva for their relevance and functionality. The next chapter, Requirement Analysis and Design, will delve into the specific requirements for developing CalmCapsule, including functional and non-functional requirements. It will also outline the system's architectural design and propose a detailed blueprint for its implementation.

CHAPTER 3: REQUIREMENT ANALYSIS & DESIGN

3.1 Introduction

This chapter focusses on the project's requirement analysis and design phase, providing a full overview of CalmCapsule's conceptualisation and structure. This chapter starts with an overview of the Agile development process used for this project, explaining how its flexible and iterative approach aids in the development of the platform. It then continues to describe the system's requirements, which were determined by user inputs obtained through a questionnaire. This part ensures that the suggested system is both technically possible and user centred. The chapter then explores the platform's design, including the flowchart, use case diagram, activity diagram, and class diagram. Additionally, a high-fidelity wireframe is provided to show the user interface, guaranteeing that the platform's appearance and functionality are clear. Finally, this chapter prepares the framework for the subsequent stages, making it an essential foundation for the effective implementation of CalmCapsule. This project focuses mostly on the user side, with less emphasis on the administrative side. As a result, the report focuses mostly on user-facing features and functionalities, with limited discussion of administrative matters. The system emphasizes human-centered content creation, where guided reflection prompts and emotion-based advice are manually developed by qualified professionals to ensure therapeutic appropriateness and emotional safety for users.

3.2 Agile Development Methodology

One of the most important software development paradigms is the Agile methodology, which was publicly launched in 2001 with the Agile Manifesto. Agile places more value on collaboration, flexibility, and iterative procedures than it does on rigid, linear project planning. It allows software developers to adjust to shifting user needs and market conditions while producing high-quality software progressively. Agile is a popular method for projects that need quick development cycles and regular focus on reassessments across industries because of its adaptability and emphasis on customer input (Singh, 2021).

The project is divided into smaller cycles, or iterations, which usually span two to four weeks, due to the iterative nature of agile. The full software development lifecycle (SDLC), which includes plan, design, develop, test, deploy, and review, is covered in each iteration. This method improves project quality and alignment with user needs by guaranteeing ongoing work and early issue detection. Agile, in contrast to more conventional approaches like Waterfall,

enables requirements to be revised at any point, guaranteeing that the outcome is still relevant (Altameem, 2015).

Agile's collaborative culture is one of its main advantages. It promotes shared ownership of the product by placing a strong emphasis on communication between engineers, stakeholders, and end users. This collaboration is especially helpful in spotting and resolving possible issues early on, which lowers the possibility of project delays or failures to meet consumer demands. Agile is especially useful for projects in dynamic and uncertain situations because of its emphasis on iterative development and adaptation. Every iteration adds value for the end user, allowing team to deploy software progressively. This gradual implementation shortens time to market and guarantees that features are verified by stakeholders before significant resources are invested. Additionally, agile promotes retrospectives following every iteration, which enables teams to evaluate their processes and make constant enhancements (Serrador & Pinto, 2015).

Agile has drawbacks despite its many benefits, such as the need for efficient communication and disciplined teamwork. Consistent involvement of stakeholders is another need for projects, and it can be costly. Nevertheless, Agile is a strong framework for contemporary software development, including projects like CalmCapsule, because of its advantages, which include shorter development times, increased user satisfaction, and flexibility.

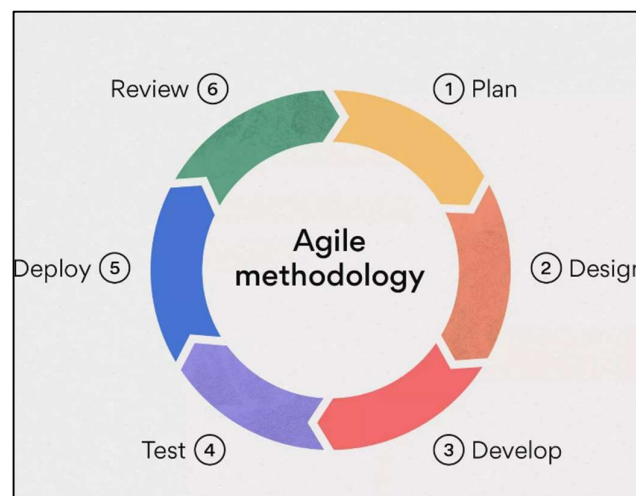


Figure 3. 1 Agile Methodology Phases

3.3 Plan

A crucial step in the Agile process is the plan phase, which lays the groundwork for the proposed system, focusing entirely on the user side. During this phase, a questionnaire was used to collect information and guarantee user-centred design. The purpose of this survey was to gather input from students and other prospective users to learn about their needs, preferences for the features of the suggested system, and experiences with current journaling platforms or method.

This plan phase ensures that the platform is made to satisfy user needs while resolving current issues by fusing technical specifications with user feedback.

3.3.1 Questionnaire

Using Google Forms, a survey was sent to 45 respondents in order to collect important information and specifications for the CalmCapsule system. This survey's main goal was to find out what prospective users, especially university students, wanted and expected from a digital journaling and emotional management platform. This procedure guarantees that the system is in line with the requirements and difficulties encountered by the intended audience.

The criteria mentioned in Section 2.3.1 (Criteria to be Assessed) were utilised to identify potential features for the questionnaire. These criteria, which included personal identity alignment, empathy and collaborative design, social influence integration, behavioural risk awareness, and emotional awareness and self-regulation, formed the basis for determining relevant features of the system. Based on these criteria, the questionnaire was created to collect user feedback on features that might foster better journaling experience, emotional management, self-reflection, and user engagement.

A sample questionnaire is provided in Appendix A for reference. To give a clear understanding of user feedback, a thorough analysis and summary of the results are provided in the ensuing subsections after the responses have been gathered. The questionnaire is divided into three sections (demographic information, current challenges or experiences, and system features and preferences) with the goal of thoroughly exploring the requirements for the proposed system.

3.3.1.1 Demographic

The demographic study offers important information about the characteristics of possible CalmCapsule platform users. The majority of respondents (71.1%) belong to the 18–24 age group, with 13.3% aged between 25–34, making young adults the dominant demographic. This finding implies that CalmCapsule should prioritise user-friendly and aesthetically appealing designs in order to appeal primarily to a younger demographic. In contrast, a smaller but significant percentage of respondents (8.9%) are above 45, suggesting that the platform may be able to accommodate a wider age range.

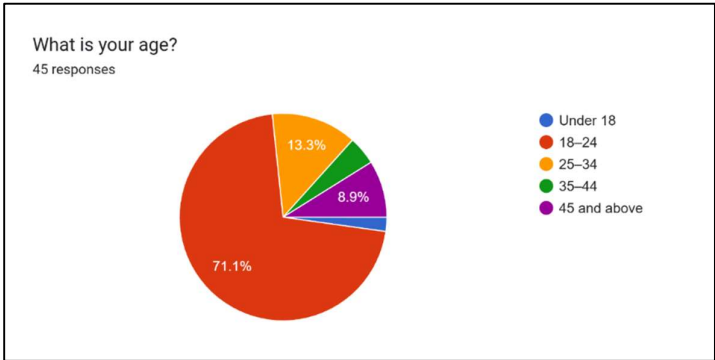


Figure 3. 2 Age of Respondents

In terms of occupation, students make up 66.7% of the participants, followed by working professionals (17.8%) and teachers (11.1%). This student domination emphasises how crucial it is to include elements like easy navigation, affordable access, and resources related to a student’s mental health.

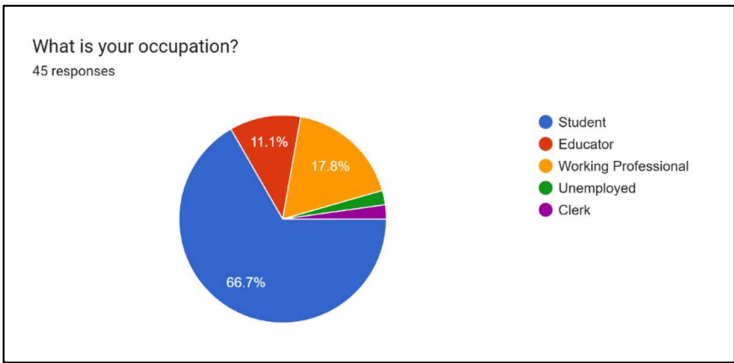


Figure 3. 3 Occupational Distribution of Respondents

The fact that 64.4% of respondents have previously used journaling or mindfulness applications is very significant for the research. This shows that the idea is well-known, highlighting the necessity of providing unique features that set CalmCapsule apart from competing platforms.

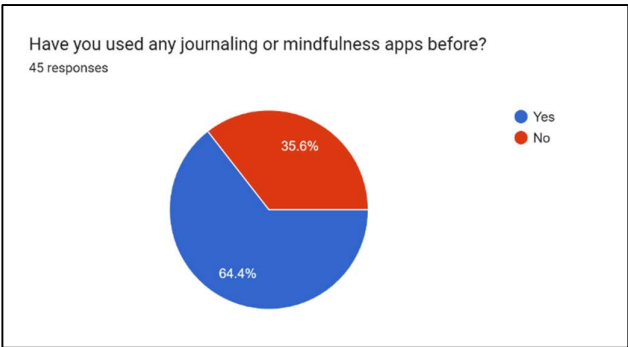


Figure 3. 4 App Usage Experience of Respondents

When asked how often they journal about their emotions or engage in self-reflection, 33.3% of respondents said they do so occasionally, while 20% said they do so every day. These findings show a variable degree of engagement, indicating that to promote regular use, CalmCapsule must have habit-forming elements like reminders or motivational nudges. Finally, most respondents (68.9%) do not participate in online emotional sharing or support communities, with only 31.1% doing so. The analysis highlights CalmCapsule’s potential to offer a secure, anonymous sharing function that would give users a forum to express themselves and interact with people who have gone through similar things.

3.3.1.2 Current Challenges or Experience

Analysis of challenges and experiences gives significant insight into respondents’ emotional struggles and journaling habits. Figure 3.5 shows a large majority of respondents (73.3%) find it difficult to constantly reflect on their emotions. This highlights how the platform needs to include tools that make things easier and promote consistent emotional reflection. This obstacle can be solved with the aid of features like guided reflection prompts and intuitive user interfaces.

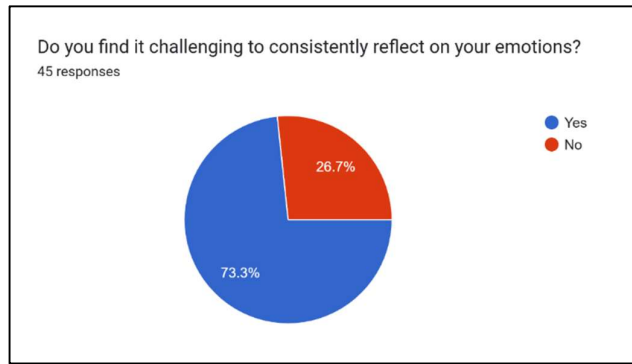


Figure 3. 5 Consistency Challenge of Respondents

Figure 3.6 shows that the obstacles to journaling shed additional light on the subject with 48.9% of respondents say they struggle to know what to write, 51.1% say they have trouble understanding or identifying emotions, and 80% say they lack the time. These findings highlight how crucial it is to provide users with an organised journaling method that makes expressing emotions easier. CalmCapsule can assist users in overcoming these obstacles by emphasising guided self-reflection, intuitive emotion labelling, and simple journaling process. This will enable users to acknowledge and consider their emotions in a way that is easier for them to manage.

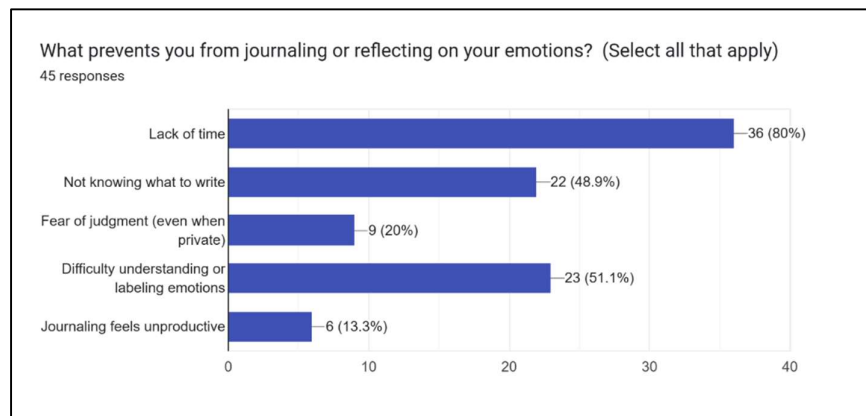


Figure 3. 6 Journaling Barriers of Respondents

The bar chart in Figure 3.7 shows the most prevalent feeling among respondents (86.7%) in terms of emotional problems was stress, which was followed by anger (46.7%), anxiety (44.4%) and sadness (35.6%). These results point to the need for a platform that assists people in better comprehending and controlling their emotions.

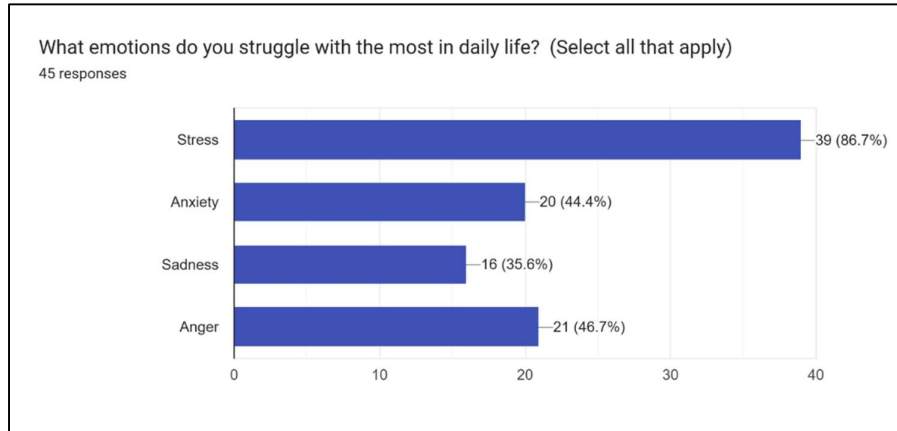


Figure 3. 7 Most struggled-with Emotions among Respondents

Respondents also report feeling overwhelmed by negative emotions, with 42.2% showing they “often” feel overwhelmed and 28.9% claiming they experience this “very often”, as displayed in Figure 3.8. These findings highlight the necessity for the platform to offer a location where users can routinely express their emotions and find comfort.

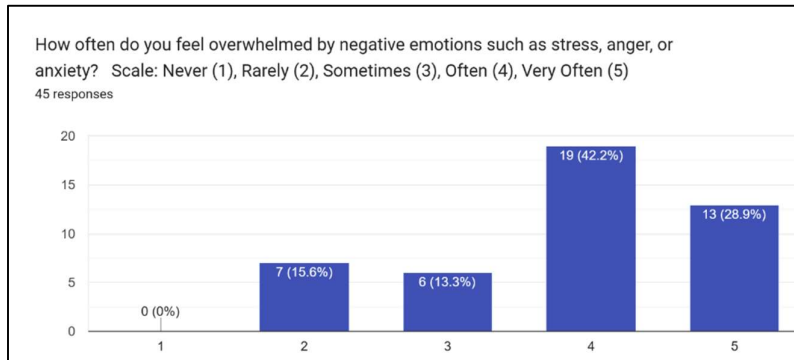


Figure 3. 8 Frequency of Overwhelm Among Respondents

3.3.1.3 System Features & Preferences

The analysis of system features, and user preferences identifies critical elements that respondents favour in a digital journaling platform, which will guide CalmCapsule’s feature set and design decisions. Significantly, Figure 3.9 shows 93.3% of respondents said they would be open to using an app for digital journaling to help them manage their emotions. This significant level of attention confirms the potential demand for a platform such as CalmCapsule.

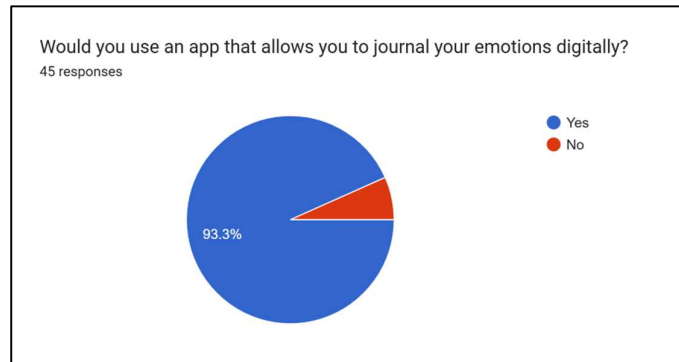


Figure 3. 9 Interest in Digital Journaling Among Respondents

As seen in the bar chart in Figure 3.10, the respondents identified several crucial features they look for in a journaling platform. The most popular elements were guided prompts for reflection and educational resources, at 77.8% each. This was closely followed by emotion-based advice (68.9%) and anonymous sharing forum (66.7%). These preferences highlight the need of providing users with structured reflection tools, emotional guidance and education, and a supportive community to ensure that CalmCapsule provides a meaningful and fulfilling journaling experience.

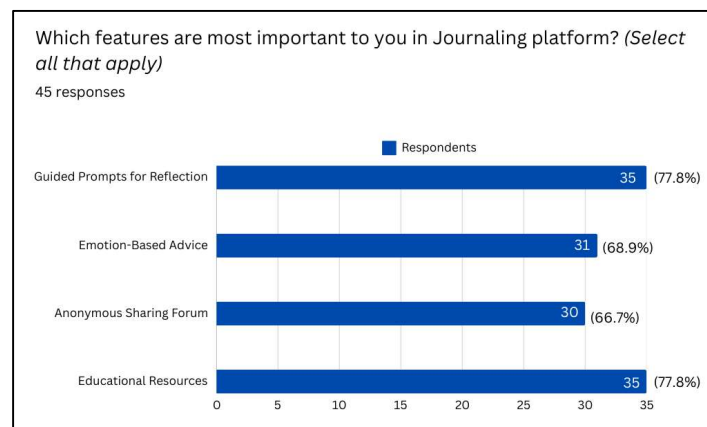


Figure 3. 10 Most desired Features Among Respondents

Finally, as indicated in the bar chart in Figure 3.11, 86.7% of respondents found it “valuable” or “very valuable” to summarise emotional trends across time. These findings highlight the

value of analytical and reflective tools in enhancing user experience and fostering personal growth.

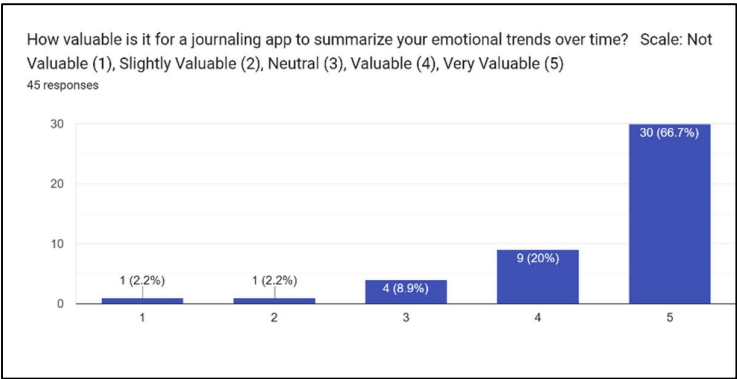


Figure 3. 11 Respondents' Opinion on Emotional Trends

3.3.2 Summary of Findings

The poll results show that respondents are quite open to using a digital journaling web-based platform like CalmCapsule to help them manage their emotions and record their days. Most participants showed a strong preference for features such as guided prompts for reflection, educational resources, and emotion-based advice, as they often struggle with managing emotions like stress and anger. Furthermore, it was thought to be especially beneficial to be able to track emotional trends over time. These results underscore CalmCapsule's potential as a useful journaling tool that promotes self-reflection, emotional awareness, and personal development in a controlled and encouraging setting.

3.4 Design

A crucial stage in the Agile process, the Design Phase establishes the foundation for the CalmCapsule platform's development. This stage converts the previously collected requirements into structured and graphical representations that direct the development of the system. Making thorough designs beforehand makes the development process more effective and in line with the objectives of the system.

The CalmCapsule project's design begins with a Flowchart Diagram, which depicts the step-by-step workflow of various system processes. This figure provides a clear, basic illustration of how the system manages various operations and responsibilities. The Use Case Diagram is then created to illustrate how users and the system interact, describing different user objectives and system response. The next step is the Activity Diagram, which shows the precise sequence of steps and choices that users and the system must make during various procedures. The Class Diagram, which provides a detailed look at how the system's components interact, is used to illustrate the structure of the system in terms of its objects, classes, and their relationships. Next, the User Interface design is produced, which offers a more thorough, visual depiction of the user interface and guarantees that the system's user experience complies with design standards. Finally, security procedures are established to protect user data, assuring confidentiality, integrity, and secure interactions on the CalmCapsule platform.

These design components ensure that the CalmCapsule is based on a solid and thoroughly documented framework. Through its emphasis on precision and clarity, the design phase lays the groundwork for a smooth and effective development process.

3.4.1 System Flow for User Side

A flowchart is a visual representation of programming logic that is used to build and develop algorithms throughout the planning stages of program development (Supaartagorn, 2017). The CalmCapsule user flow is shown in Figure 3.12 below, which includes details about the main processes and decisions within the system.

The flowchart starts with the Log In/Sign Up stage, where users authenticate their accounts. After successfully logging in, users are taken to the Homepage, which is the main screen from which they may choose from four main options: View Capsule, Access Anonymous Sharing Forum, Access Educational Resources, or Review Emotional Trend.

Users can also choose to view their profile, where they may update their account information, including username, email, and password.

If the user chooses View Capsule, the system displays 12 capsules, each reflecting a month in a year. The system automatically displays the most recent updated entry in the selected capsule. To create a new entry, the user first labels their emotion and then selects whether to use guided reflection prompts or not. If they proceed without guided prompts, they can freely compose their journal entry, save it, and receive emotion-based advice. If users select guided prompts, the system will display manually crafted reflection prompts, where users can choose between general or academic prompt types. These prompts are professionally developed questions designed to encourage deeper self-reflection based on the selected emotion. After responding to the prompts, they can write their entry, save it, and receive emotion-based advice.

If the user chooses to access Anonymous Sharing Forum, they can add their own post or view posts from other anonymous users and like or comment on them. Users may also report any post or comment that is inappropriate.

If the user chooses to access Educational Resources, the system presents the readily available topics, allowing the user to select and read any resource. If the user chooses to review Emotional Trend, they must first select a time period (weekly or monthly), then a date or month. For weekly, the user selects a specific date, and the system will automatically display a 7-day emotional trend starting from the selected date. For monthly, the user selects a month. The system then displays a line graph of emotions, where each emotion holds a numeric value (no entry = 0, angry = 1, sad = 2, unsure = 3, just okay = 4, happy = 5). If multiple entries are recorded on a single day, the system calculates the average value for that day. A weekly or monthly summary is also provided, indicating the average emotion the user experienced and showing a count of each emotion recorded. After finishing an activity, the user can return to the homepage and choose another activity or exit the system.

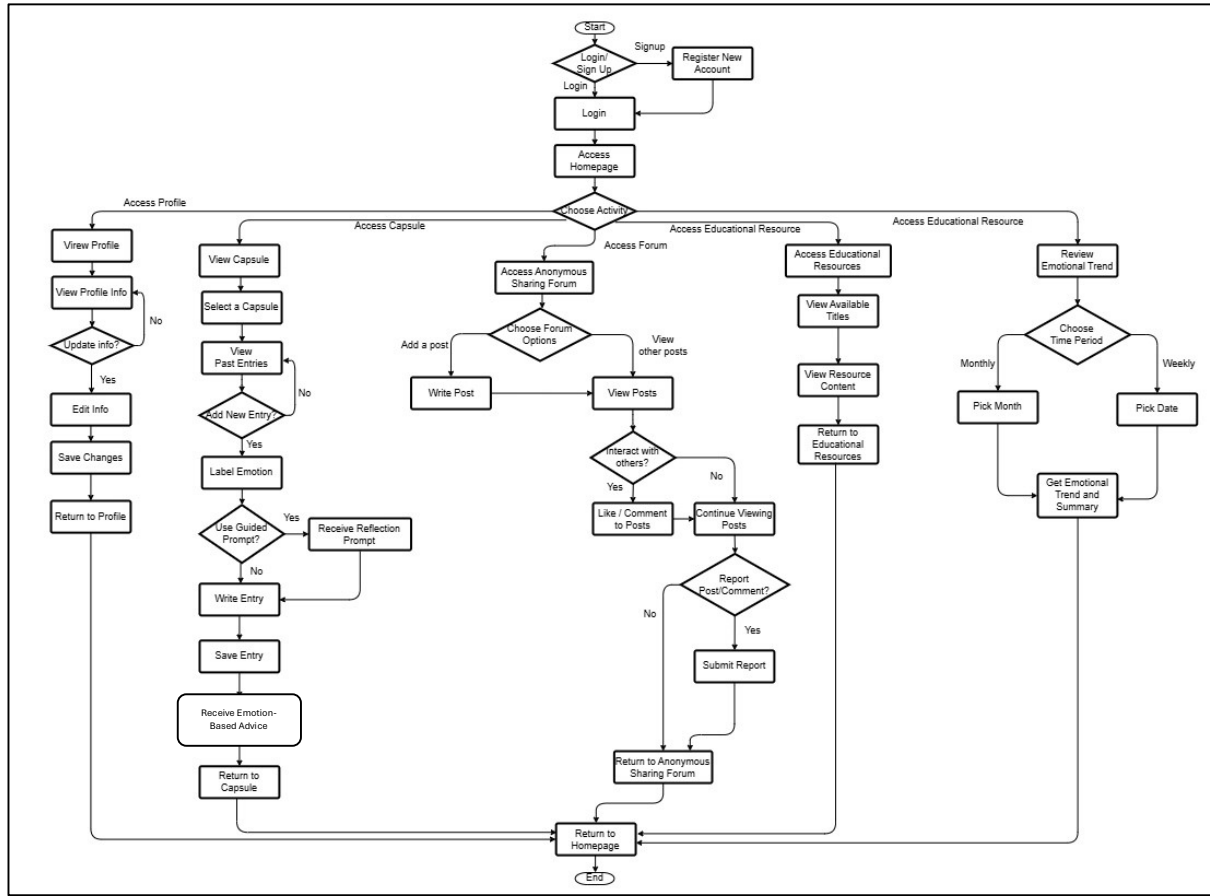


Figure 3. 12 User Flow Chart Diagram of CalmCapsule System

3.4.2 Use Case

Use case modelling is an approach for describing a system's functional requirements, and readers' visual perception is essential to its effectiveness (El-Attar, 2019). A use case diagram shows how users (actors) interact with the primary components of a system by visualising the different usage scenarios that can occur within it. This diagram describes the intended behaviours of the system rather than specific implementation details like data structures or algorithms (Seidl et al., 2015). The use case diagram provides those working on the project with a quick overview of the system's features and scope. The diagram guarantees that all essential features are taken into consideration and appropriately structured throughout the development process by identifying actors and their interactions.

The following section includes a use case diagram and use case descriptions of the main features of CalmCapsule, an online negative emotion management platform that offers journaling, guided reflection prompts, emotion-based advice, an anonymous sharing forum, and emotional trend review.

3.4.2.1 Use Case Diagram

The CalmCapsule System's features and how users and admin interact with them are shown in the use case diagram that follows, which is shown in Figure 3.13.

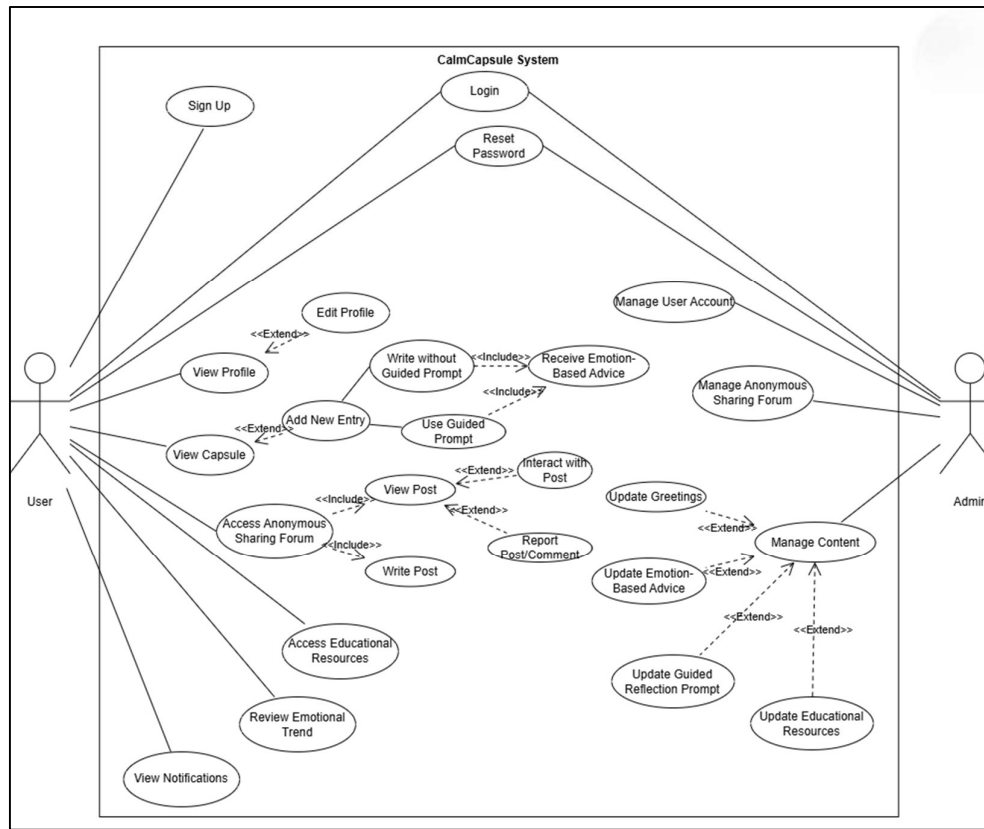


Figure 3. 13 Use Case Diagram for CalmCapsule System

3.4.2.2 Use Case Descriptions for CalmCapsule System

This section offers comprehensive descriptions of the CalmCapsule system's primary use cases, describing how users and administrator interact with the system to accomplish their own objectives.

Table 3. 1 Use Case Description for Sign Up

Use Case ID	UC-01
Use Case	Sign Up
Brief Description	This use case allows a new user to create an account in the system.

Actor(s)	User
Pre-Condition	The user is not logged in and does not have an account.
Post-Condition	The user's account is created, and they can log in.
Main Flow	1. The user accesses the registration page. 2. The system prompts the user to enter details (e.g., name, email, password). 3. The user submits the registration form. 4. The system validates the input and stores the user data. 5. Once the registration is successful, the system confirms account creation.
Alternative Flow	N/A
Exception Flow	(4a) If the email is already in use, the system notifies the user and requests another email. (4b) If the password does not meet security requirements, the system prompts the user to adjust it.

Table 3. 2 Use Case Description for Login

Use Case ID	UC-02
Use Case	Login
Brief Description	This use case allows a registered user or admin to log in to the system. Users log in from the main login page, while admins access a dedicated admin login page, available via an admin symbol on the user login or system landing page.
Actor(s)	User, Admin
Pre-Condition	The actor has an existing account.
Post-Condition	The user or admin is redirected to their respective homepage/dashboard.
Main Flow	1. The actor accesses the login page. i. Users access the main login page.

	ii. Admins click the admin symbol on the login page to access the dedicated admin login page. 2. The system prompts the actor for email and password. 3. The actor enters credentials and submits. 4. The system verifies the credentials. 5. If valid: i. Users are redirected to the homepage. ii. Admins are redirected to the admin dashboard.
Alternative Flow	(3a) If the user selects “Forgot Password,” the system redirects the user to a password reset page. The user enters their registered email address, and the system sends a reset link via email.
Exception Flow	(4a) If the email or password is incorrect, the system displays an error message.

Table 3. 3 Use Case Description for Reset Password

Use Case ID	UC-03
Use Case	Reset Password
Brief Description	This use case allows users or admin to reset their password by first requesting a password reset through the forgot password process, then using a valid reset token received via email to set a new password.
Actor(s)	User, Admin
Pre-Condition	User or Admin has an active account in the system with a registered email address.
Post-Condition	User’s or Admin’s password is successfully updated in the system, and they can login with the new password.
Main Flow	1. User or Admin clicks “Forgot Password” link from the login page. 2. The system redirects to the forgot password page. 3. The actor enters their email address associated with their account.

	4. The system validates the email address and checks if it exists in the database. 5. The system generates a secure reset token and sends a password reset email to the provided email address. 6. The system displays a confirmation message: “Password reset instructions have been sent to your email address. Please check your inbox and follow the instructions to reset your password.”. 7. The actor checks their email and clicks the reset link, which contains a valid token. 8. The system validates the token and checks if it hasn’t expired. 9. The system displays the reset password form with token verification. 10. The actor enters their new password in the “New Password” field. 11. The actor confirms the new password in the “Confirm New Password” field. 12. The system validates that both passwords match and meet security requirements. 13. The actor clicks “Reset Password” button. 14. The system updates the password in the database (hashed). 15. The system displays success confirmation and redirects to login page.
Alternative Flow	(4a) If the email address doesn’t exist in the system, the system displays: “If an account with that email address exists, password reset instructions have been sent to your inbox.” (10a) If actor enters a weak password that doesn’t meet security criteria, the system shows real-time validation errors and prevents submission.
Exception Flow	(5a) If the email service is unavailable, the system displays “We found your account, but there was an issue sending the reset email. Please try again later or contact support.”

	(8a) If the reset token is expired or invalid, the system displays “This password reset link is invalid or has expired. Please request a new password reset.” and provides a link back to the forgot password page. (12a) If passwords don’t match, the system shows “Passwords do not match” error and prevents submission.
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Table 3. 4 Use Case Description for View Profile

Use Case ID	UC-04
Use Case	View Profile
Brief Description	This use case allows users to view their account information.
Actor(s)	User
Pre-Condition	The user is logged in.
Post-Condition	User sees their profile data and may choose to edit.
Main Flow	1. The user selects the profile icon in the navigation bar. 2. The system displays user’s username, email, password, and other details. 3. The user may choose to edit (UC-05).
Alternative Flow	N/A
Exception Flow	N/A

Table 3. 5 Use Case Description for Edit Profile

Use Case ID	UC-05
Use Case	Edit Profile
Brief Description	This use case allows users to update their username, email, password or profile picture.
Actor(s)	User

Pre-Condition	User is viewing their profile.
Post-Condition	The new data is saved and reflected in the account.
Main Flow	1. The User selects “Edit Profile”. 2. The system allows user to change editable fields. 3. The user confirms and submits changes. 4. The system saves and displays updated profile.
Alternative Flow	N/A
Exception Flow	(2a) If the user leaves a required field empty, the system displays an error and prevents submission. (2b) If the new password does not meet security requirements, the system alerts the user and asks for a stronger password. (3a) If the new email is already registered, the system displays an error message.

Table 3. 6 Use Case Description for View Capsule

Use Case ID	UC-06
Use Case	View Capsule
Brief Description	This use case allows users to view and access their journal capsules, each representing a month. By default, the most recent entry in the selected capsule is displayed. Users can swipe to navigate through past entries.
Actor(s)	User
Pre-Condition	The user is logged in.
Post-Condition	The system displays the latest entry in the selected capsule.
Main Flow	1. The user selects “View Capsule” on the homepage. 2. The system displays 12 capsules, each labelled by months. 3. The user selects a capsule. 4. The system displays the most recent updated entry in the capsule.

	5. The user can view, edit and delete past entries in that selected capsule.
Alternative Flow	(4a) If the selected capsule has no entries, the system notifies the user and offers an option to add a new entry.
Exception Flow	(3a) If the user tries to access a future month's capsule, the system prevents access and notifies the user.

Table 3. 7 Use Case Description for Add New Entry

Use Case ID	UC-07
Use Case	Add New Entry
Brief Description	This use case allows users to add a new journal entry inside a selected capsule. Users must choose a date (if applicable) and label their emotion before proceeding to write their journal entry.
Actor(s)	User
Pre-Condition	The user is logged in and has selected an open capsule (either the current month or a past month).
Post-Condition	The system saves the journal entry and links it to the selected capsule.
Main Flow	1. The user selects “Add New Entry” from the capsule. 2. The system determines the selected capsule type: i. If the capsule is for the current month, the user is prompted to select a date within the same month, up to the current day. ii. If the capsule is for a past month, the user is required to select a date within that capsule's month. 3. The user selects an emotion from the list (Happy, Just Okay, Neutral, Sad, or Angry). 4. The user selects either: i. Without Guided Prompts: The system redirects the user to UC-08: Write Without Guided Prompts.

	ii. Guided Prompts: The system redirects the user to UC-09: Use Guided Prompts for Reflection. 5. The user submits the entry. 6. The system saves the journal entry. 7. The system redirects the user to UC-10: Receive Emotion-Based Advice based on their labelled emotion.
Alternative Flow	(2a) If the user does not select a date when adding an entry to the current month's capsule, the system automatically assigns today's date. (4a) If the user does not select an option for prompts, the system automatically chooses "Without Guided Prompts" and display blank text field.
Exception Flow	(2b) If the user tries to select a future date, the system displays an error message and prompts them to choose a valid date. (2c) If the user tries to select a date outside the allowed range (e.g., selecting a different month in a past capsule), the system will automatically navigate to that capsule month.

Table 3. 8 Use Case Description for Write Without Guided Prompts

Use Case ID	UC-08
Use Case	Write Without Guided Prompts
Brief Description	This use case allows users to freely write an entry after selecting an emotion.
Actor(s)	User
Pre-Condition	The user is adding a journal entry and is choosing to write without using the guided prompts.
Post-Condition	The system saves the free-form entry.
Main Flow	1. The system shows a blank text field. 2. The user writes the entry. 3. The user submits the entry. 4. The entry is saved.

Alternative Flow	(3a) If the user does not write anything, the system prompts them to enter at least a few words before submitting.
Exception Flow	N/A

Table 3. 9 Use Case Description for Use Guided Prompts

Use Case ID	UC-09
Use Case	Use Guided Prompts
Brief Description	This use case allows users to write a journal entry using structured prompts (general or academic) provided by the system.
Actor(s)	User
Pre-Condition	The user is adding a journal entry and is choosing to write using guided prompts.
Post-Condition	The system saves the journal entry with guided reflections.
Main Flow	1. The user chooses prompt type (General or Academic). 2. The system displays the randomly selected prompts from the database that matches the emotion user has chosen. 3. The user writes based on the reflection prompt and submits their journal entry. 4. The system saves the entry.
Alternative Flow	(3a) If the user does not write anything, the system prompts them to enter at least a few words before submitting.
Exception Flow	N/A

Table 3. 10 Use Case Description for Receive Emotion-Based Advice

Use Case ID	UC-10
Use Case	Receive Emotion-Based Advice

Brief Description	This use case allows the system to provide emotion-specific advice after a user submits a journal entry, based on the emotion they labelled.
Actor(s)	User
Pre-Condition	The user has completed and submitted a journal entry.
Post-Condition	The system provides advice based on the selected emotion.
Main Flow	1. The user completes a journal entry. 2. The system detects the labelled emotion associated with the entry. 3. The system retrieves a random advice from a set of advice related to that emotion in the database. 4. The system displays the advice to the user and links it to the saved entry.
Alternative Flow	N/A
Exception Flow	N/A

Table 3. 11 Use Case Description for Access Anonymous Sharing Forum

Use Case ID	UC-11
Use Case	Access Anonymous Sharing Forum
Brief Description	This use case allows users to post, view, interact with (like or comment), or report forum content.
Actor(s)	User
Pre-Condition	The user is logged in.
Post-Condition	User engages with forum features.
Main Flow	1. The user selects “Anonymous Sharing Forum” on the homepage. 2. The user chooses to: i. View Posts (UC-12) ii. Write Post (UC-15)

Alternative Flow	N/A
Exception Flow	(2a) If the forum has no posts, the system displays a message indicating that no posts are available

Table 3. 12 Use Case Description for View Post

Use Case ID	UC-12
Use Case	View Post
Brief Description	This use case allows users view the anonymous posts in the forum.
Actor(s)	User
Pre-Condition	The user is in the forum section.
Post-Condition	The system displays the anonymous posts in the forum.
Main Flow	1. The system loads and displays available posts. 2. The user can scroll, read, and access interaction or report options. 3. Optionally leads to UC-13 (Interact) or UC-14 (Report).
Alternative Flow	N/A
Exception Flow	N/A

Table 3. 13 Use Case Description for View Post

Use Case ID	UC-13
Use Case	Interact with Post
Brief Description	This use case allows users like or comment on a post.
Actor(s)	User
Pre-Condition	The user is in the forum section.
Post-Condition	The system logs the interaction.
Main Flow	1. The user clicks “Like” or enters a comment.

	2. The system records interaction. 3. The system UI updates in real-time.
Alternative Flow	N/A
Exception Flow	N/A

Table 3. 14 Use Case Description for Report Post or Comment

Use Case ID	UC-14
Use Case	Report Post or Comment
Brief Description	This use case allows users to report inappropriate or concerning content in the anonymous sharing forum by selecting from predefined reasons or writing a custom one.
Actor(s)	User
Pre-Condition	The user is in the forum section.
Post-Condition	The report is submitted and stored for admin review.
Main Flow	1. The user clicks the “Report” option from the menu symbol (three-dot icon) on a specific post or comment. 2. The system displays a list of report categories: a. Spam or Promotional Content b. Inappropriate Content c. Harassment or Bullying d. Hate Speech e. Misinformation f. Self-Harm or Suicide Content g. Other (user provides a custom reason) 3. The user selects or writes a report reason. 4. The system records the report and displays a confirmation message.
Alternative Flow	N/A

Exception Flow	(3a) If no report reason is selected or written, the system prompts the user to provide one before proceeding.
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Table 3. 15 Use Case Description for Report Post or Comment

Use Case ID	UC-15
Use Case	Write Post
Brief Description	This use case allows users to compose and submit an anonymous post to the forum for sharing their thoughts and experiences with the community. Each post requires an emotion label and a title in addition to the post content.
Actor(s)	User
Pre-Condition	The user is in the forum section.
Post-Condition	The post is published anonymously.
Main Flow	1. The user clicks the “+” (Add Post) icon on the forum page to share their thoughts anonymously. 2. The system opens the post submission form, prompting the user to: a. Select an emotion (Happy, Just Okay, Unsure, Sad, Angry) b. Enter a post title c. Enter post content 3. The user fills in all required fields and clicks “Submit.” 4. The system saves the post and publishes it anonymously in the forum.
Alternative Flow	N/A
Exception Flow	(2a) If the user leaves any required field empty (emotion, title, or content), the system prevents submission and displays a prompt to complete all fields.

Table 3. 16 Use Case Description for Access Educational Resources

Use Case ID	UC-16
Use Case	Access Educational Resources
Brief Description	This use case allows users to browse and read educational materials available on the platform. The system presents a list of topics, and users can select any topic to view its full content.
Actor(s)	User
Pre-Condition	The user is logged in.
Post-Condition	The system displays the selected educational resource for the user to read.
Main Flow	1. The user selects “Educational Resources” from the homepage. 2. The system displays a list of available topics. 3. The user selects a topic from the list. 4. The system retrieves the full content of the selected resource. 5. The system displays the educational material for the user to read.
Alternative Flow	N/A
Exception Flow	N/A

Table 3. 17 Use Case Description for Review Emotional Trend

Use Case ID	UC-17
Use Case	Review Emotional Trend
Brief Description	This use case allows users to review a visual summary of their emotional patterns over a selected time frame. Users can choose to view a weekly or monthly trend. The system calculates and displays a line graph representing daily emotional values, including average emotion scores and emotion count summaries.

Actor(s)	User
Pre-Condition	The user is logged in and has at least one journal entry.
Post-Condition	The system displays an emotional trend graph and a summary of the user's emotional history for the selected time period.
Main Flow	1. The user selects "Review Emotional Trend" from the homepage. 2. The system prompts the user to choose a time period: i. Weekly ii. Monthly 3. Based on the selection: i. For weekly, the user chooses a specific date, and the system automatically retrieves entries for the 7 days starting from the selected date. ii. For monthly, the user selects a month, and the system retrieves all entries from that calendar month. 4. The system maps daily emotion values to the following scale: i. No entry = 0 ii. Angry = 1 iii. Sad = 2 iv. Unsure = 3 v. Just Okay = 4 vi. Happy = 5 5. If multiple entries exist for a day, the system calculates the average score. 6. The system generates and displays a line graph representing the emotional trend. 7. A summary is shown, including: i. The average emotion score for the period ii. Total count for each emotion 8. The user may return to the homepage or view another time range.

Alternative Flow	(2a) If the user does not choose a time period, the system will choose weekly time period by default.
Exception Flow	N/A

Table 3. 18 Use Case Description for View Notifications

Use Case ID	UC-18
Use Case	View Notifications
Brief Description	This use case allows users to view and manage their notifications, including forum activity (new posts, likes/comments on user's posts) and forum reports through a centralized notification centre.
Actor(s)	User
Pre-Condition	User is logged in to the system.
Post-Condition	User has viewed their notifications and can take appropriate actions based on the notification content.
Main Flow	1. User clicks the notification icon in the top navigation bar. 2. The system displays the notification centre with three tabs: "All", "Activity", and "System". 3. User can select any tab to filter notifications by type: i. All: Shows all notifications regardless of type ii. Activity: Shows forum-related notifications (likes, comments, new posts related to user's content) iii. System: Shows forum reports (reports made by the user or reports made against the user's posts for guideline violations) 4. User can view notification details including timestamp, content, and related actions. 5. User clicks on specific notifications to navigate to related content: i. Forum activity notifications: System redirects to the forum page and displays the specific post

	ii. Forum report notifications: System displays the report details (reports made by the user or reports made against the user's posts for guideline violations) 6. User can mark notifications as read or dismiss them as needed.
Alternative Flow	(2a) If no notifications are available, the system displays "No notifications yet" message with an icon indicating empty state.
Exception Flow	N/A

Table 3. 19 Use Case Description for Manage User Accounts

Use Case ID	UC-19
Use Case	Manage User Accounts
Brief Description	This use case allows the admin to manage user accounts. The system displays a list of registered users, with options to filter, search, view user details, edit information, or delete them when necessary.
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	User accounts are viewed, updated, or deleted as needed.
Main Flow	1. The admin selects "Manage User Accounts" from the admin dashboard. 2. The system displays a list of registered users with basic details. 3. The admin can search or filter users by username and email. 4. The admin may: i. View user details ii. Modify user account (Edit and Delete)
Alternative Flow	N/A
Exception Flow	(3a) If no users are found, the system notifies the admin.

Table 3. 20 Use Case Description for Manage Anonymous Sharing Forum

Use Case ID	UC-20
Use Case	Manage Anonymous Sharing Forum
Brief Description	This use case allows the admin to monitor and manage the anonymous forum. The admin may view posts, moderate reports, and take actions like deleting content or resolving/dismissing reports.
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	Forum content is moderated, and reports are resolved or dismissed.
Main Flow	1. The admin selects “Manage Anonymous Forum” from the dashboard. 2. The system displays the forum moderation panel, including tabs for Posts and Reports. A. View & Moderate Posts: 1. The admin selects the “Posts” tab. 2. The system displays a list of posts with timestamps, likes, and comments. 3. The admin may: i. Open a post to view its content and comments. ii. Delete inappropriate posts or comments (with confirmation). B. View & Act on Reports: 1. The admin selects the “Reports” tab. 2. The system displays all submitted reports with: i. Reported content (post or comment) ii. Reason for report iii. Date/time of submission 3. The admin selects a report to view its details. 4. The admin may: i. Delete Content (notify original poster and user who reported, and close report).

	ii. Dismiss the report (notify reporter and close report).
Alternative Flow	(A.2a) If no posts are available, the system shows a “No posts found.” message. (B.2a) If no reports are available, the system shows a “No reports found.” message.
Exception Flow	(A.3a) If a post deletion fails, the system notifies the admin with an error message. (B.4a) If a content deletion fails, the system notifies the admin with an error message.

Table 3. 21 Use Case Description for Manage Content

Use Case ID	UC-21
Use Case	Manage Content
Brief Description	This use case allows the admin to access different content modules to update system-facing resources such as greetings, advice, reflection prompts, and educational resources.
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	Content sections are opened for updates.
Main Flow	1. The admin selects “Manage Content” from the admin dashboard. 2. The system displays options to: i. Update Greetings (UC-22) ii. Update Emotion-Based Advice (UC-23) iii. Update Guided Reflection Prompts (UC-24) iv. Update Educational Resources (UC-25)
Alternative Flow	N/A
Exception Flow	(2a) If content fails to load, the system notifies the admin.

Table 3. 22 Use Case Description for Update Greetings

Use Case ID	UC-22
Use Case	Update Greetings
Brief Description	This use case allows the admin to update greeting messages shown on the user's homepage.
Actor(s)	Admin
Pre-Condition	The admin is logged in and has selected "Update Greetings."
Post-Condition	The updated greeting is shown randomly to users on the homepage.
Main Flow	1. The admin selects "Update Greetings." 2. The system displays the current greeting. 3. The admin enters a new greeting message and submits. 4. The system saves and applies the update.
Alternative Flow	N/A
Exception Flow	(3a) If the greeting field is left blank, the system prompts the admin to enter a message.

Table 3. 23 Use Case Description for Update Emotion-Based Advice

Use Case ID	UC-23
Use Case	Update Emotion-Based Advice
Brief Description	This use case allows the admin to manage emotion-based advice that the system displays to users after journaling, based on the emotion selected (Happy, Just Okay, Neutral, Sad, and Angry).
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	The updated emotion-based advice is stored and available for users during journaling feedback.
Main Flow	1. The admin selects "Update Emotion-Based Advice." 2. The system displays the list of existing advice entries.

	3. The admin may: i. Add new advice (must select a related emotion) ii. Edit existing advice iii. Delete advice 4. The system saves the changes and updates the database.
Alternative Flow	N/A
Exception Flow	(3a) If advice text is empty during add or edit, the system prompts the admin to fill in the required field.

Table 3. 24 Use Case Description for Update Guided Reflection Prompts

Use Case ID	UC-24
Use Case	Update Guided Reflection Prompts
Brief Description	This use case allows the admin to manage guided prompts used in journaling, based on specific emotions and prompt types (General or Academic).
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	The updated guided prompts are available for users who choose to journal using guided prompts.
Main Flow	1. The admin selects “Update Guided Prompts.” 2. The system displays the list of existing guided prompts. 3. The admin may: i. Add a new prompt (must select a related emotion and type: General or Academic) ii. Edit existing prompts iii. Delete prompts 4. The system saves the updates and refreshes the prompt list.
Alternative Flow	N/A
Exception Flow	(3a) If any required field (prompt text, emotion, or type) is missing during add or edit, the system prevents submission and prompts for completion.

Table 3. 25 Use Case Description for Update Educational Resources

Use Case ID	UC-25
Use Case	Update Educational Resources
Brief Description	This use case allows the admin to add, edit, or remove educational content, including title, preview, full content, and an optional image.
Actor(s)	Admin
Pre-Condition	The admin is logged in.
Post-Condition	The updated educational resources are available for users.
Main Flow	1. The admin selects “Update Educational Resources.” 2. The system displays existing resources. 3. The admin may: i. Add new content ii. Edit title, preview, full content, or image iii. Delete resources 4. The system saves and publishes updates.
Alternative Flow	N/A
Exception Flow	(3a) If required fields (title, preview and content) are left empty, the system prevents submission.

3.4.3 Activity Diagram

An activity diagram is a UML (Unified Modelling Language) diagram that represents a system’s procedural processing aspects. It depicts the data and control flow between several actions, or steps, required to finish an activity (Seidl et al., 2015). The modelling of workflows, business processes, and web services has made extensive use of activity diagrams, which are now utilised for documentation, requirements development, test case specification, simulation, and even code generation (Maoz et al., 2011).

3.4.3.1 User Side

The user-side activity diagram depicts the processes and interactions that a user experiences while interacting with the system. It is shown in the following figures, as Figure 3.14 shows the system's general flow for the user side, and the remaining figures are activity diagrams that illustrate each primary user's related use case in depth.

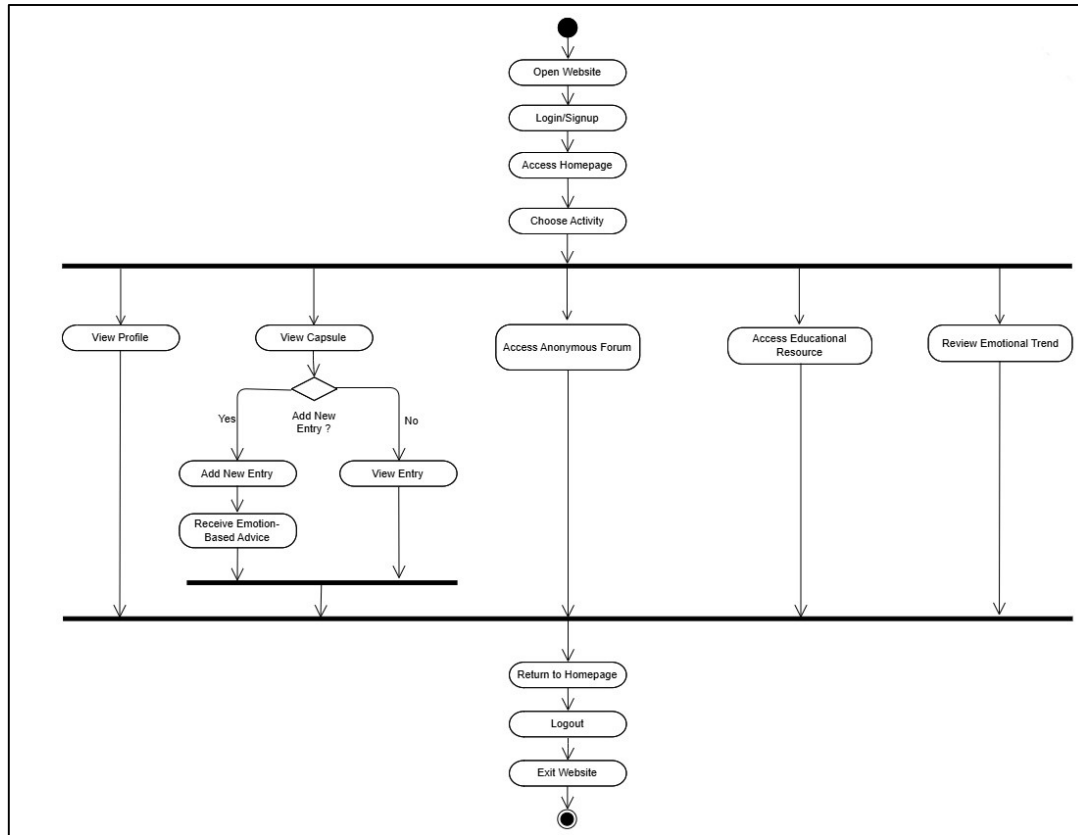


Figure 3. 14 Activity Diagram showing General User Flow of CalmCapsule System

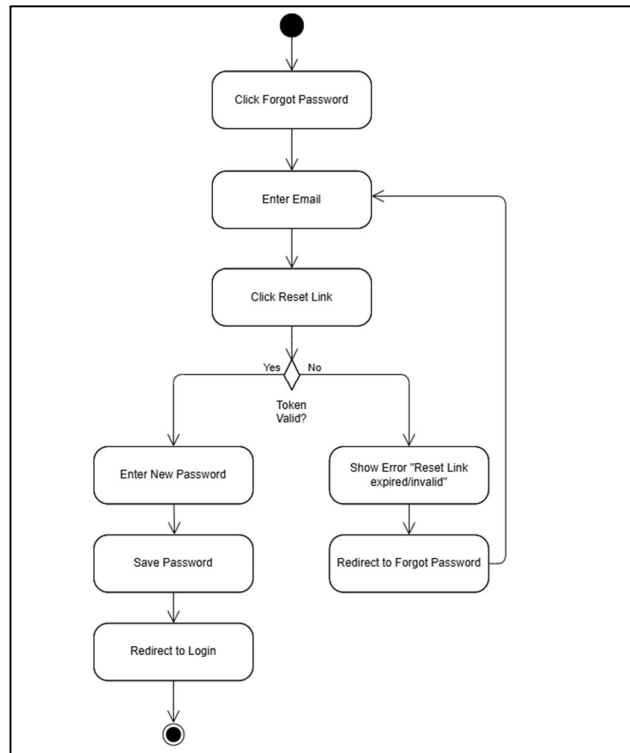


Figure 3. 15 Activity Diagram showing Reset Password Use Case

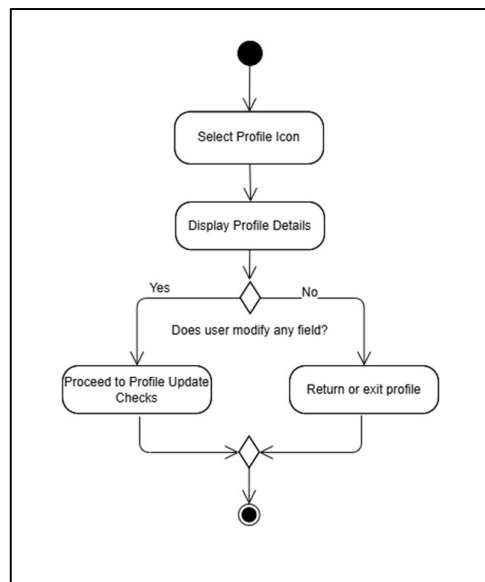


Figure 3. 16 Activity Diagram showing View Profile Use Case

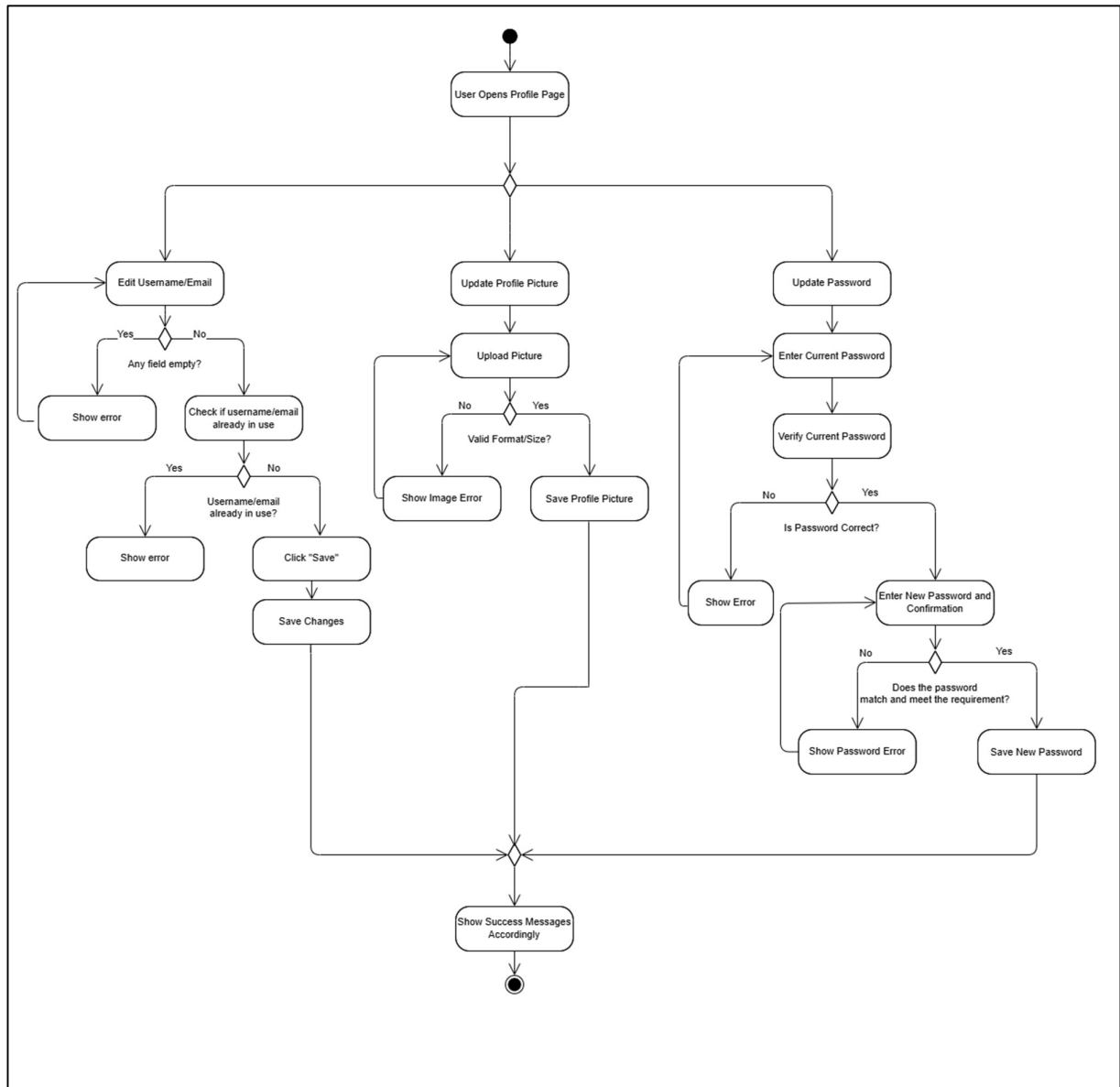


Figure 3. 17 Activity Diagram showing Edit Profile Use Case

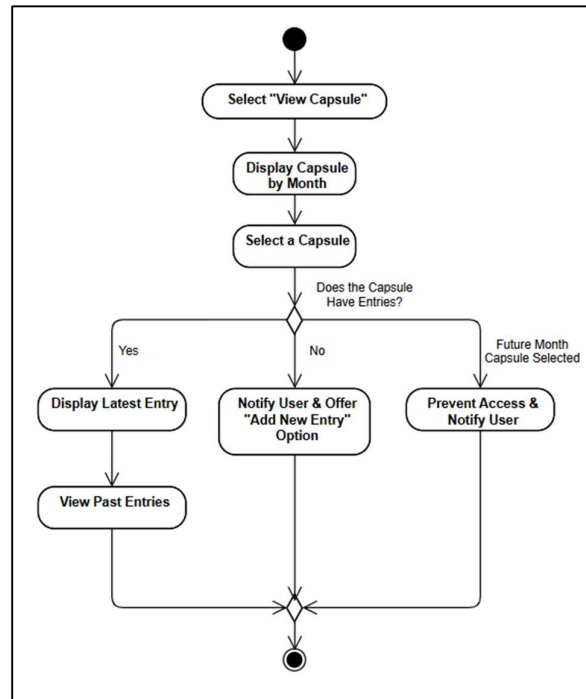


Figure 3. 18 Activity Diagram showing View Capsule Use Case

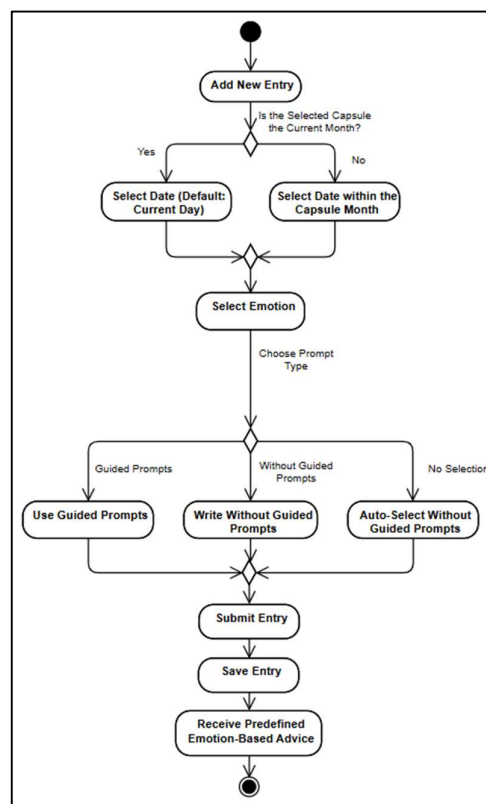


Figure 3. 19 Activity Diagram showing Add New Entry Use Case

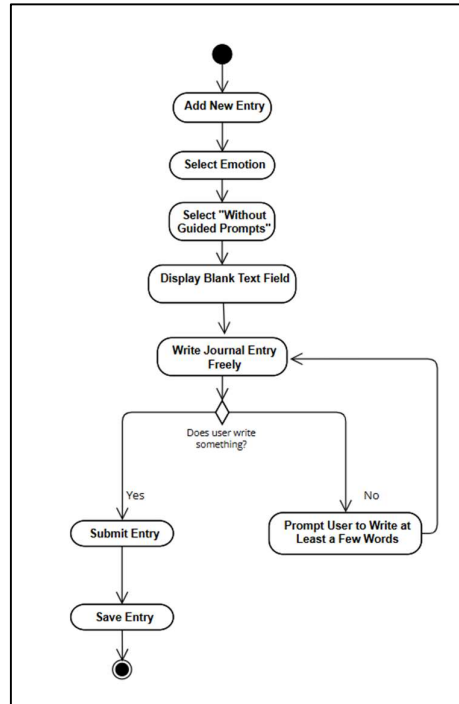


Figure 3. 20 Activity Diagram showing Write Without Guided Prompts use case

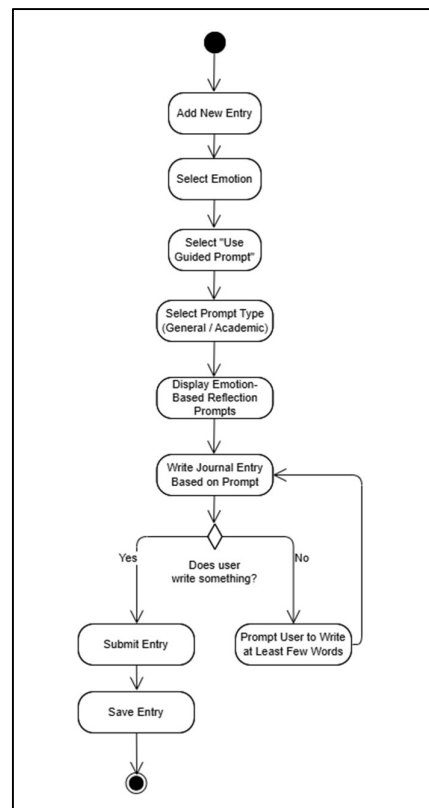


Figure 3. 21 Activity Diagram showing Use Guided Prompt Use Case

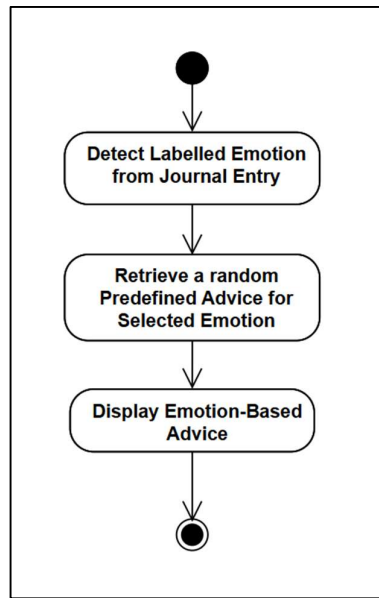


Figure 3. 22 Activity Diagram showing Receive Emotion-Based Advice use case

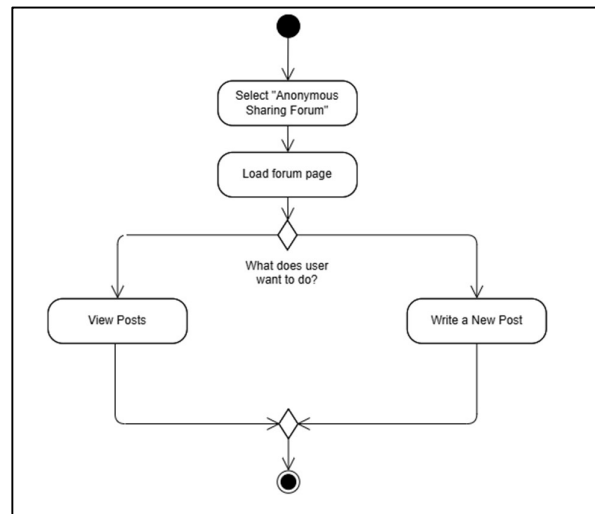


Figure 3. 23 Activity Diagram showing Access Anonymous Sharing Forum use case

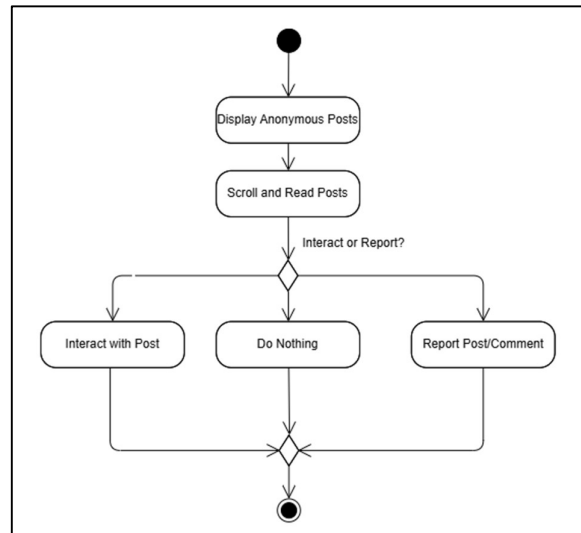


Figure 3. 24 Activity Diagram showing View Post use case

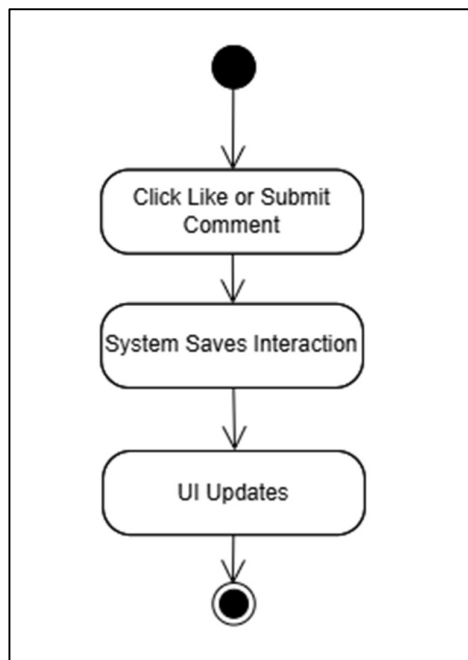


Figure 3. 25 Activity Diagram showing Interact with Post use case

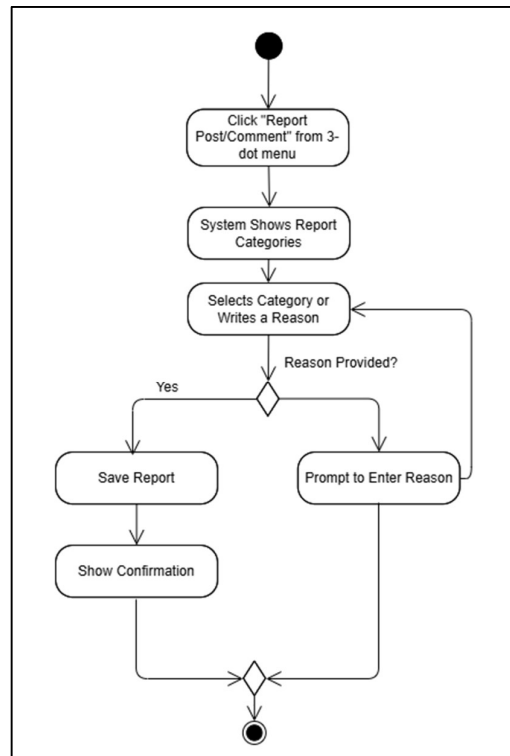


Figure 3. 26 Activity Diagram showing Report Post or Comment use case

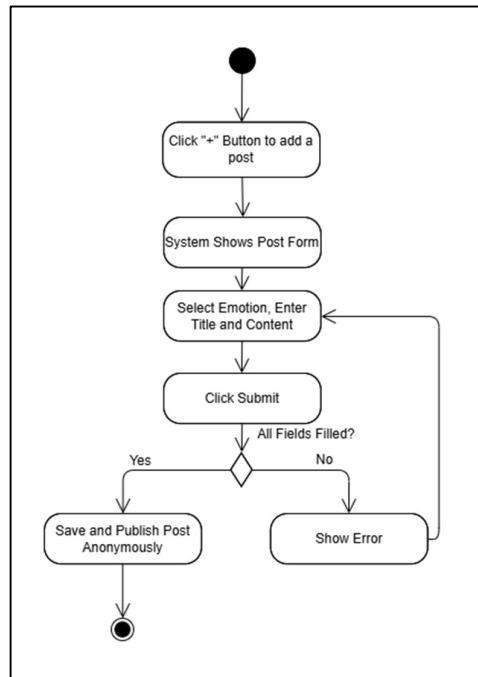


Figure 3. 27 Activity Diagram showing Write Post use case

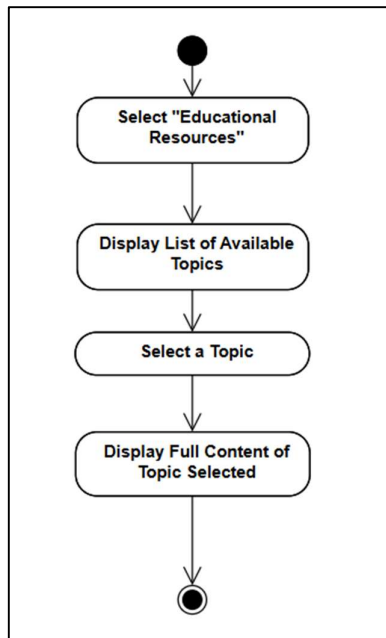


Figure 3. 28 Activity Diagram showing Access Educational Resources use case

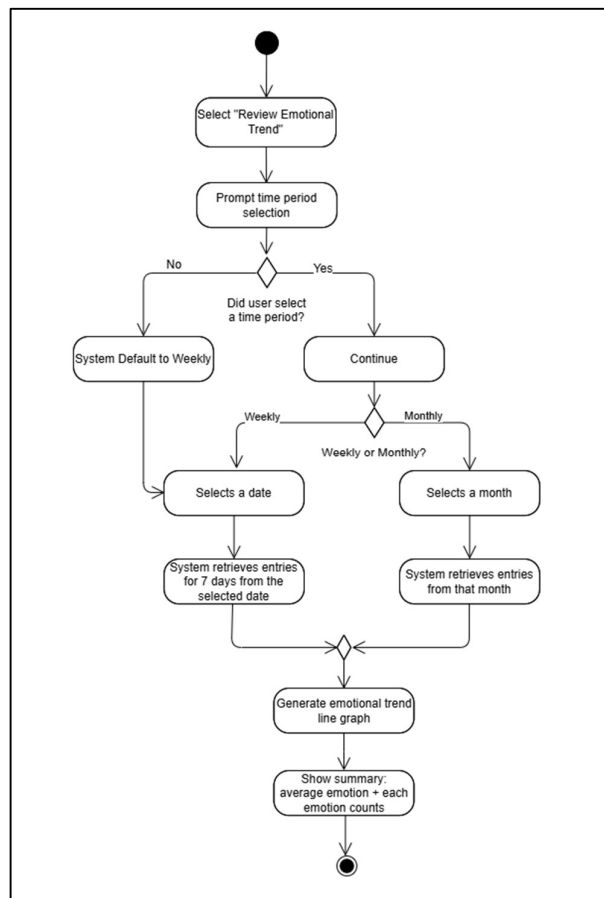


Figure 3. 29 Activity Diagram for Review Emotional Trend use case

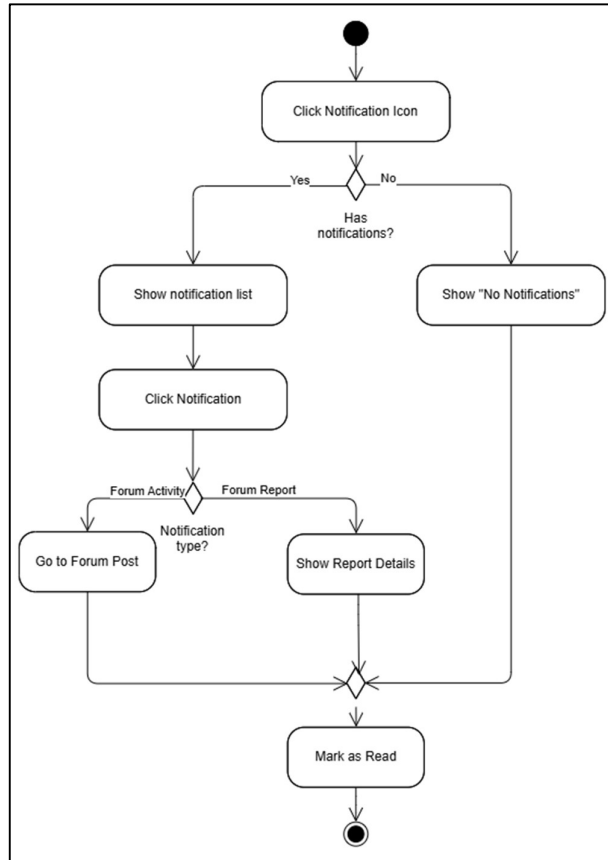


Figure 3. 30 Activity Diagram for View Notifications use case

3.4.3.2 Admin Side

The admin side activity diagram displays the various administrative functions used to manage the system. These include managing user accounts, moderating anonymous sharing forum as well as managing contents (updating emotion-based advice, guided reflection prompts, greetings and educational resources). Figure 3.22 shows the overall system flow for the administrator side, while the rest of the figures are activity diagrams that provide an extensive breakdown of each use case.

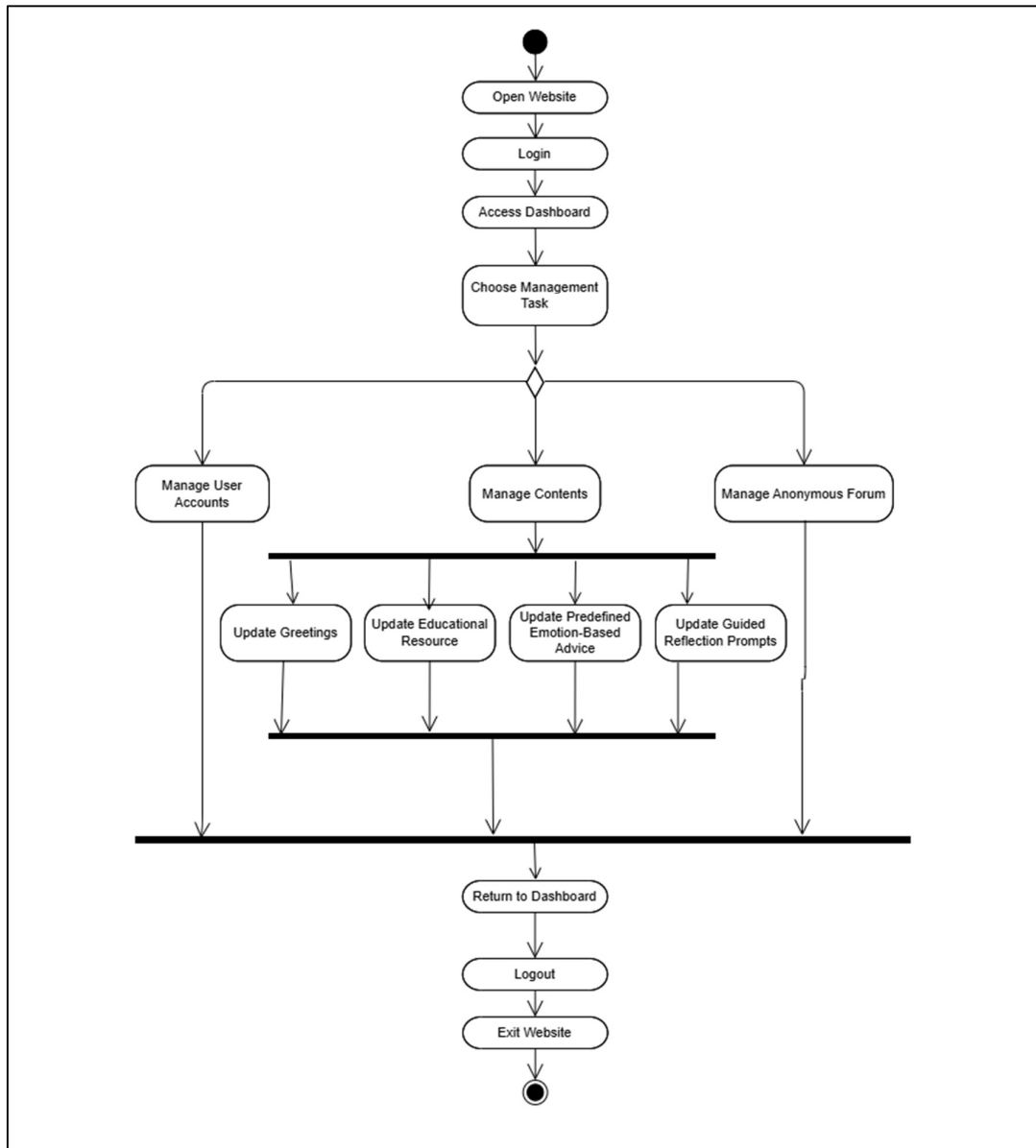


Figure 3. 31 Activity Diagram for General Admin Flow in CalmCapsule System

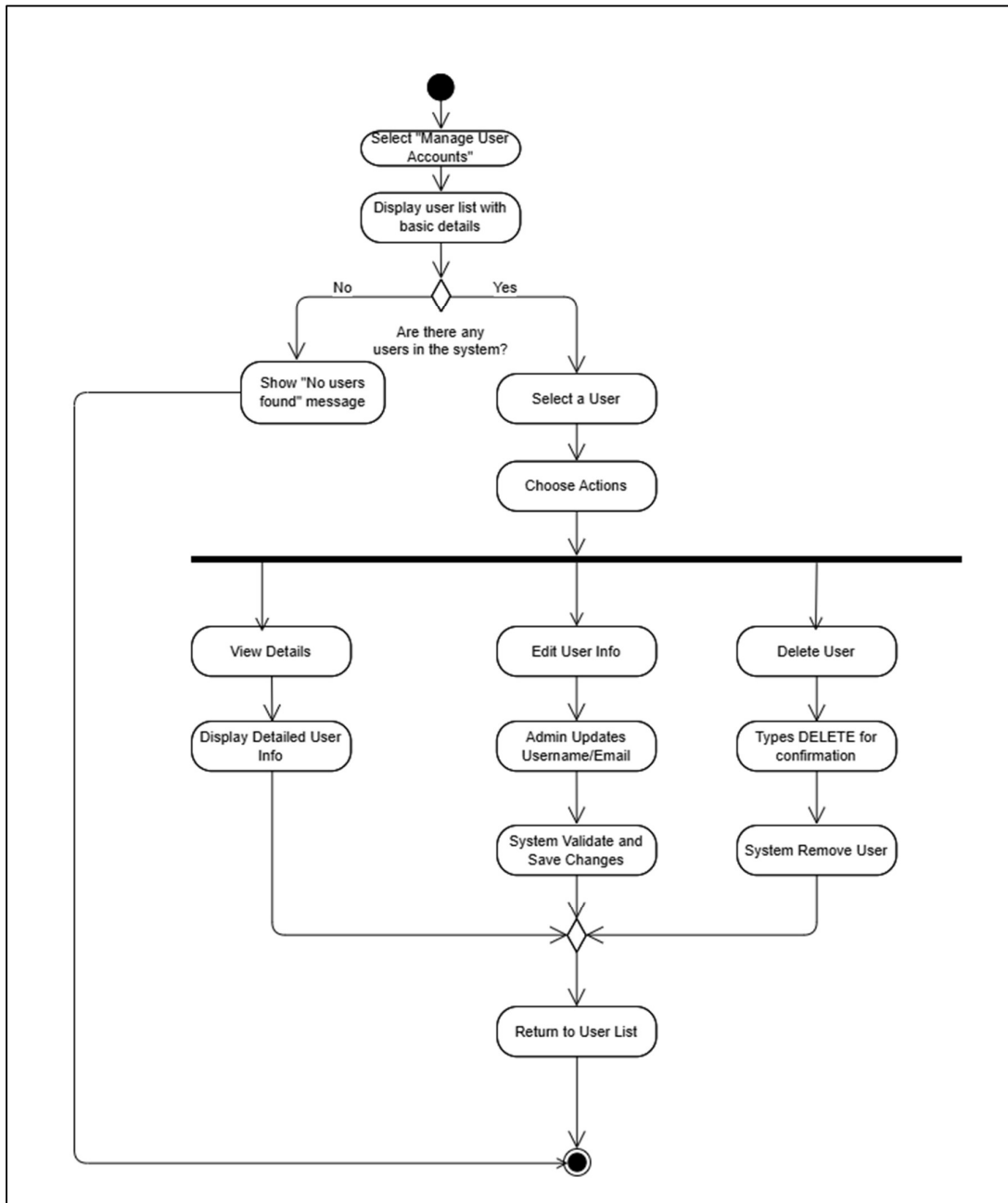


Figure 3. 32 Activity Diagram showing Manage User Accounts use case

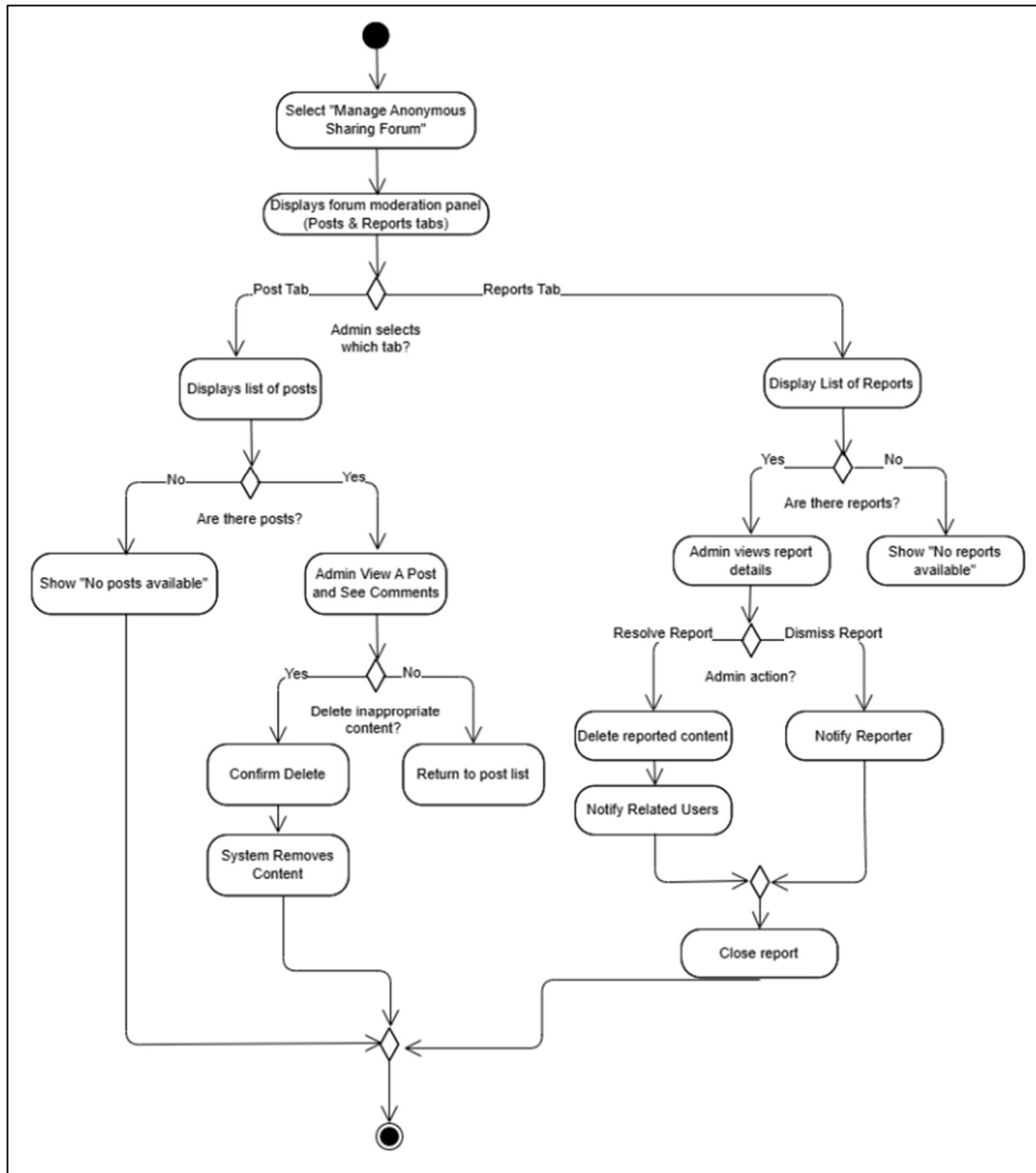


Figure 3. 33 Activity Diagram showing Manage Anonymous Sharing Forum use case

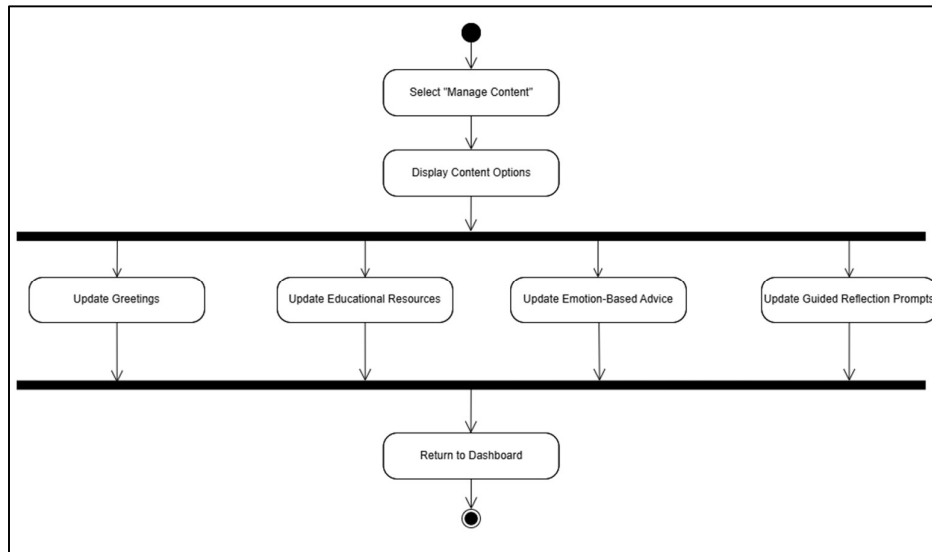


Figure 3. 34 Activity Diagram showing Manage Content use case

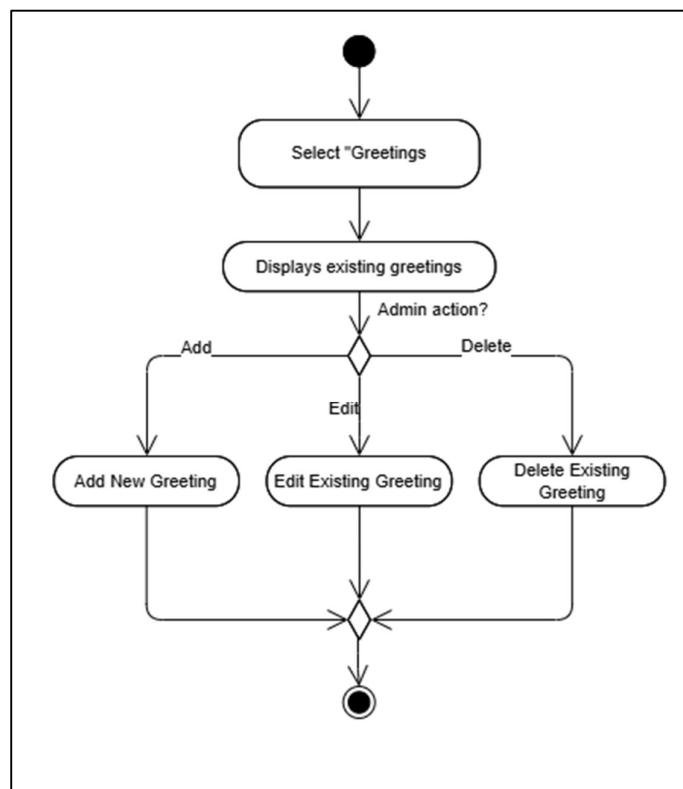


Figure 3. 35 Activity Diagram showing Update Greetings use case

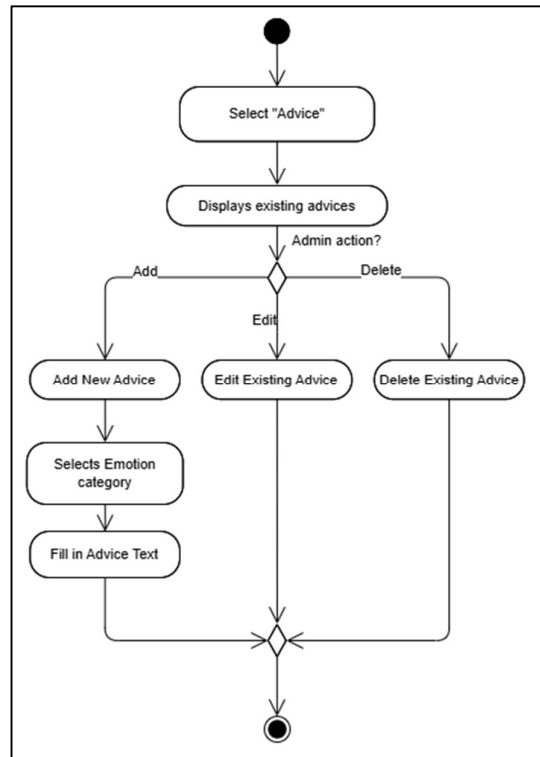


Figure 3. 36 Activity Diagram showing Update Emotion-Based Advice use case

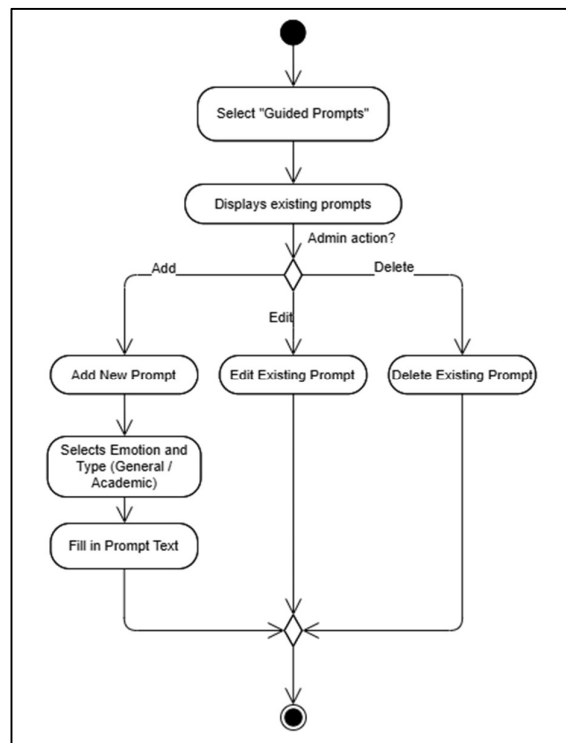


Figure 3. 37 Activity Diagram showing Update Guided Reflection Prompts use case

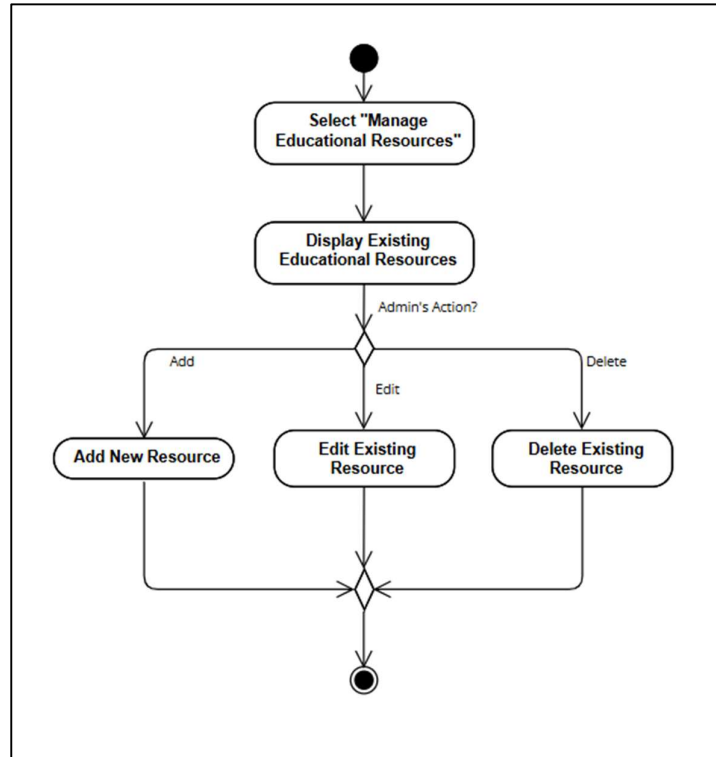


Figure 3. 38 Activity Diagram showing Update Educational Resources use case

3.4.4 Class Diagram

A class diagram is a static structure diagram in UML (Unified Modelling Language) that depicts the objects in a system, including their properties, operations, and relationships. It describes a system's essential components and their relationships, representing the system's static structure (Seidl et al., 2015). A class diagram, as contrast to a dynamic diagram, is helpful for comprehending the fundamental elements of a system prior to implementation because it remains constant across time.

In the CalmCapsule system, the class diagram represents the platform's fundamental features by specifying essential classes such as admin, user, emotion, entry, forum_post, forum_comment, forum_like, forum_pseudonyms, forum_reports, forum_report_actions, guidedprompt, predefinedadvice, educationalresource, greetings, notifications, and password_resets. The diagram, which is shown in Figure 3.28, gives an extensive overview of how CalmCapsule works as an online negative emotions management platform by effectively reflecting the structural relationships between these entities.

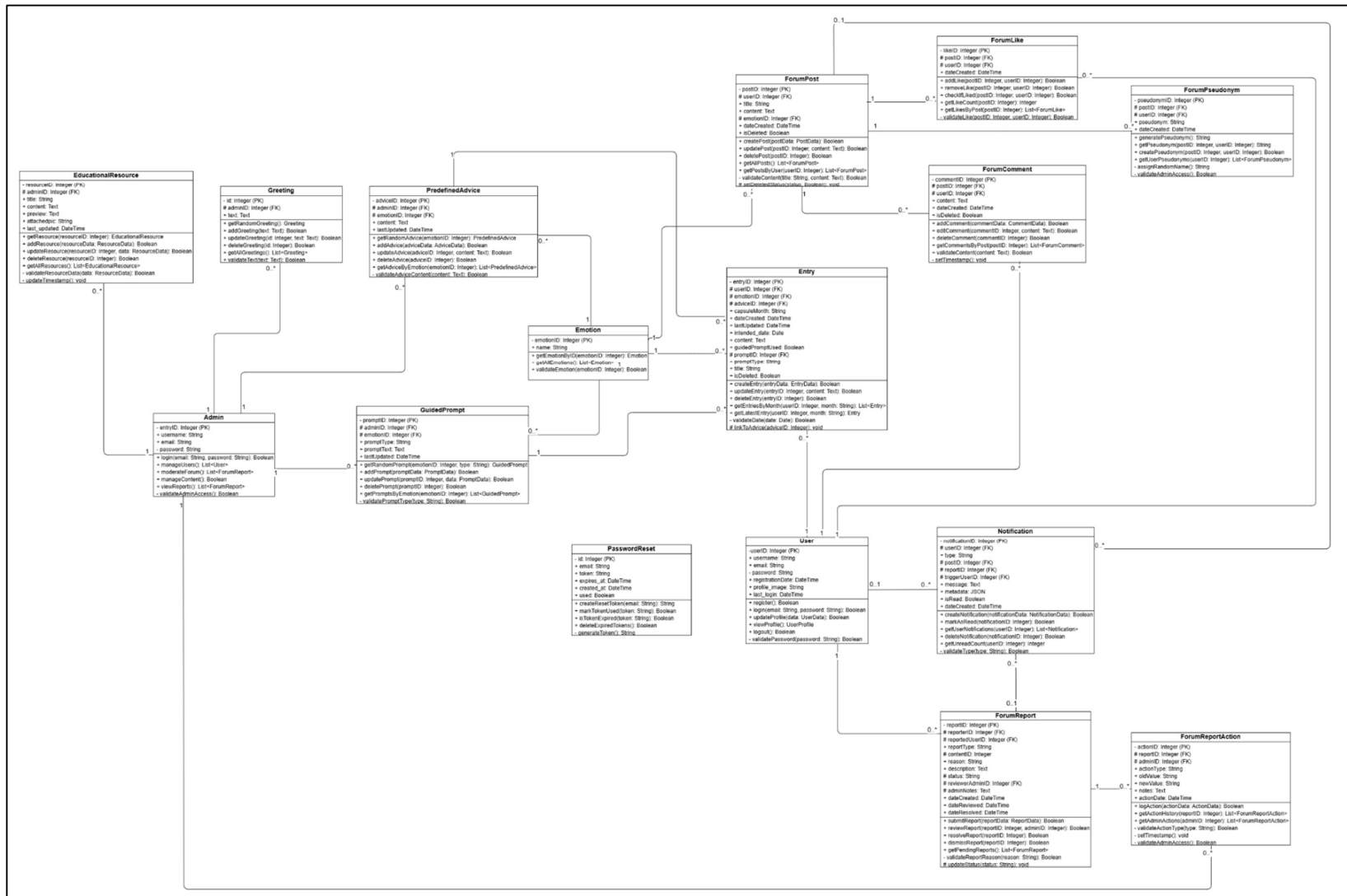


Figure 3. 39 Class Diagram of CalmCapsule System

3.4.5 User Interface Design

User Interface (UI) Design aims to create visually appealing and effective interfaces that improve user interaction with digital platforms. According to Tidwell (2019), developing interfaces entails finding best practices and implementing them as design patterns, which are structured solutions to common interface issues. Every pattern offers useful suggestions, alternate designs, and direction on when to employ strategies. Interfaces that are accessible, intuitive, and in line with user expectations are guaranteed by effective UI design. The user interface (UI) of the Calm Capsule platform is made to be both aesthetically pleasing and straightforward, satisfying consumers' inclination for interesting yet simple layouts rather than boring or excessively intricate designs (Senevirathne & Manathunga, 2021). The UI is clear and well-organised, allowing users to effortlessly interact with platform features including journaling, guided reflection prompts, emotion-based advice, educational resources, emotional trend reviews, and anonymous forum.

This User Interface section is focused on the user experience, as the platform's main purpose is to enable users to manage their emotions. The administrative responsibilities, while important to system management, are intentionally not the focus of this section. To give an overview of the main administrative functions, only Figure 3.55 Admin Dashboard is provided. The following figures depict the main page designs, which highlight the proposed platform's essential features and processes.

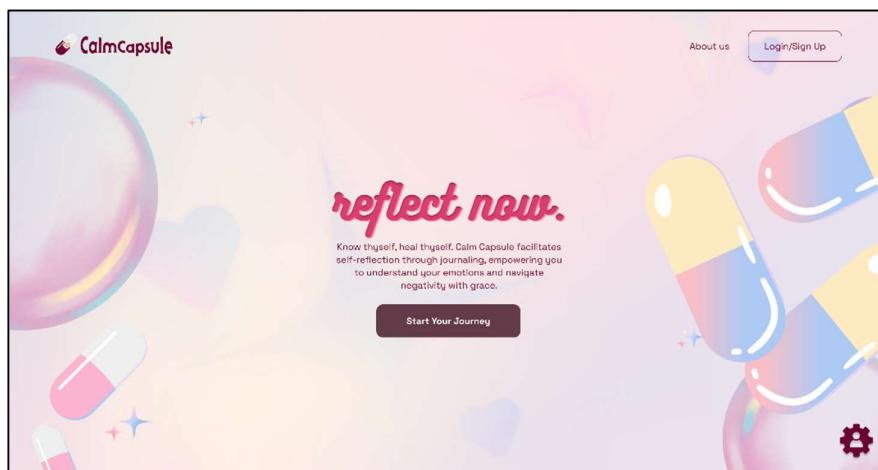


Figure 3. 40 The Landing Page of CalmCapsule

The landing page in Figure 3.40 has a clean design with a login/register button in the top-right corner of the header, and the prominent “Start Your Journey” button in the centre encourages users to start journaling, directing them to the login page. For Administrator, the administrator configuration symbol at the bottom right corner of the page will redirect to separate Login Page for Admin.

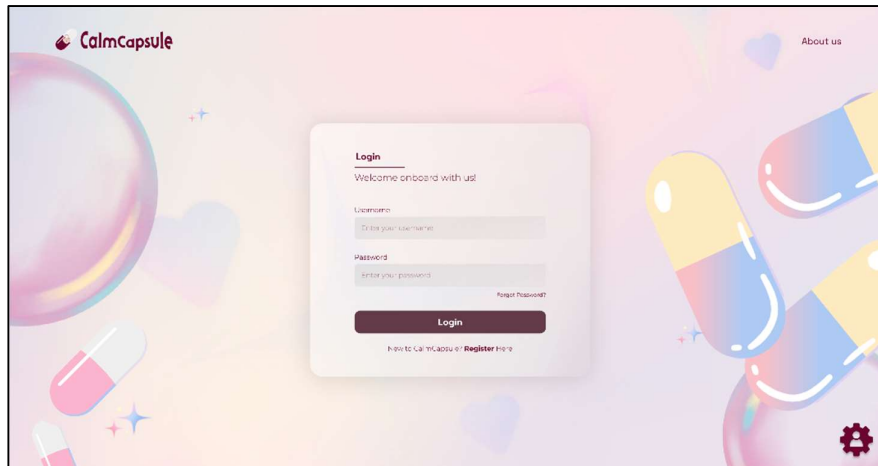


Figure 3. 41 The Login Page of CalmCapsule

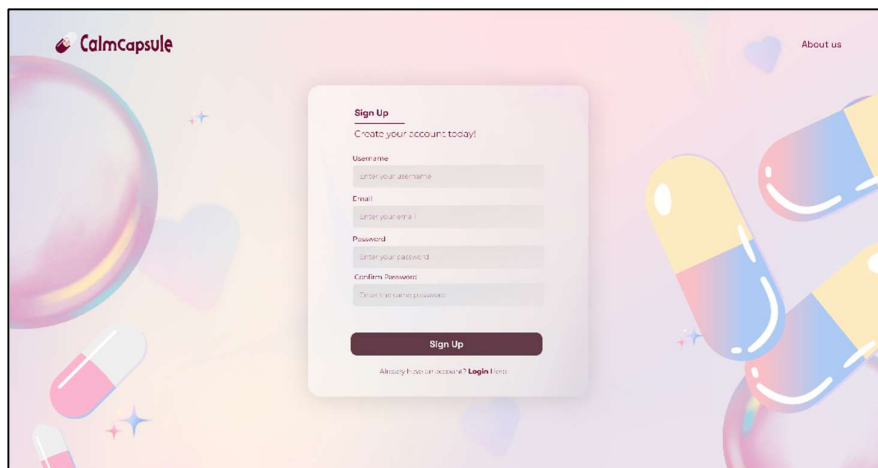


Figure 3. 42 The Sign-Up Page of CalmCapsule

The login page shown in Figure 3.41 encourages users to provide their username and password, ensuring safe access to their account. The signup page in Figure 3.42 allows new users to create an account by entering a username, email address, password, and verifying the password for verification.

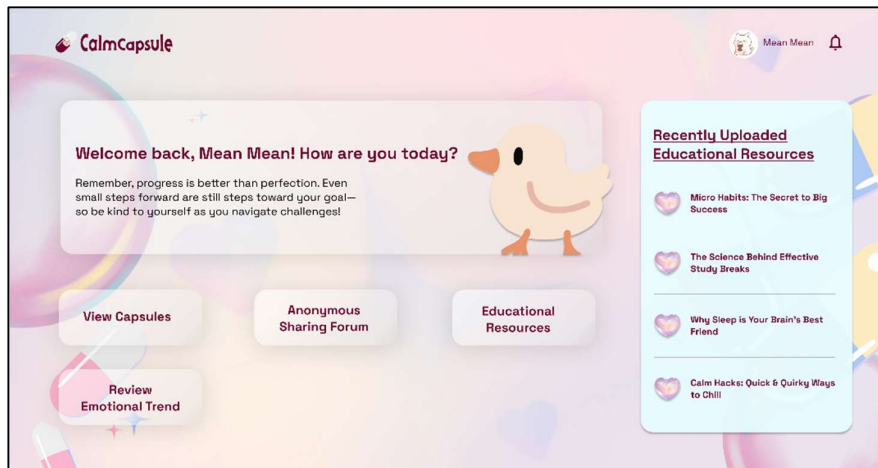


Figure 3. 43 The User's Homepage of CalmCapsule

Figure 3.43 shows the user homepage greets the user with “Welcome back, [User’s Name]” and offers random emotional greetings for the day. Users can easily access the platform’s primary features by navigating through the following key options: View Capsules, Anonymous Sharing Forum, Educational Resources, and Review Emotional Trends. The homepage has a “Recently Uploaded Educational Resources” area on the right, which allows users to easily access new educational material with a single click. This shortcut allows users to quickly access useful emotional well-being materials.

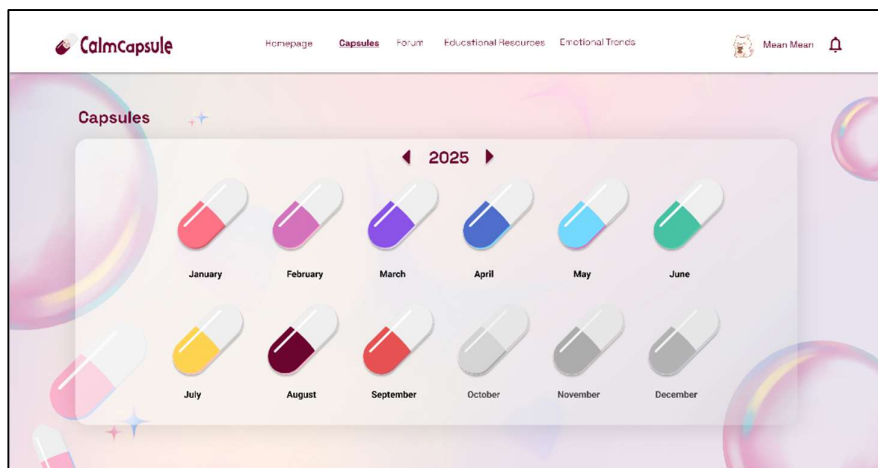


Figure 3. 44 View Capsules Page of CalmCapsule

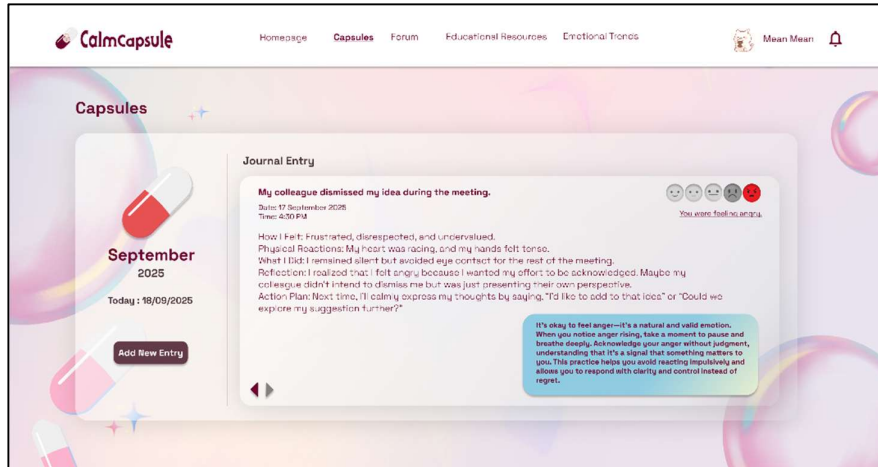


Figure 3. 45 View Entry Page of CalmCapsule

The first option on the homepage, “View Capsules,” displays 12 colourful capsule icons, each representing a month (Figure 3.44). While future capsules are uncoloured and unavailable until their corresponding months arrive, users can choose any available capsule (coloured) to look through previous diary entries. By default, the system shows the most recent updated entry when a capsule is selected (Figure 3.45).

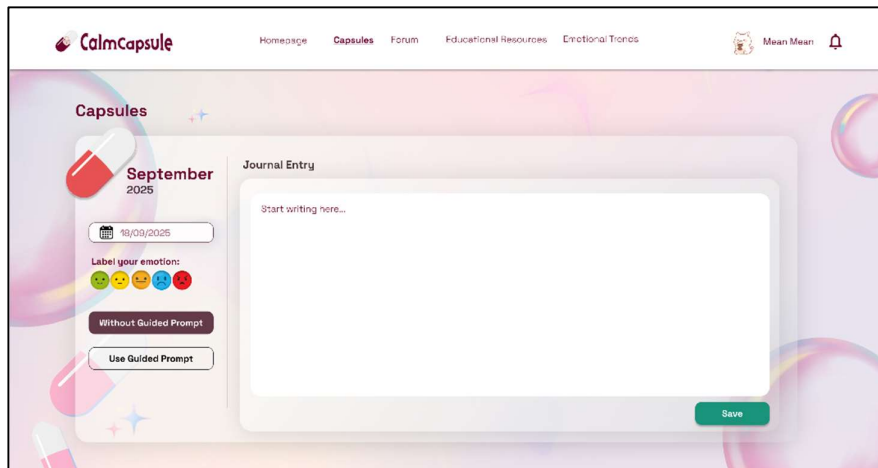


Figure 3. 46 Write without Guided Prompt of CalmCapsule

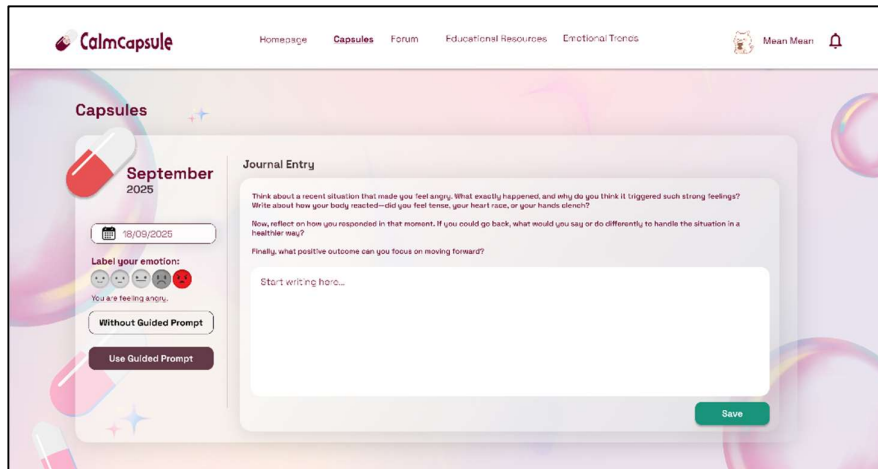


Figure 3. 47 Write with Guided Prompt of CalmCapsule

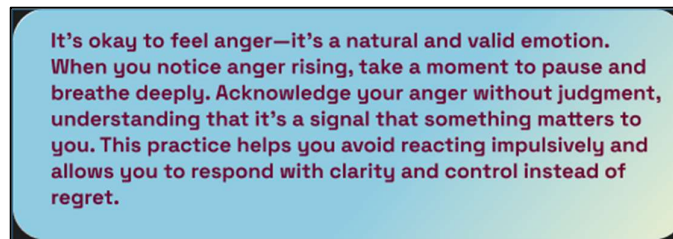


Figure 3. 48 Emotion-Based Advice after Saving an Entry

Users only need to click the “Add New Entry” button to add a new entry, which takes them to the writing page. They select a date and identify their emotion before deciding on a writing method. The system offers an empty text field for users who would rather write freely (Figure 3.46). If users choose guided prompts, a pre-made reflection prompt that is specific to the chosen emotion shows up at the top of the text field (Figure 3.47). The user is automatically redirected to the most recent entry page by the system when the entry has been saved like has shown in Figure 3.45. At this stage, the system offers a blue box (Figure 3.48) with emotion-based advice, providing personalised recommendations and insights according to the user’s recorded emotion.

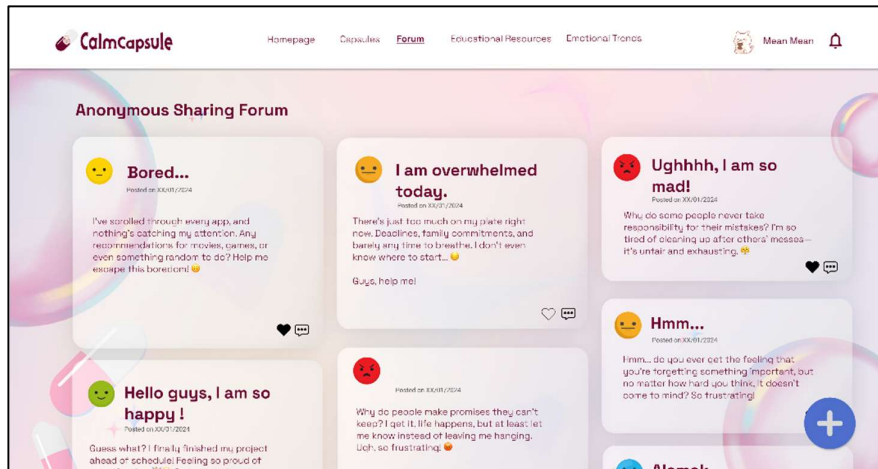


Figure 3. 49 The Anonymous Sharing Forum Page of CalmCapsule

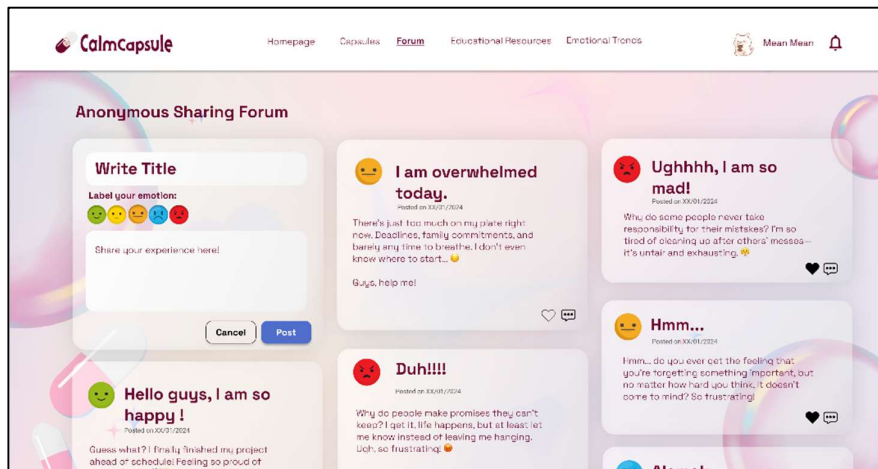


Figure 3. 50 The Blank Post in Anonymous Sharing Forum Page of CalmCapsule

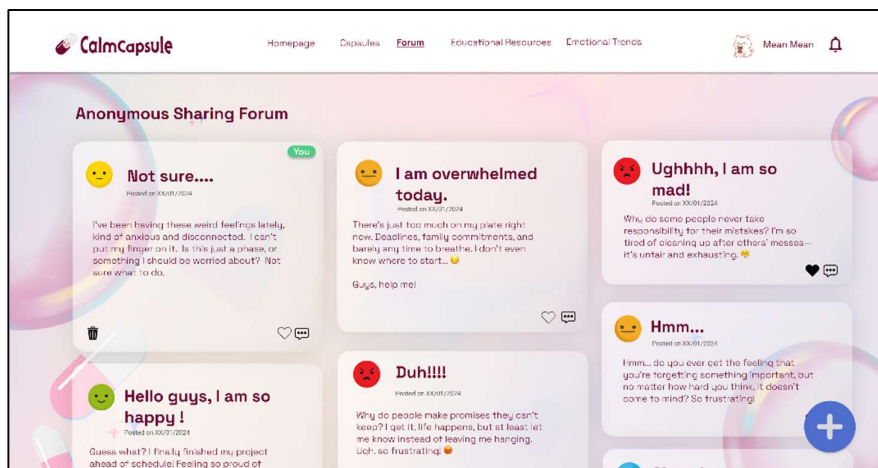


Figure 3. 51 The Published Post in Anonymous Sharing Forum Page of CalmCapsule

Through the Anonymous Sharing Forum (Figure 3.49), users can browse other people’s postings anonymously, engage with posts by liking or commenting, and anonymously submit their own experiences. Clicking the blue plus (+) icon at the bottom right of the page allows users to create a new post. This opens a blank post that they may fill up as shown in Figure 3.50 before publishing it to the forum.

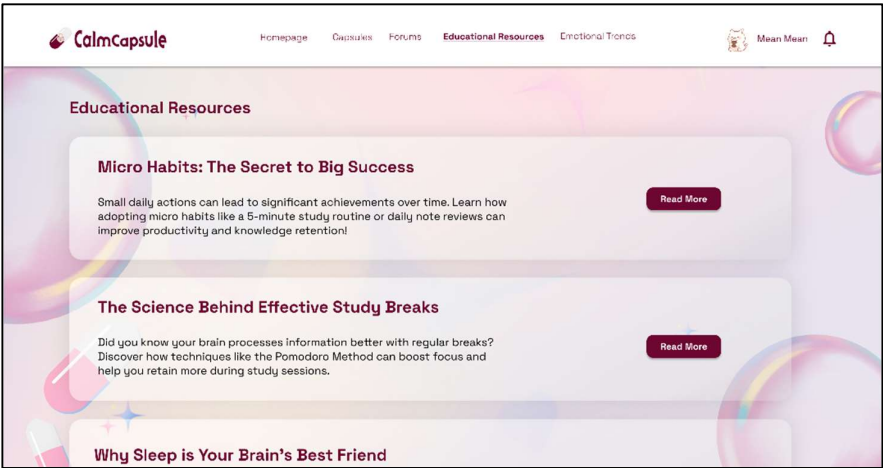


Figure 3. 52 The Educational Resources Page of CalmCapsule

Users can choose from a list of topics on the Educational Resources page (Figure 3.52) and read comprehensive information on a range of emotional well-being-related subjects. As a knowledge base, this area aids users in improving their comprehension of self-care techniques and mental health.

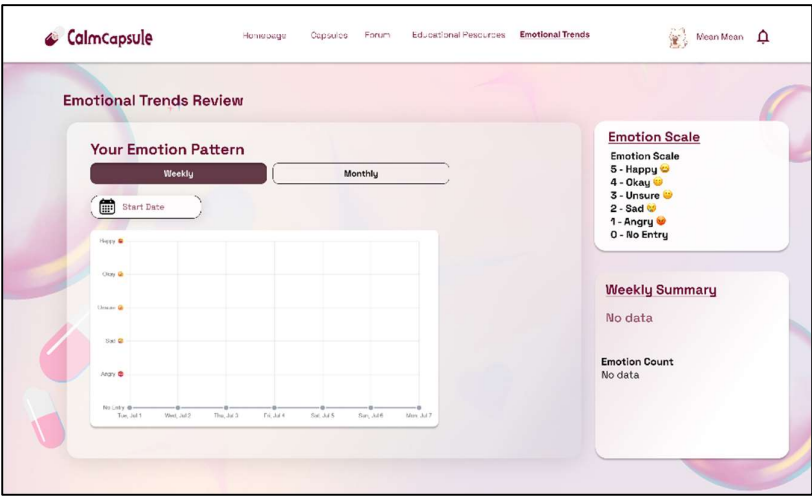


Figure 3. 53 The Emotional Trend Review Page of CalmCapsule

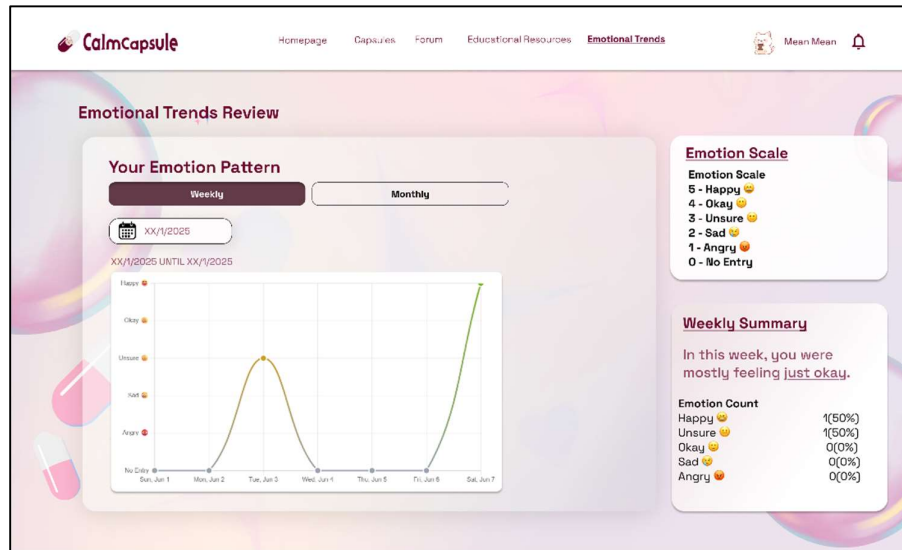


Figure 3. 54 The Emotional Trend Review Page (Results) of CalmCapsule

Figure 3.53 and Figure 3.54 depicts the Emotional Trend Review page, which allows users to review their emotional patterns over a specified time period (weekly or monthly). The emotion counts during the chosen period are highlighted and there will be a visual representation of recorded emotions pattern that is displayed on the page. A brief summary on what the user mostly feel in the selected period also allows users to reflect on their emotional patterns and achieve more self-awareness.

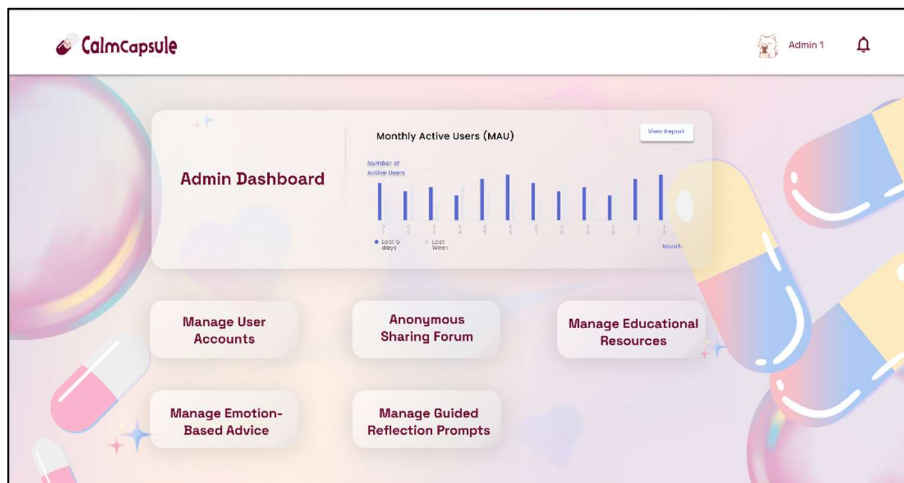


Figure 3. 55 Admin Dashboard Page of CalmCapsule

Last but not least, Figure 3.55 shows the Admin Dashboard, which includes functionalities for managing user accounts, updating educational resources, moderating the anonymous forum, managing emotion-based advice, and updating guided reflection prompts. In addition, a graph

showing the number of monthly active users offers information on platform usage patterns and user engagement. In addition to offering crucial administrative capabilities for content management and system moderation, this user-centric design makes sure that all features are simple to use and intuitive, giving users a smooth journaling and emotional reflection experience.

3.4.6 Secure Mechanisms

Several important security features are included in CalmCapsule to protect user data, including journal entries, personal data, and interactions within the platform.

1. User Authentication and Verification

To avoid fraudulent accounts, users must validate their email address while registering. A secure login mechanism prevents unauthorised individuals from accessing their accounts.

2. Encryption of Passwords

All user passwords are encrypted before being saved, limiting unauthorised access even if the database is compromised.

3. Secure Transmission and Storage of Data

Journal entries and personal data are kept secure, and all interactions between users and the system are encrypted to prevent interception.

4. Permissions Based on Roles and Access Control

Different user roles have distinct permissions, ensuring that only authorised persons can access or edit sensitive data.

5. Protection of Anonymous Sharing

User anonymity is maintained in the sharing forum, and forum moderation by admin prohibit unsuitable or harmful information.

3.5 Development

The third stage, known as the development phase, is where the system prototype is developed, building on the requirements gathering and design stages. The platform, CalmCapsule, will be developed using a combination of hardware and software tools, with Sublime Text or Visual Studio Code serving as the main code editors, XAMPP serving as the local server. The user interface design will be finalized using Figma. With the help of frameworks like Bootstrap or Tailwind CSS, the development will mostly use frontend technologies like HTML, CSS, and JavaScript to create an interactive and responsive interface. PHP, Node.js, or Python will be used for backend logic, and MySQL will be used as the database to hold the system data.

A laptop or PC is needed for development, and smartphones are needed to assess usability and responsiveness. Journaling, anonymous forums, and access capsules are examples of features that will be developed and tested iteratively, with time-boxed sprints being used to ensure methodical development. This methodical approach guarantees that the suggested platform will be successfully implemented.

3.6 Test

Following the guidelines of the Agile Methodology, testing will be carried out iteratively at the end of each sprint during this phase. Software testing serves to ensure software quality and improve system functionality in accordance with user expectations (Ranjan, 2024). According to Sachdeva and Khurana (2015), agile testing is a software testing technique that saves time and money while offering frequent feedback. It is in line with the concepts of agile software development. The testing procedure for CalmCapsule: An Online Platform for Managing Negative Emotions will concentrate on evaluating the system's compatibility, usability, and functionality to make sure it achieves the desired results.

Finding issues like bugs, logical inconsistencies in the platform, and problems with UI/UX design will be the approach used for testing. Evaluation methods will be kept straightforward, concentrating on user experience validation and fundamental functioning, as the system is not intended for public release. The testing methods listed below will be applied:

Table 3. 26 Testing Technique

Testing Technique	Description
Functional Testing	This test will make sure functions like journaling, guided reflection prompts, receiving emotion-based advice, anonymous sharing forums, viewing educational resources, and emotional trend analysis work as they should. The platform's general responsiveness, emotion-labelling features, and navigation flow will all be examined.
Usability Testing	To find any problems with user interaction and make sure the interface is clear and easy to use, a selected number of testers will interact with the platform. Testers will determine whether tasks, such as journaling with guided reflection prompts or review emotional trends, are simple to complete.

Testers will use standardized questionnaires to offer feedback at the end of the testing process. This feedback will serve as a gauge for how well the system manages emotions and achieves its objectives. All found flaws and defects will be noted and documented for future possible works.

Chapter 5: Evaluation and Testing will go into greater detail about the testing documentation and results.

3.7 Deploy

During the software development process, the deployment step entails making the system operational for end users. This usually entails setting up the environment, hosting the platform on a server, and guaranteeing safe access to all system functionalities. The project, CalmCapsule: An Online Platform for Managing Negative Emotions, will not, however, advance to the deployment stage.

The choice to halt before deployment is based on the system's character as an academic prototype. Instead of making the platform available to the general public, the aim of this project is to demonstrate its viability and functionality. The approach avoids complications like live server hosting, public user support, and ongoing maintenance by restricting the scope to testing. Furthermore, complex features like journaling and processing emotional data would necessitate stringent data security measures, such as compliance with privacy regulations and safe data storage procedures, which are outside the existing scope.

Instead, the system will be tested in a controlled setting to demonstrate its capabilities and prove its efficacy through iterative review. This approach guarantees that the project achieves its academic goals without adding needless risks or deployment-related resource requirements.

3.8 Review

To evaluate the system's overall performance and pinpoint areas in need of improvement, the review phase is crucial. The main goal of this stage is to assess the features that were included during development and make sure they achieve the desired results. Feedback from users is appreciated, including suggestions for feature improvements or modifications. In order to further improve the system's functionality, testers concurrently find any lingering problems or irregularities. A crucial stage of software development is the review phase, which focuses on assessing the system's functionality, performance, and user satisfaction following deployment. Users usually evaluate the features at this stage and offer suggestions for enhancements or new

features. To guarantee peak performance, testers also find any lingering problems or irregularities in the system (Mishra & Alzoubi, 2023).

However, as CalmCapsule: An Online Platform for Managing Negative Emotions is not meant for public deployment, this step will not be reached. The project's scope is restricted to controlled testing because it is an academic prototype. Therefore, there won't be the customary deployment procedure for consumer review and incremental enhancement. Instead, should the platform be expanded or enhanced for wider use, the input received during the testing phase will serve as the main source for assessing the system's viability and pinpointing possible future development areas. This approach guarantees that the system fulfils its original academic goal without undergoing additional stages.

3.9 Chapter Summary

Finally, with a focus on the Agile methodology, Chapter 3 describes the development process for the suggested solution, CalmCapsule: An Online Platform for Managing Negative Emotions. Gathering requirements is essential to determining the system's fundamental requirements and user expectations throughout the planning stage. Using user questionnaires to get feedback yields insightful information that helps identify problems and areas in which current systems need to be improved. After that, the design step entails generating ideas and creating the system's features, including journaling, guided reflection prompts, emotion-based advice, anonymous forums, and an emotional trend review. The design of the proposed system is illustrated via diagrams such as flowchart, use case diagram, class diagram, activity diagram, wireframes and secure mechanisms. The chapter also covers the development, testing, and assessment procedures, including how feedback will be gathered during testing and how the system will not be deployed or reviewed due to the project's scope.

CHAPTER 4: IMPLEMENTATION

4.1 Introduction

This chapter provides the implementation process of the CalmCapsule system based on the preceding requirement and designs of the chapters. It is an outline of integration of software tools, development environments and platforms required to give life to the suggested solution. The implementation phase is iterative in nature following a prototype model where development, testing, and refining are continuous to comply with the given user and system requirements. This chapter describes both the front-end and the back-end development stages with the focus on the techniques and technologies applied to the development of a functional and user-centred web-based emotional management platform. The implementation prioritizes content authenticity through manually created guided prompts and emotion-based advice, ensuring that all therapeutic content is professionally developed rather than algorithmically generated.

4.2 Software Installation and Configuration

Several critical software tools were installed and configured prior to the setup of the CalmCapsule system to ensure a stable and productive development environment. Optimal configuration of these tools is essential for the smooth functioning and operation of the proposed system. For front-end development, Sublime Text was used to write HTML, CSS, JavaScript, and PHP files, offering a lightweight and responsive code editing experience. The system's back-end operations are supported by the open-source application stack XAMPP, which integrates Apache as the web server, MySQL as the database management system, and PHP for server-side scripting. Apache handles server-side requests, while MySQL manages the storage and retrieval of user data and journal entries. Additionally, phpMyAdmin was included to simplify database management through its user-friendly web interface. This local development setup enables seamless integration and testing of both front-end and back-end components, facilitating the effective implementation of CalmCapsule's features. Before the development process, Figma was also used to design the system's user interface and layout, allowing for a clearer vision of the final product.

4.2.1 Sublime Text

To develop the CalmCapsule system, Sublime Text was selected as the primary coding environment due to its exceptional speed, intuitive interface, and comprehensive support for various languages, including HTML, CSS, JavaScript, and PHP. Known for its lightweight

performance and near-instantaneous startup, this editor enables efficient handling of extensive projects. Its user-friendly design, coupled with seamless installation, makes it particularly suitable for accelerating development workflows (Kumar, 2023).

1. Downloading Sublime Text

Firstly, a user needs to visit the official Sublime Text website at <https://www.sublimetext.com>. To download the application, people should go to the “Download” section and pick the version for their system, Windows, macOS, or Linux.

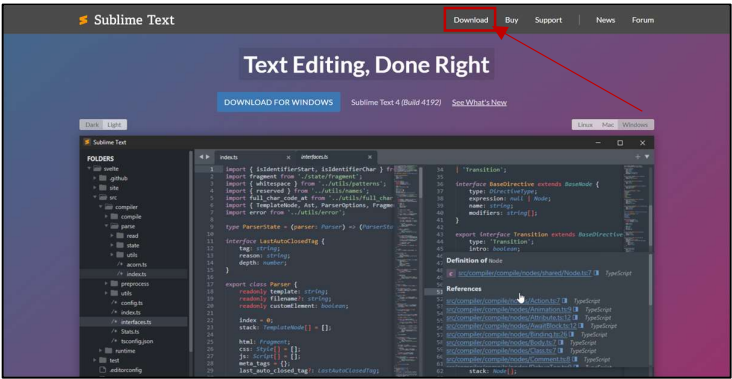


Figure 4. 1 Official Sublime Text Website

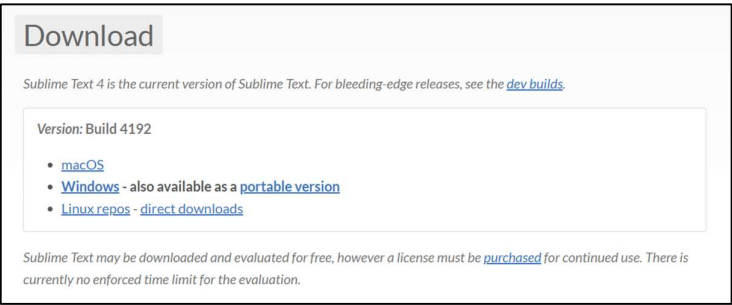


Figure 4. 2 Sublime Text Download Page

2. Installing on Windows

Once the .exe installer file has been downloaded (Windows users), double-click on it to launch the installation wizard. The wizard will prompt users to click “Next” in order to start the installation process. In the next step, the users can select the destination folder where Sublime Text is to be installed. They can accept the default installation path or if they want, they can click “Browse” in order to select another directory.

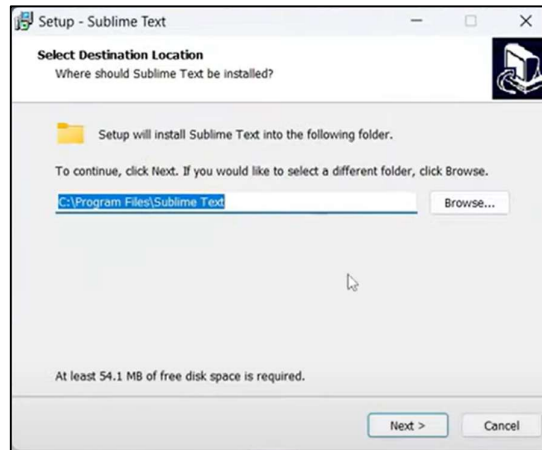


Figure 4. 3 Installation Wizard (Step Showing Installation Path Selection)

After that, the users will be prompted to select other tasks that the installer should perform. It is recommended to select the option “Add to explorer context menu”, which will let the users open files directly in Sublime Text from the right click menu in the windows explorer. Upon setting the preferred options, click “Next” to continue.

When it is ready, click the “Install” button to start the actual installation. The setup will copy the required files and do the process in few moments. Once the installation is complete, click Finish button to exit the wizard. The Sublime Text 4 can now be opened using the desktop shortcut or the start menu.

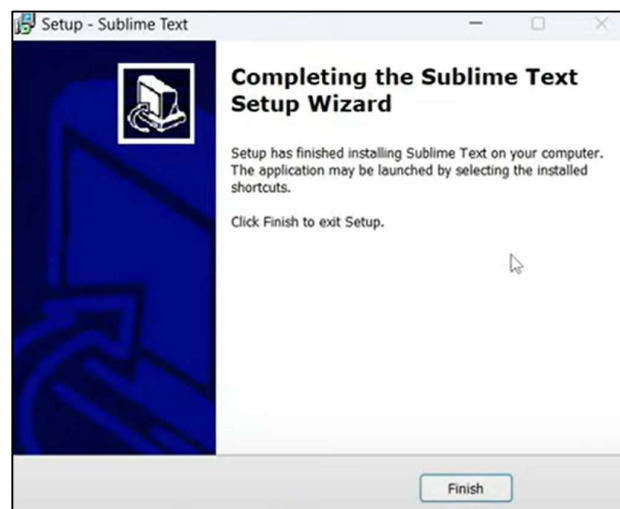


Figure 4. 4 Final Installation Screen showing the “Finish” Button

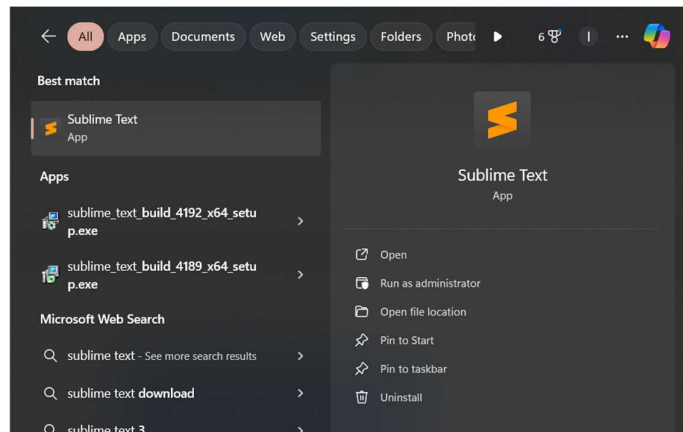


Figure 4. 5 Sublime Text 4 in Start Menu

3. Launching Sublime Text

Upon opening the program, users are welcomed by a clean and minimalistic interface designed to enhance focus and reduce distractions, making it ideal for writing and editing code.

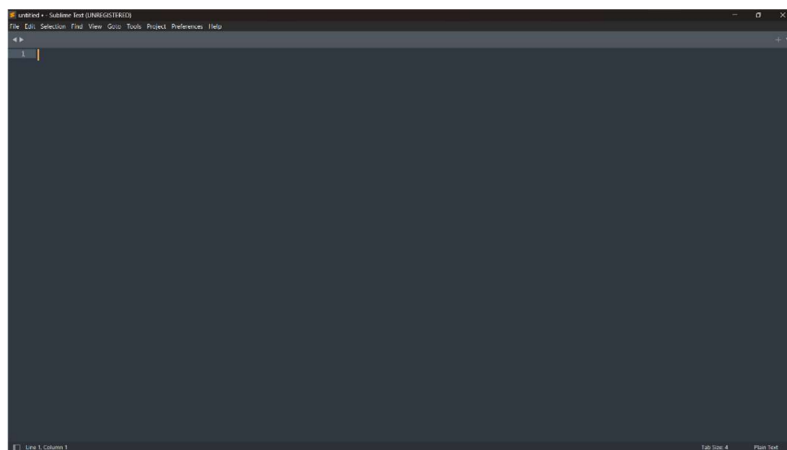


Figure 4. 6 The Clean Interface of Sublime Text 4

To begin a new file, users can navigate to the “File” tab located in the top menu bar and select “New File”, or they can start typing directly into the blank editing area. When ready to save, they can go to File > Save, or use the keyboard shortcut Ctrl + S. A dialog box will appear allowing users to choose a destination folder, specify a filename, and define the correct file extension (e.g., .html, .css, .js, .php) to ensure the code is recognized appropriately by the editor.

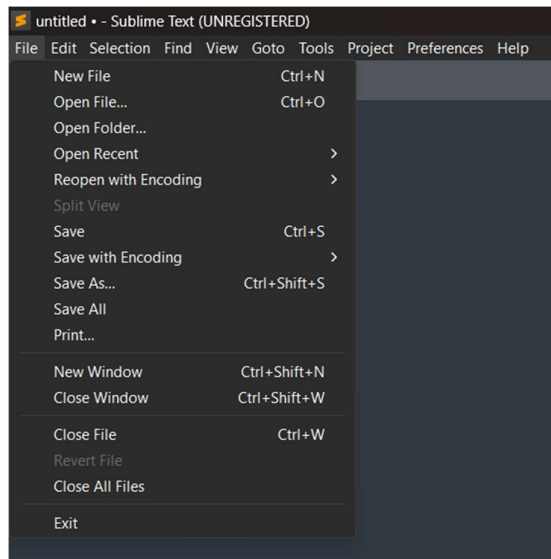


Figure 4. 7 “File” Tab Located in the Top Menu Bar

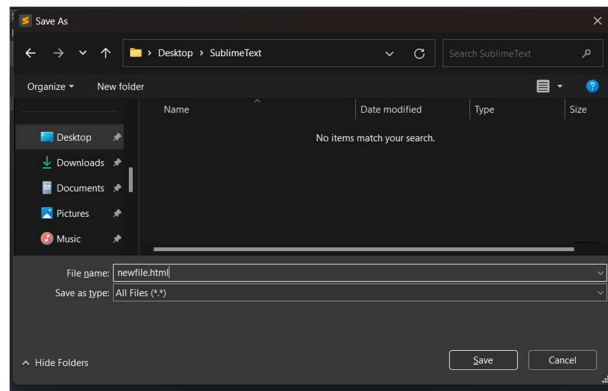


Figure 4. 8 A Dialog Box to Save the File

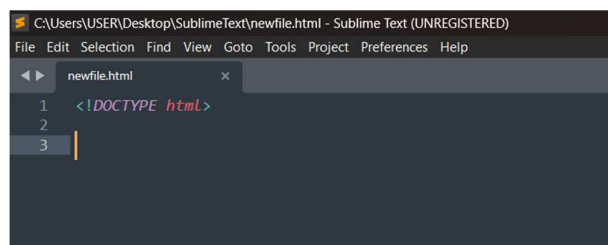


Figure 4. 9 An Example of Recognized Code File (.html File Extension)

Alternatively, users can choose to open an existing folder by going to File > Open Folder..., which is particularly helpful when working on multi-file projects. Once a folder is opened, Sublime Text will display its structure on the left sidebar, making it easy to navigate and edit multiple files. Users also have the option to open a specific

existing file by selecting File > Open File... and browsing to the file's location. Sublime Text will then open it in a new tab within the editor for immediate editing. This functionality makes Sublime Text highly efficient for managing both individual code files and entire development projects, ensuring a streamlined coding experience for developers working on systems like CalmCapsule.

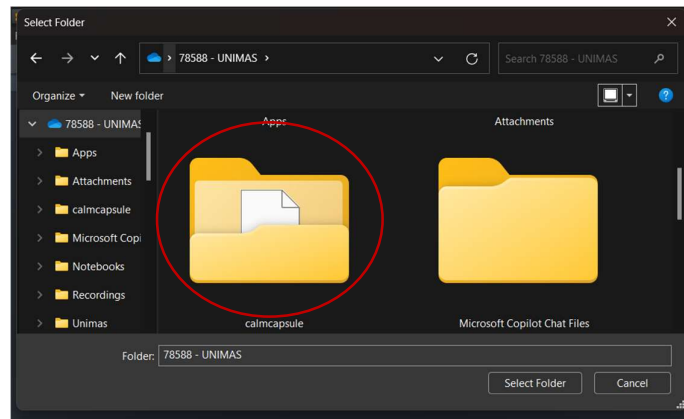


Figure 4. 10 Opening an Existing Folder (Part 1)

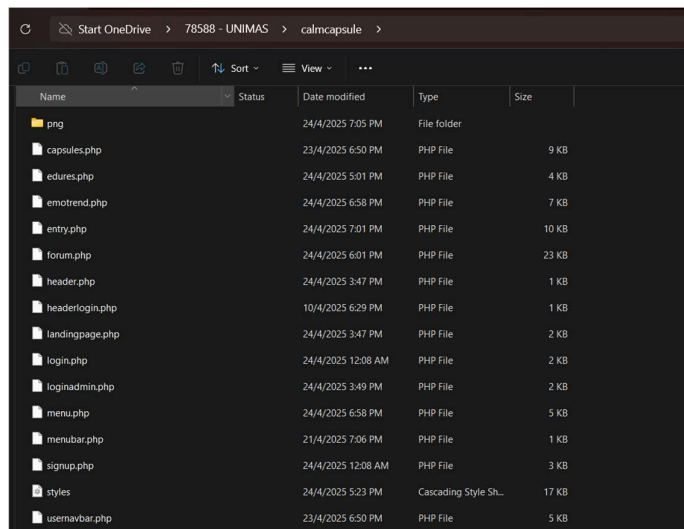


Figure 4. 11 Opening an Existing Folder (Part 2)

2. Launching the Setup Wizard

After the installer file (.exe) has been successfully downloaded, it must be launched by double-clicking the file. A User Account Control (UAC) prompt may appear and should be acknowledged to continue. The setup wizard will initiate with a welcome screen, where the “Next” button should be selected to proceed with installation.

3. Selecting Components

The setup wizard presents a list of components available for installation. For the development of CalmCapsule, the essential components include Apache, MySQL (MariaDB), PHP, and phpMyAdmin. These components are selected by default and should remain checked. Non-essential components can be deselected to streamline the installation process. After confirming the selection, the installation process continues by clicking “Next”.

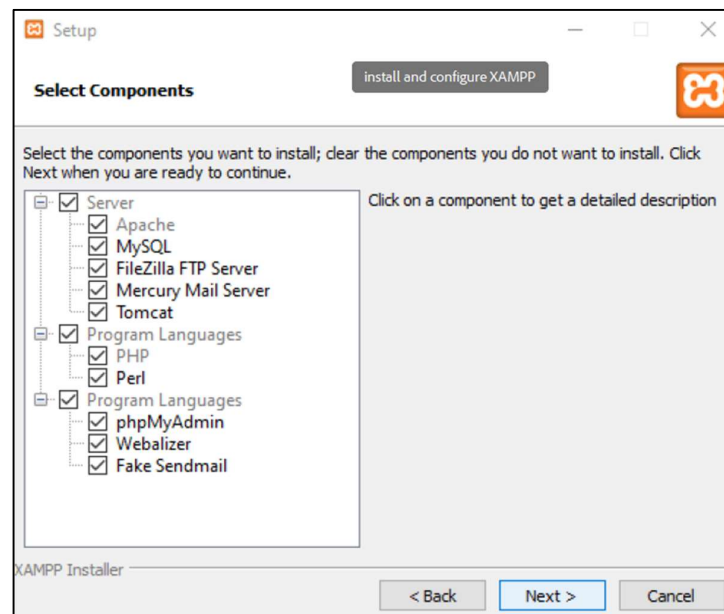


Figure 4. 14 The Component Selection Screen

4. Choosing the Installation Directory

The installer prompts for the location where XAMPP should be installed. By default, the directory C:\xampp is recommended, as it avoids permission conflicts commonly associated with protected system folders such as Program Files. However, a different location may be selected by clicking “Browse”. Once the directory is selected, the installation proceeds to the next step.

5. Installing XAMPP

After reviewing the installation summary, the setup process can be initiated by clicking “Next.” The installer then begins copying the required files and configuring the selected components. This may take several minutes depending on the system’s performance.

6. Completing Installation and Launching the Control Panel

Upon successful completion of the installation, the user is prompted with a “Finish” button and an option to immediately launch the XAMPP Control Panel. This option should remain selected to verify that the installation is functional. The Control Panel serves as the central interface for managing XAMPP’s services.

7. Starting Apache and MySQL Services

Within the XAMPP Control Panel, the Apache and MySQL services can be started by selecting the corresponding “Start” buttons. A firewall prompt may appear for each service, which must be granted access. Once active, both modules will be highlighted in green, indicating that the local development server is running successfully.

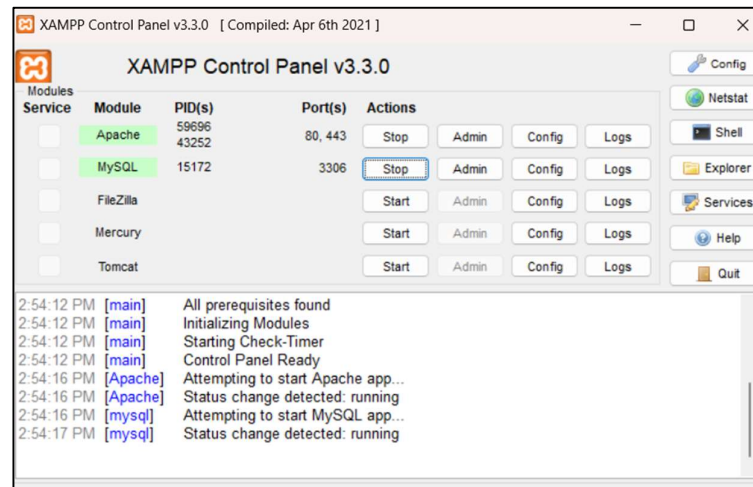


Figure 4. 15 XAMPP Control Panel with Both Services (Apache and MySQL) Running

8. Verifying Installation through Web Browser

To verify that XAMPP has been installed and configured correctly, a web browser can be opened and navigated to <http://localhost/>. If the XAMPP dashboard appears, it confirms that the Apache server is running and the system is ready for backend development.



Figure 4. 16 The Localhost XAMPP Dashboard in a Web Browser

4.2.3 phpMyAdmin

phpMyAdmin is a browser-based application that facilitates the administration of MySQL databases through a graphical user interface. Included in the XAMPP package, it enables users to carry out essential database operations such as creating and modifying databases, managing tables, executing SQL queries, and importing or exporting data. By eliminating the reliance on command-line interactions, phpMyAdmin improves accessibility and efficiency in database management. This tool is particularly useful in the development of web-based systems like CalmCapsule, where organized and streamlined database operations are critical to ensuring functionality and data integrity.

1. Accessing phpMyAdmin

Once XAMPP has been installed and both Apache and MySQL modules are running in the XAMPP Control Panel, phpMyAdmin can be accessed by navigating to `http://localhost/phpmyadmin` in a web browser. This opens the main dashboard, where various database operations can be performed.

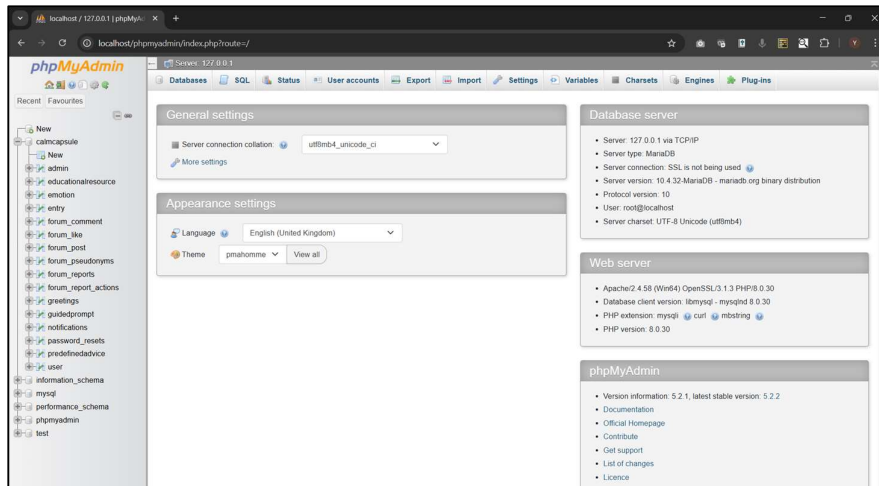


Figure 4. 17 phpMyAdmin Homepage

2. Creating a New Database

To create a new database, select the “New” option on the left sidebar. In the “Create database” section, enter the desired database name (e.g., calmcapsule, testing) and choose a collation (e.g., utf8_general_ci) for character encoding. Clicking the “Create” button will generate a new database that can be used to store the tables for the application.

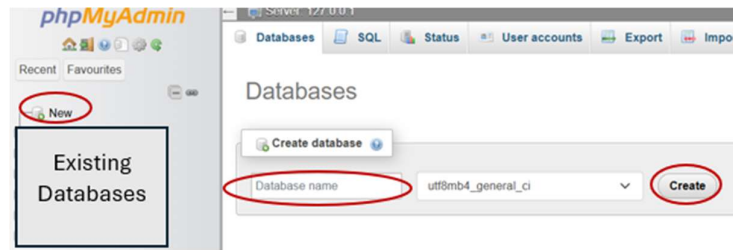


Figure 4. 18 The Creation of a New Database (Database Tab)

Another way of creating a database can be performed by running SQL queries under the ‘SQL’ tab, as shown in Figure 4.19 below.



Figure 4. 19 The Creation of a New Database (SQL Tab)

3. Creating Tables and Fields

Once the database has been created, tables can be added by specifying a table name (e.g., users, entry, emotions) and the number of columns required. After clicking “Go”, phpMyAdmin provides a form to define each column’s name, data type (e.g., INT, VARCHAR, TEXT, DATE), length, and other properties such as primary key or auto-increment. Submitting this form will save the structure of the table.

The screenshot shows the phpMyAdmin interface for a database named 'test' on server '127.0.0.1'. The 'Structure' tab is active. A message at the top states 'No tables found in database.' Below this, there is a 'Create new table' button. Underneath, there are two input fields: 'Table name' and 'Number of columns', which is currently set to '4'. A 'Create' button is located to the right of the 'Number of columns' field.

Figure 4. 20 Table Creation in A Database in phpMyAdmin (Structure Tab)

The screenshot shows the phpMyAdmin interface for a database named 'test' on server '127.0.0.1'. The 'Structure' tab is active. The 'Table name' is 'user' and the 'Number of columns' is '1'. The 'Field Definitions' section is visible, showing a table structure with columns named 'user', 'Add', and 'column(s)'. The 'Structure' tab is active, and the 'Field Definitions' section is visible, showing columns with data type 'INT' and length '1'. The 'Storage Engine' is set to 'InnoDB'.

Figure 4. 21 Field Definitions in a Table Creation

4. Inserting and Retrieving Data

Data can be manually inserted into tables using the “Insert” tab, where values are entered into a form and submitted. To view the records, select the table and click on the “Browse” tab. This provides a tabular view of all existing entries, making it easy to review, filter, or edit data.

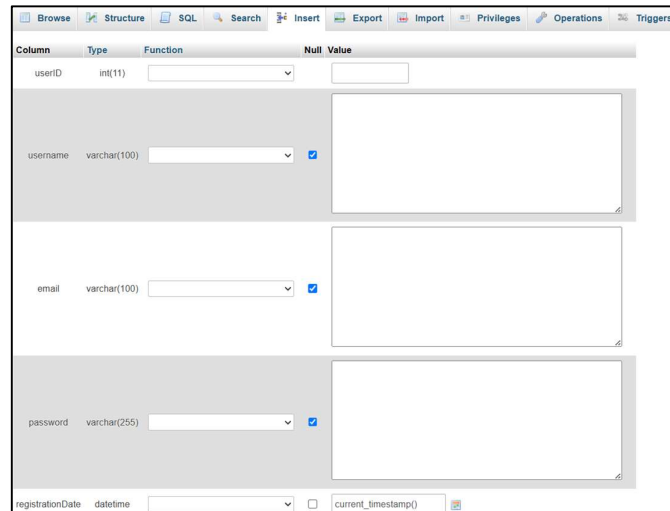


Figure 4. 22 Data Insertion in “Insert Tab”

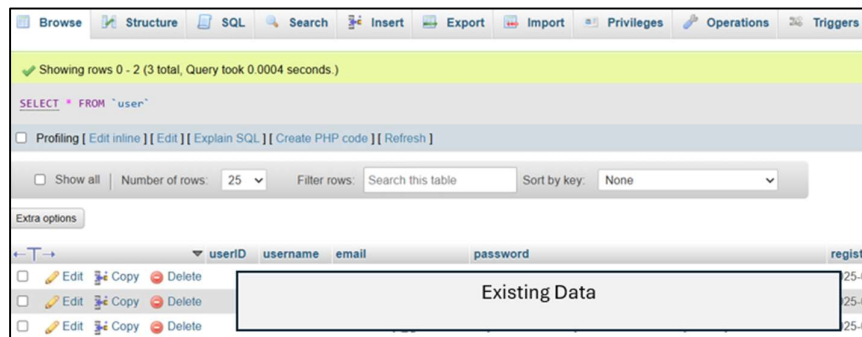


Figure 4. 23 Existing Data Displayed in “Browse” Tab

5. Running SQL Queries

The “SQL” tab allows custom SQL queries to be executed. This is useful for advanced operations such as joining tables, filtering records with specific conditions, or updating multiple rows. For example, a query such as `SELECT * FROM user WHERE userID = 1;` can retrieve specific user data based on the userID requested. Other than that, creating database and table also can be done directly here using SQL queries.

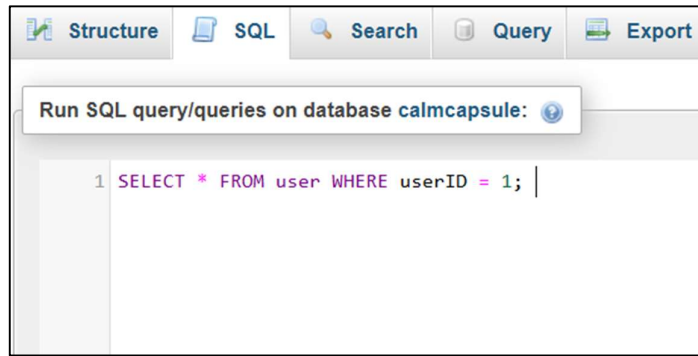


Figure 4. 24 Sample Query in “SQL” Tab

6. Importing Data

phpMyAdmin supports importing .sql or .csv files into an existing database. This is done via the “Import” tab. Users can select the file, specify format and character encoding, then execute the import to restore or migrate data from another source. This is especially useful for moving data between development and production environments.

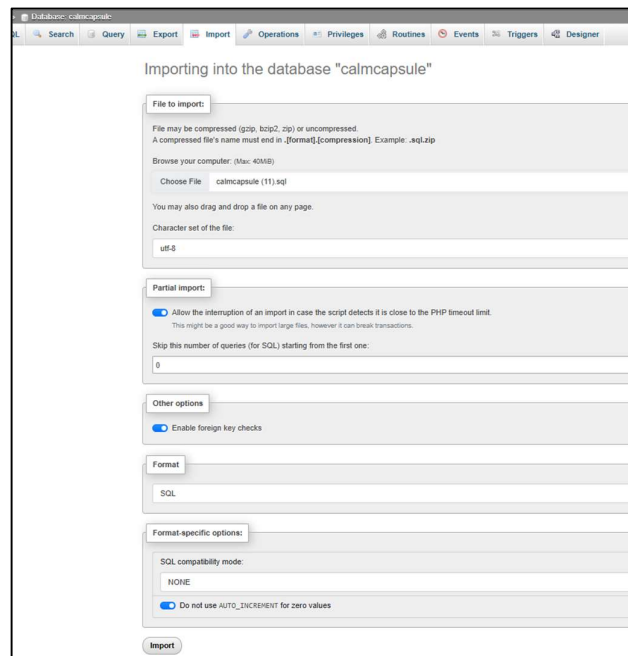


Figure 4. 25 The Import Tab and Upload File Options

7. Exporting Data

To back up a database or share it with collaborators, the “Export” feature can be used. Under the “Export” tab, phpMyAdmin allows exporting entire databases or specific

tables in multiple formats such as SQL or CSV. The “Quick” method exports the entire database, while the “Custom” option allows for selective export settings.

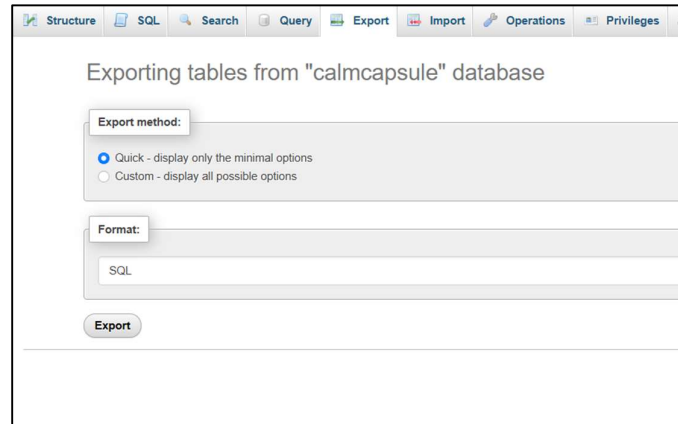


Figure 4. 26 Export Settings with SQL Format Selected

8. Modifying or Deleting Tables and Records

Tables and rows can be modified or deleted using the “Structure” and “Browse” tabs. Fields may be edited directly, or entries can be removed using the delete icon. phpMyAdmin provides confirmation prompts to prevent accidental data loss.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	userID	int(11)		No	None			AUTO_INCREMENT	Change Drop More
2	username	varchar(100)	utf8mb4_general_ci	Yes	NULL				Change Drop More
3	email	varchar(100)	utf8mb4_general_ci	Yes	NULL				Change Drop More

Figure 4. 27 Structure View showing Fields in a Table

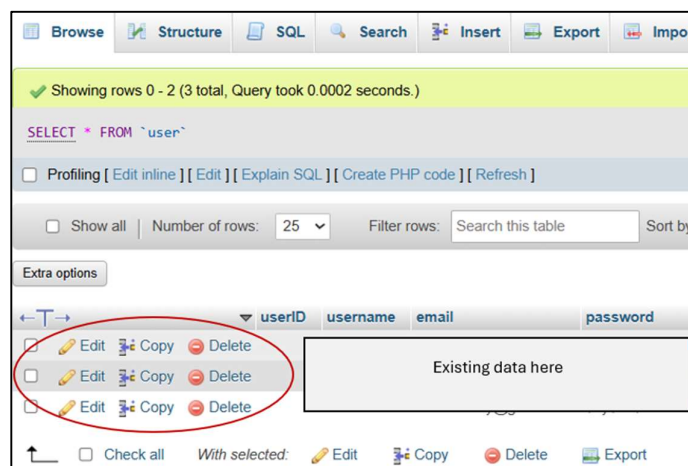


Figure 4. 28 Edit, Copy and Delete Icons in Modify Rows in a Table

4.2.4 Figma

Before development began, Figma played an essential role in shaping the overall look and feel of the CalmCapsule system. It was used to create wireframes and interactive mockups that outlined the system's flow and functionality, helping to explore user interactions and refine key features early on. This early visual planning ensured the design direction stayed aligned with the project's goals. The Figma interface is shown in the following Figure 4.29.

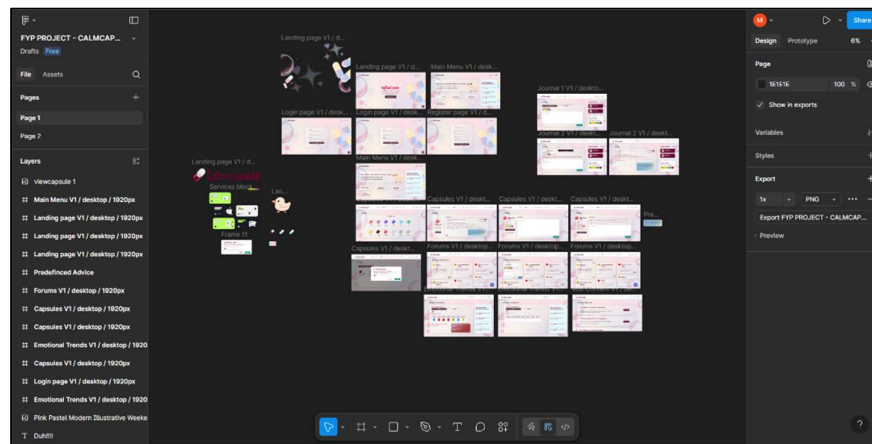


Figure 4. 29 Figma Screen Capture

4.2.5 Canva

Before and during the development process, Canva was utilized to design visual materials for the CalmCapsule system. It was primarily used to create the CalmCapsule environment overview and the user manual. These designs helped present the system's branding, layout, and usage instructions in a clear and consistent manner. The visuals produced through Canva contributed to enhancing user understanding and supporting system documentation. An example of the Canva interface used is shown in Figure 4.30 below.

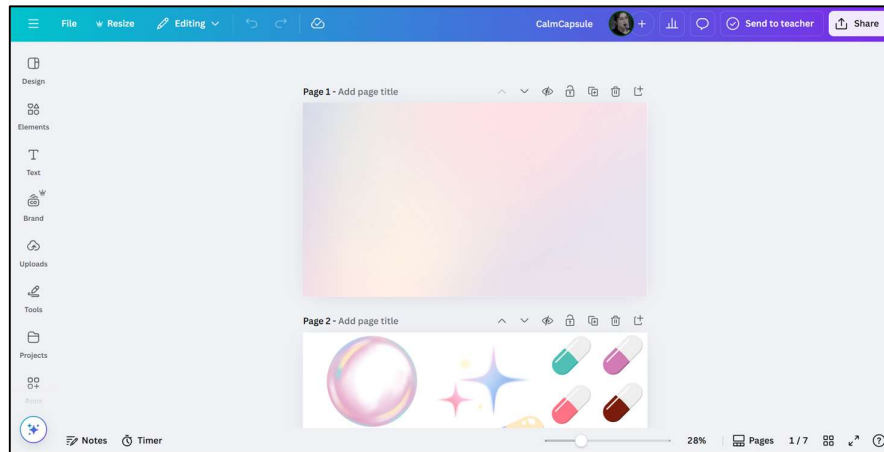


Figure 4. 30 Canva Screen Capture

4.3 Visual Design and Environment

The visual design of CalmCapsule was carefully curated to reflect the system’s core purpose, which is to provide a friendly, comforting, and emotionally safe space for users journaling experience. The visual identity draws inspiration from the symbolic meaning of a ‘capsule’, a compact, secure container used to preserve or protect something valuable. In CalmCapsule, each capsule represents a month in the user’s journaling journey, storing their thoughts and emotions in a private and secure environment. To bring this vision to life, Canva was used extensively during the design process. All visual assets, including icons, illustrations, and backgrounds, were either created or sourced using Canva’s graphic resources, ensuring a cohesive and calming user experience.

4.3.1 Website Assets

Several design elements and icons were integrated into the interface to enhance user interaction and reinforce CalmCapsule’s visual identity, including:

i. Logo

A minimal-style logo was designed to reflect simplicity and calmness. It features the name CalmCapsule accompanied by a capsule icon merged with a small lock symbol, reinforcing the idea of safe emotional storage, as shown in Figure 4.31.



Figure 4. 31 CalmCapsule Logo

ii. Homepage Mascot (Duck PNG)

Figure 4.32 shows a friendly duck illustration is used in the greeting section to bring warmth and a light-hearted feel to the landing page.

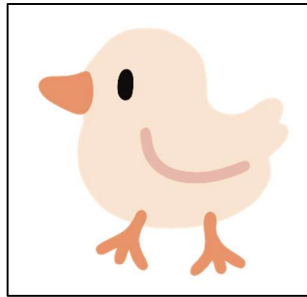


Figure 4. 32 The Duck Illustration (Mascot) for CalmCapsule Homepage

iii. Feature Illustrations (PNG Icons)

Four themed illustrations were used to visually represent the system's options in the Homepage. These assets help guide users and clarify each feature at a glance when hovered.

a. View Capsules



Figure 4. 33 Feature Illustrations (View Capsule Button)

b. Anonymous Sharing Forum

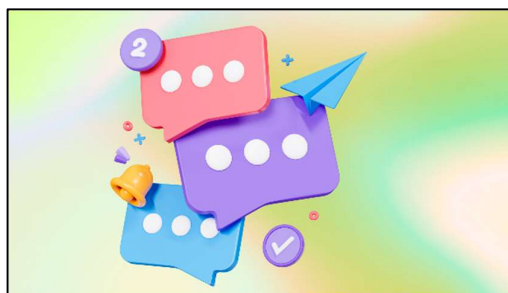


Figure 4. 34 Feature Illustrations (Anonymous Sharing Button)

c. Access Educational Resource



Figure 4. 35 Feature Illustrations (Educational Resource Button)

d. Review Emotional Trend

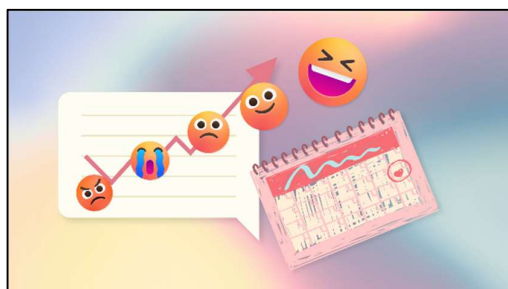


Figure 4. 36 Feature Illustrations (Review Emotional Trend Button)

iv. Monthly Capsule Icons

Each month in the journaling system is represented by a unique capsule icon. These icons are visually consistent and labelled with month names (e.g., January, February) to reflect the structure of CalmCapsule, where every capsule stores entries for that specific month. The icons contribute to the feeling of organized emotional storage and reinforce the metaphor of time-based healing. The following Figure 4.37 displays the 12 monthly capsules, each distinguished by a different colour.



Figure 4. 37 12 Capsules, Labelled with Months Name

4.3.2 Website Environments

To maintain emotional consistency and user comfort throughout the system, the following visual environment choices were applied:

i. Soft Pastel Color Palette

Calm tones like soft lavender, pale yellow, and blush pink form the visual foundation. These colours help reduce visual fatigue and support a peaceful journaling experience. The following Figure 4.38 is the base background of CalmCapsule.

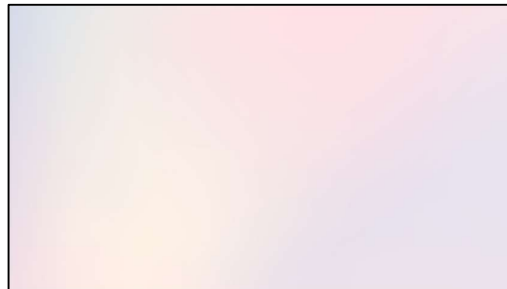


Figure 4. 38 CalmCapsule Pastel Background

ii. Overlay Decorative Elements

Several layered elements, including pastel bubbles, floating capsule icons, and scattered stars or sparkles, are used across pages to create a dreamy, soothing visual environment without overwhelming the interface. The following figure shows the website's ambient overlays.



Figure 4. 39 CalmCapsule Ambient Overlays

These environmental design choices contribute to a unique digital space that feels both private and emotionally supportive, aligning with the purpose and metaphor of CalmCapsule.

4.4 Designing Website User Manual

The user manual prepared for CalmCapsule serves as a substitute for a typical “How to Use” section. It begins by introducing the purpose of the platform and the concept of organizing emotional reflections into monthly capsules. This helps users understand the system as a safe and structured space for emotional expression. The manual then walks users through the platform’s core features, including Journaling (accessed via View Capsules and Add New Entry), Guided Prompts for Reflection and Emotion-based Advice (both available during the journaling process), Educational Resources, Emotional Trend Review, and the Anonymous Sharing Forum. Presented with clear visuals and step-by-step instructions, the manual ensures users can navigate the platform with ease and benefit fully from its emotional support tools.

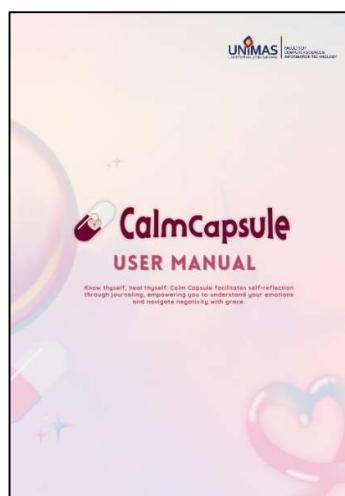


Figure 4. 40 Platform User Manual Screen Capture

4.5 User Interface Overview

This section presents a comprehensive overview of the CalmCapsule platform’s user interface, outlining each key component accessible to end users. The platform is designed with a focus on emotional safety, ease of use, and a visually calming aesthetic. The interface utilizes a soft pastel color palette and minimalistic layout to promote a sense of tranquility and encourage users to engage in reflective journaling. Each page has been structured to ensure intuitive navigation and consistent interaction across the system. While the system includes responsive styling to support mobile access, this overview specifically highlights the desktop and laptop version, as the platform is best experienced on larger screens for optimal layout and usability.

4.5.1 Index Page (Landing Page)

The landing page introduces users to the CalmCapsule system with an inviting quote and a central call-to-action button labeled “Start Your Journey”, encouraging visitors to begin their emotional reflection journey. No login is required to view this page.

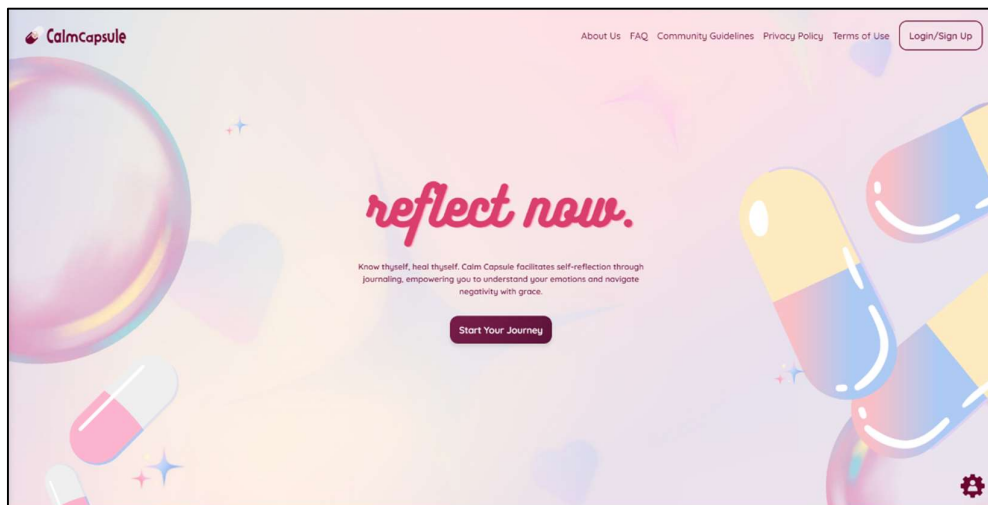


Figure 4. 41 Landing Page of CalmCapsule

```
<main class="text-center max-w-lg mx-auto">

<p class="description quicksand-semibold">
  Know thyself, heal thyself. Calm Capsule facilitates self-reflection through journaling, empowering you to
  understand your emotions and navigate negativity with grace.
</p>
<a href="login.php" class="block mx-auto w-fit">
  <button class="button button-primary button-auto">Start Your Journey</button>
</a>
</main>
```

Figure 4. 42 Code Snippet for Landing Page

4.5.2 Sign-Up Page

The Sign-Up Page enables new users to create an account on the CalmCapsule platform by providing a valid username, email address, and password. The system incorporates real-time validation to guide users through the registration process and ensure that input fields meet predefined requirements before submission is allowed. Upon landing on the Sign-Up page, users are presented with a registration form that includes the following input fields:

i. **Username Field**

- Required input.
- The system validates as the user types.
- Must consist of at least three characters and avoid special characters.
- The system checks against the database to ensure the username is not already registered.
- If the input is valid, the field is marked accordingly; otherwise, an inline error message appears.

ii. **Email Address Field**

- Required input.
- Validated in real-time for proper email format (e.g., user@example.com).
- The system performs a check to ensure the email is not already registered in the system.
- Users are notified instantly if the format is incorrect or if the email is already taken.

iii. **Password Field**

- Required input.
- The system validates password strength in real time as the user types.
- Minimum requirements:
 - At least 8 characters

- One uppercase letter
- One lowercase letter
- One number or special character
- A requirement checklist is displayed to visually guide the user.

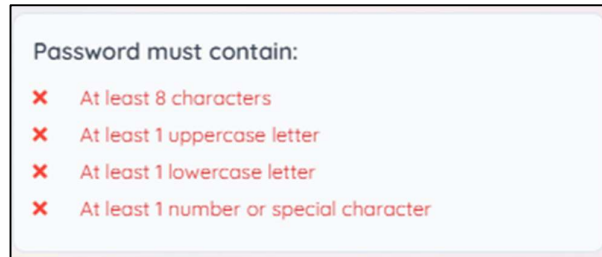


Figure 4. 43 Password Requirement Checklist

iv. **Confirm Password Field**

- Required input.
- Must match the value entered in the password field.
- The system notifies the user immediately if there is a mismatch.

v. **Sign Up Button**

- Remains disabled until all four input fields pass validation.
- Once validations are satisfied, the button becomes active.
- Upon clicking, the system:
 - Finalizes a check for input integrity.
 - Stores the information in the database using secure hashing for the password.
 - Redirects the user to the Login Page with a confirmation message.

This real-time feedback approach prevents submission of incomplete or invalid data and significantly enhances user experience by guiding the user before form submission.

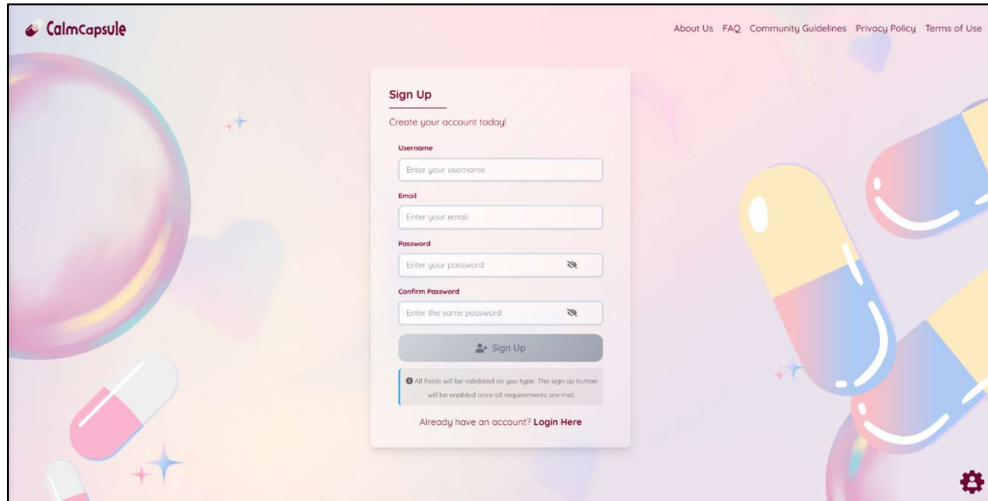


Figure 4. 44 Sign-Up Page of CalmCapsule

```
// Enhanced validation function for password
function validatePassword($password) {
    $errors = [];

    if (empty($password)) {
        $errors[] = "Password is required";
        return $errors;
    }

    // Check minimum length
    if (strlen($password) < 8) {
        $errors[] = "Password must be at least 8 characters long";
    }

    // Check maximum length
    if (strlen($password) > 128) {
        $errors[] = "Password must be less than 128 characters";
    }

    // Check for uppercase letter
    if (!preg_match('/[A-Z]/', $password)) {
        $errors[] = "Password must contain at least one uppercase letter";
    }

    // Check for lowercase letter
    if (!preg_match('/[a-z]/', $password)) {
        $errors[] = "Password must contain at least one lowercase letter";
    }

    // Check for number OR special character
    if (!preg_match('/[0-9]/', $password) && !preg_match('/[!@#%&*()_+~\-\[\]\{\};\':"\\|,.<>\/?]/', $password)) {
        $errors[] = "Password must contain at least one number or special character";
    }

    // Check for common weak passwords
    $weakPasswords = [
        'password', 'password123', '12345678', 'qwerty123', 'admin123',
        'welcome123', 'letmein123', 'monkey123', '123456789', 'password1'
    ];

    if (in_array(strtolower($password), $weakPasswords)) {
        $errors[] = "Password is too common. Please choose a more secure password";
    }

    return $errors;
}
```

Figure 4. 45 Code Snippet of Password Validation

4.5.3 Login Page

The Login Page provides access for returning users to securely authenticate and access their CalmCapsule account. Users are prompted to input the following:

- i. **Email Address Field**

- Required input.
 - Must match an existing email address in the system.
- ii. **Password Field**
- Required input.
 - Compared securely against the stored hashed password.
- iii. **Forgot Password Link**
- Available below the form.
 - Redirects users to the Forgot Password Page if they are unable to recall their credentials.
- iv. **Form Submission**
- Upon clicking “Login” the system:
 - Validates that both fields are not empty.
 - Verifies credentials.
 - If successful, logs in the user and redirects to the homepage.
 - If credentials are incorrect, displays a generic error message (e.g., “Invalid email or password”).

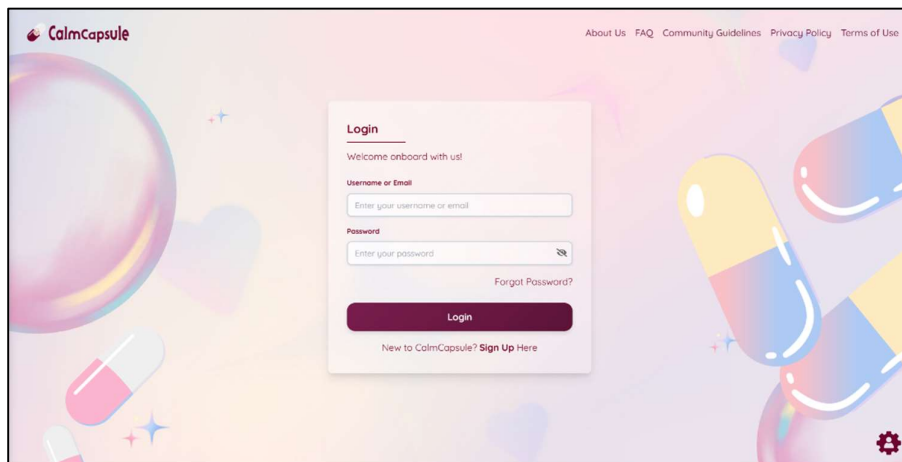


Figure 4. 46 Login Page of CalmCapsule

```

// Proceed with login
$sql = "SELECT userID, username, email, password FROM user WHERE username = ? OR email = ?";
$stmt = $conn->prepare($sql);
$stmt->bind_param("ss", $usernameOrEmail, $usernameOrEmail);
$stmt->execute();
$result = $stmt->get_result();

// Check if the user exists
if ($result->num_rows > 0) {
    $user = $result->fetch_assoc();

    // Verify password
    if (password_verify($password, $user['password'])) {
        // Update last login time
        $updateLoginSql = "UPDATE user SET last_login = NOW() WHERE userID = ?";
        $updateStmt = $conn->prepare($updateLoginSql);
        $updateStmt->bind_param("i", $user['userID']);
        $updateStmt->execute();
        $updateStmt->close();

        // Set session variables
        session_regenerate_id(true);
        $_SESSION['userID'] = $user['userID'];
        $_SESSION['username'] = $user['username'];
        $_SESSION['login_success'] = true;

        // Clear any existing login errors
        unset($_SESSION['login_errors']);
        unset($_SESSION['login_username']);

        // Create loading page
        $stmt->close();
        $conn->close();

        >>
        <!DOCTYPE html>
        <html lang="en">
        <head>
        </head>
        <body>
        </body>
        </html>
        <?php
        exit();
    } else {
        $errors['password'] = "Incorrect password";
    }
} else {
    $errors['username'] = "No account found with that username or email";
}

```

Figure 4. 47 Code Snippet for Login Authentication

4.5.4 Forgot Password Page

The Forgot Password Page assists users in recovering account access by initiating a password reset process via email.

i. Email Address Input

- Required input.
- The system checks if the provided email is registered.

ii. Send Reset Link Button

- Upon clicking, the system:
 - Sends a password reset link to the user's email.
 - The link contains a time-limited token to securely validate the reset process.
 - A confirmation message is displayed ("Please check your email for a reset link").

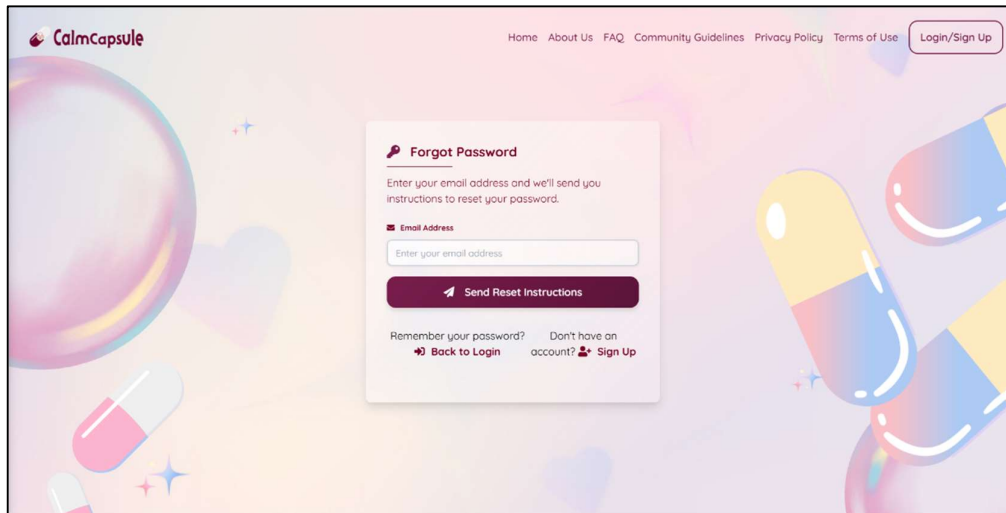


Figure 4. 48 Forgot Password Page of CalmCapsule

```
// Validate email
if (empty($email)) {
    $message = "Email address is required.";
    $messageType = "error";
} elseif (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
    $message = "Please enter a valid email address.";
    $messageType = "error";
} else {
    // Check if email exists in database
    $sql = "SELECT userID, username, email FROM user WHERE email = ?";
    $stmt = $conn->prepare($sql);
    $stmt->bind_param("s", $email);
    $stmt->execute();
    $result = $stmt->get_result();

    if ($result->num_rows > 0) {
        $user = $result->fetch_assoc();

        // Generate reset token
        $resetToken = generateResetToken();
        $tokenExpiry = date('Y-m-d H:i:s', strtotime('+24 hours'));

        // Store reset token in password_resets table
        $insertSql = "INSERT INTO password_resets (email, token, expires_at) VALUES (?, ?, ?)";
        $insertStmt = $conn->prepare($insertSql);
        $insertStmt->bind_param("sss", $user['email'], $resetToken, $tokenExpiry);

        if ($insertStmt->execute()) {
            // Send password reset email
            $emailSent = sendPasswordResetEmail($user['email'], $user['username'], $resetToken);

            if ($emailSent) {
                $message = "Password reset instructions have been sent to your email address. Please check your inbox and follow the instructions to reset your password.";
                $messageType = "success";
                $email = ''; // Clear email field on success
            } else {
                $message = "We found your account, but there was an issue sending the reset email. Please try again later or contact support.";
                $messageType = "error";
                error_log("Failed to send password reset email to: " . $user['email']);
            }
        } else {
            $message = "An error occurred while processing your request. Please try again later.";
            $messageType = "error";
            error_log("Failed to store reset token for email: " . $user['email']);
        }

        $insertStmt->close();
    } else {
        // For security, don't reveal if email exists or not
        $message = "If an account with that email address exists, password reset instructions have been sent to your inbox.";
        $messageType = "info";
    }
}
```

Figure 4. 49 Code Snippet for Password Reset Token Generation

4.5.5 Reset Password Page

This page allows users to define a new password after verifying their reset token (via email link). The token must be valid and unexpired.

i. New Password Field

- Required input.
 - Must meet the system's security criteria:
 - Minimum 8 characters.
 - Includes at least 1 uppercase, 1 lowercase letters and 1 number or special characters.
- ii. **Confirm New Password Field**
- Required input.
 - Must exactly match the new password entered above.
 - If mismatched, an error message is shown.
- iii. **Form Submission**
- Upon clicking “Reset Password,” the system:
 - Validates the token.
 - Ensures both fields are valid and matching.
 - If valid, updates the password in the database (hashed).
 - Notifies the user of success and redirects them to the login page.

The screenshot shows the 'Reset Password' page for CalmCapsule. The page has a pink and purple background with pill graphics. The central form is titled 'Reset Password' and includes a greeting 'Hello Yasmin! Create your new password below.' It features two input fields: 'Password' and 'Confirm Password', both with 'Enter your password' and 'Enter the same password' placeholders respectively. Below the fields is a purple 'Reset Password' button. At the bottom of the form, there are links for 'Back to Login' and 'Sign Up'.

Figure 4. 50 Reset Password Page for CalmCapsule

```

// Get token from URL
if (isset($_GET['token'])) {
    $token = trim($_GET['token']);

    // Validate token
    if (!empty($token)) {
        $sql = "SELECT email, expires_at FROM password_resets WHERE token = ? AND expires_at > NOW()";
        $stmt = $conn->prepare($sql);
        $stmt->bind_param("s", $token);
        $stmt->execute();
        $result = $stmt->get_result();

        if ($result->num_rows > 0) {
            $tokenData = $result->fetch_assoc();
            $tokenValid = true;
            $userEmail = $tokenData['email'];

            // Get username for display
            $userSql = "SELECT username FROM user WHERE email = ?";
            $userStmt = $conn->prepare($userSql);
            $userStmt->bind_param("s", $userEmail);
            $userStmt->execute();
            $userResult = $userStmt->get_result();

            if ($userResult->num_rows > 0) {
                $userData = $userResult->fetch_assoc();
                $username = $userData['username'];
            }
            $userStmt->close();
        } else {
            $message = "This password reset link is invalid or has expired. Please request a new password reset.";
            $messageType = "error";
        }
        $stmt->close();
    }
} else {
    $message = "No reset token provided. Please use the link from your email.";
    $messageType = "error";
}

```

Figure 4. 51 Code Snippet for Token Validation and Expiry Checking

4.5.6 Homepage

The Home Page serves as the central navigation hub for all user-accessible features within the CalmCapsule platform. Upon successful login, users are greeted with a visually calming interface that incorporates a soft pastel colour palette, random greeting messages, and clearly structured feature access blocks.

The Home Page consists of the following components:

i. Greeting Section

- Displays a dynamic greeting (e.g., “Hello!” or “Take a deep breath.”) selected randomly from a set of greetings stored in the system.
- A small, illustrated duck icon is placed alongside the greeting to reinforce the sense of friendliness and emotional safety.

ii. Main Navigation Options

- Users can choose from four feature blocks:

- View Capsule: Access monthly journals and manage entries.
- Anonymous Sharing Forum: Engage with or contribute to shared anonymous posts.
- Educational Resources: Read curated mental wellness materials.
- Review Emotional Trend: Visualize personal emotion history through graphs.

iii. List of Recently Uploaded Educational Resources

- Users can view the recently updated educational resource titles and click on them to read more.

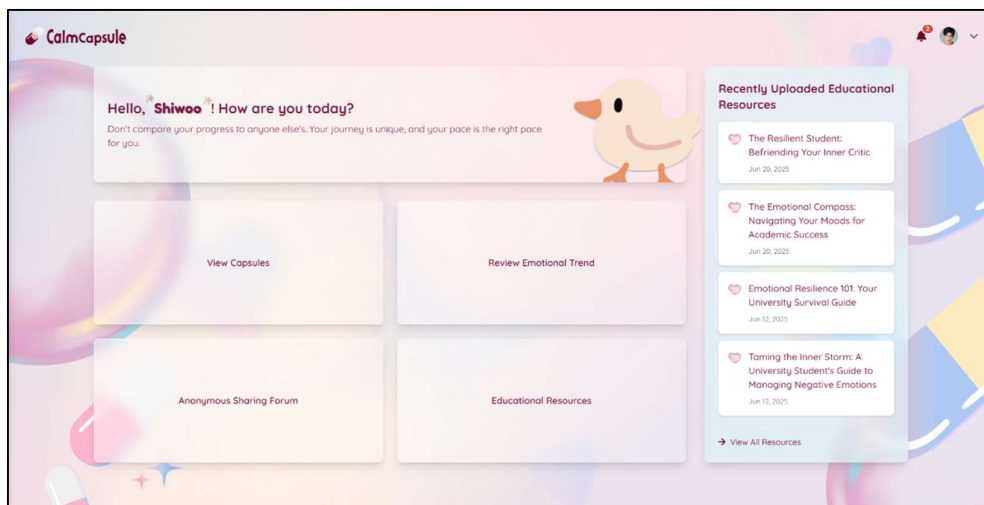


Figure 4. 52 Homepage of CalmCapsule

```
<div class="grid grid-cols-1 md:grid-cols-2 gap-6 flex-grow">
  <button onclick="location.href='capsules.php'" class="menu-button gradient-box rounded-lg shadow-lg p-6 text-center brand-text font-semibold h-full">
    
    <span class="button-text">View Capsules</span>
  </button>
  <button onclick="location.href='emotrend.php'" class="menu-button gradient-box rounded-lg shadow-lg p-6 text-center brand-text font-semibold h-full">
    
    <span class="button-text">Review Emotional Trend</span>
  </button>
  <button onclick="location.href='forum.php'" class="menu-button gradient-box rounded-lg shadow-lg p-6 text-center brand-text font-semibold h-full">
    
    <span class="button-text">Anonymous Sharing Forum</span>
  </button>
  <button onclick="location.href='edures.php'" class="menu-button gradient-box rounded-lg shadow-lg p-6 text-center brand-text font-semibold h-full">
    
    <span class="button-text">Educational Resources</span>
  </button>
</div>
```

Figure 4. 53 Code Snippet for Main Options in HomePage

4.5.7 View Capsules Page

The View Capsules Page organizes the user's journal entries chronologically, segmented into twelve capsule icons representing each month of the year. This metaphorical design is inspired

by the concept of “emotional storage” where each capsule retains all journal entries written in that month. Features of the page include:

i. Capsule Grid Display

- A 12-month grid layout, each capsule labelled with the respective month name (e.g., January, February).
- Icons are color-coded to differentiate each month visually.

ii. Year Selector

- Users can navigate between different years by clicking the left or right arrow buttons, which scroll the year display horizontally.
- Capsules for future months are visually disabled (fade out) and cannot be accessed.

iii. Navigation

- Clicking on a capsule opens a detailed view of entries written within that month (View Entry Page).

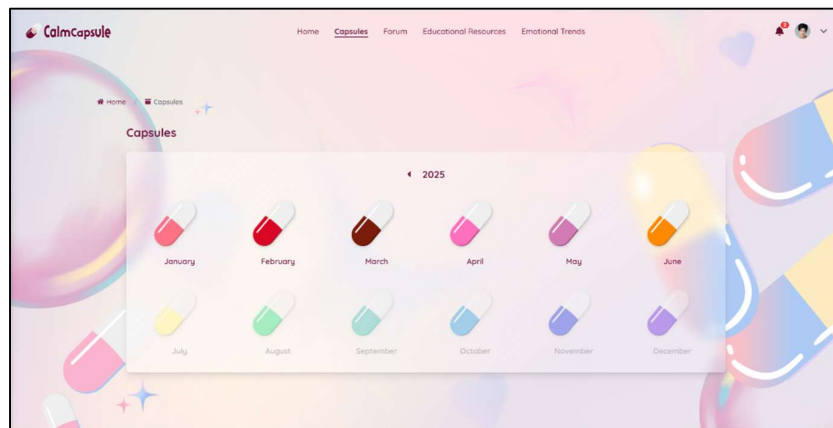


Figure 4. 54 View Capsule Page of CalmCapsule

```

// Generate capsules for the displayed year
function generateCapsules() {
  // Clear existing capsules
  capsulesGrid.innerHTML = '';

  // Months array
  const months = [
    'January', 'February', 'March', 'April',
    'May', 'June', 'July', 'August',
    'September', 'October', 'November', 'December'
  ];

  // Short names for image paths
  const monthshort = [
    'jan', 'feb', 'mar', 'apr',
    'may', 'jun', 'jul', 'aug',
    'sep', 'oct', 'nov', 'dec'
  ];

  // Create capsule for each month
  months.forEach((month, index) => {
    // Check if capsule should be locked
    const islocked = (displayedYear === currentYear && index > currentMonth) ||
      (displayedYear > currentYear);

    // Create container for the pop-in animation
    const container = document.createElement('div');
    if (islocked) {
      container.className = 'pop-in';
      container.style.animationDelay = `${index * 100}ms`; // Stagger the animation
    } else {
      container.className = 'locked-capsule-container';
    }

    // Create list item
    const li = document.createElement('li');
    li.className = `flex flex-col items-center space-y-2 select-none ${islocked ? 'available-capsule' : ''}`;

    if (!islocked) {
      // Create a clickable link for available capsules
      li.onclick = () => {
        // Navigate to entry.php with month and year parameters
        window.location.href = `entry.php/month-${month}&year-${displayedYear}`;
      };
    } else {
      // Add click handler for locked capsules to show notification
      li.onclick = (e) => {
        e.preventDefault();
        showLockedNotification();
      };
      li.style.cursor = 'not-allowed';
    }
  });
}

```

Figure 4. 55 Code Snippet for Function GenerateCapsule

4.5.8 View Entry

The View Entry page presents a detailed view of the user's journal entries within the currently selected capsule (month). Upon loading, the system automatically displays the most recent entry submitted within the month. Each entry displays its emotion label, title, and content clearly and in an organized layout.

If the entry was composed using a guided prompt, the displayed entry will also include a collapsible prompt section at the top. This section includes the prompt text and a label indicating whether it is a General or Academic prompt. Users can expand or collapse this section to manage the display of information.

At the bottom-right corner of the entry card, the system displays a light blue information box containing emotion-based advice. This advice is randomly chosen from the database based on the emotion label associated with the entry and is intended to provide supportive feedback.

Users are also given the option to either edit or delete the currently viewed entry. Editing opens the entry in the Add Entry page with pre-filled data, while deleting triggers a confirmation modal to ensure that accidental deletions are prevented.

In addition, the page includes a View Calendar function, which visualizes the dates in the current month that contain entries:

- i. The current viewed entry's date is fully highlighted in dark purple.
- ii. All other dates with past entries are marked with small, coloured dots positioned beneath the date numbers.
- iii. This visual system allows users to identify patterns and access their past reflections more easily.

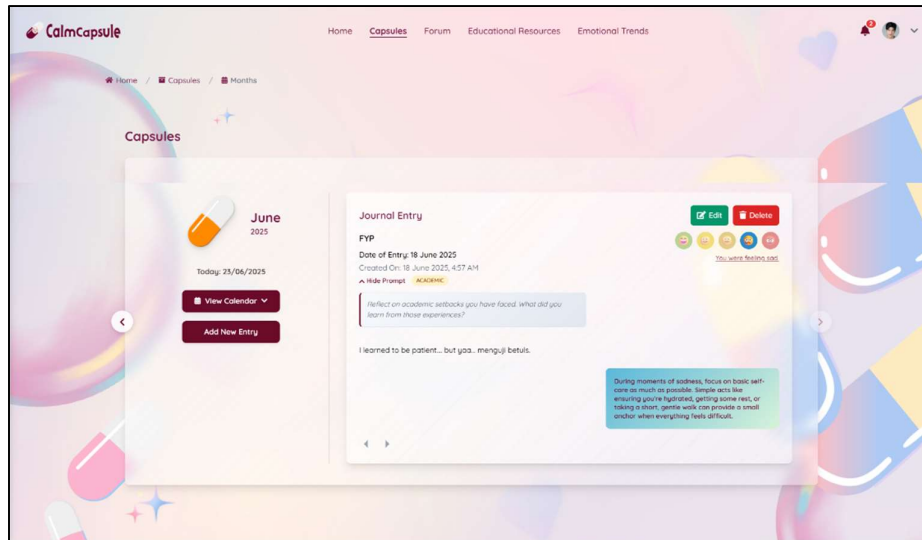


Figure 4. 56 View Entry Page of CalmCapsule

```
// Fetch entries for this user, month, AND year (excluding deleted entries)
$query = "SELECT e.*, pa.content as adviceContent, gp.promptText as guidedPromptText, gp.promptType as guidedPromptType,
COALESCE(e.intended_date, e.dateCreated) as display_date
FROM entry e
LEFT JOIN predefinedadvice pa ON e.adviceID = pa.adviceID
LEFT JOIN guidedprompt gp ON e.promptID = gp.promptID
WHERE e.userID = ? AND e.capsuleMonth = ? AND YEAR(e.intended_date) = ? AND e.isDeleted = 0
ORDER BY display_date DESC, e.dateCreated DESC";

$stmt = $conn->prepare($query);
$stmt->bind_param("isi", $userID, $month, $year);
$stmt->execute();
$result = $stmt->get_result();

// Store all entries in an array
$entries = [];
$entryDates = []; // Track dates that have entries
while ($row = $result->fetch_assoc()) {
    $entries[] = $row;

    // Add both dateCreated and intended_date to entryDates
    $createdDate = date('Y-m-d', strtotime($row['dateCreated']));
    $intendedDate = $row['intended_date'];

    // Group entries by date for easy lookup
    if (!isset($entryDates[$createdDate])) {
        $entryDates[$createdDate] = [];
    }
    $entryDates[$createdDate][] = $row;

    if ($intendedDate && $intendedDate != $createdDate) {
        if (!isset($entryDates[$intendedDate])) {
            $entryDates[$intendedDate] = [];
        }
        $entryDates[$intendedDate][] = $row;
    }
}
}
```

Figure 4. 57 Code Snippet for Complex SQL Query with Joins for View Entry Page

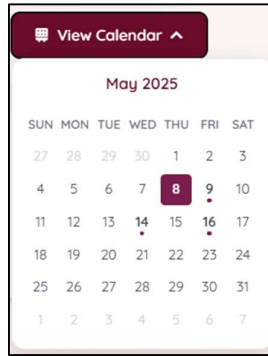


Figure 4. 58 View Calendar feature in View Entry Page

```
// Calendar functionality
document.addEventListener('DOMContentLoaded', function() {
  const calendarToggle = document.getElementById('calendarToggle');
  const calendarContainer = document.getElementById('calendarContainer');
  const calendarGrid = document.getElementById('calendarGrid');

  // Entry dates from PHP
  const entryDates = <?php echo json_encode(array_keys($entryDates)); ?>;
  const currentMonth = <?php echo $month; ?>;
  const currentYear = parseInt(<?php echo $year; ?>);

  // Get current entry date for highlighting
  <?php if ($entry): ?>
  const currentEntryDate = '<?php echo $entry['intended_date'] ?> date('Y-m-d', strtotime($entry['dateCreated'])); ?>;
  <?php else: ?>
  const currentEntryDate = null;
  <?php endif; ?>

  // Toggle calendar dropdown
  calendarToggle.addEventListener('click', function(e) {
    e.stopPropagation();
    const isOpen = calendarContainer.classList.contains('show');

    if (isOpen) {
      calendarContainer.classList.remove('show');
      calendarToggle.classList.remove('open');
    } else {
      generateCalendar();
      calendarContainer.classList.add('show');
      calendarToggle.classList.add('open');
    }
  });

  // Close calendar when clicking outside
  document.addEventListener('click', function(e) {
    if (!calendarToggle.contains(e.target) && !calendarContainer.contains(e.target)) {
      calendarContainer.classList.remove('show');
      calendarToggle.classList.remove('open');
    }
  });
});

// Generate calendar
function generateCalendar() {
  const monthIndex = new Date(Date.parse(currentMonth + " 1, " + currentYear)).getMonth();
  const firstDay = new Date(currentYear, monthIndex, 1);
  const lastDay = new Date(currentYear, monthIndex + 1, 0);
  const startDate = new Date(firstDay);

  // Go to the beginning of the week
  startDate.setDate(startDate.getDate() - startDate.getDay());

  // Clear previous calendar
  calendarGrid.innerHTML = '';

  // Add day headers
  const dayHeaders = ['Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat'];
  dayHeaders.forEach(day => {
    const header = document.createElement('div');
    header.className = 'calendar-day-header';
    header.textContent = day;
    calendarGrid.appendChild(header);
  });

  // Generate calendar days
  const today = new Date();
  const todayString = today.getFullYear() + '-' +
    String(today.getMonth() + 1).padStart(2, '0') + '-' +
    String(today.getDate()).padStart(2, '0');

  for (let i = 0; i < 42; i++) {
    const currentDate = new Date(startDate);
    currentDate.setDate(startDate.getDate() + i);

    const dateString = currentDate.getFullYear() + '-' +
      String(currentDate.getMonth() + 1).padStart(2, '0') + '-' +
      String(currentDate.getDate()).padStart(2, '0');

    const dayElement = document.createElement('button');
    dayElement.className = 'calendar-day';
    dayElement.textContent = currentDate.getDate();
    dayElement.setAttribute('data-date', dateString);

    // Check if day is in current month
    if (currentDate.getMonth() !== monthIndex) {
      dayElement.classList.add('other-month');
    } else {
      // Check if today
      if (dateString === todayString) {
        dayElement.classList.add('today');
      }
    }
  }
}
```

Figure 4. 59 Code Snippet for Dynamic Calendar Generation

Edit Journal Entry Save Cancel

Title (optional)

How are you feeling?
😊 😐 😞 😡 😮

Content

Figure 4. 60 Edit Entry feature in View Entry Page

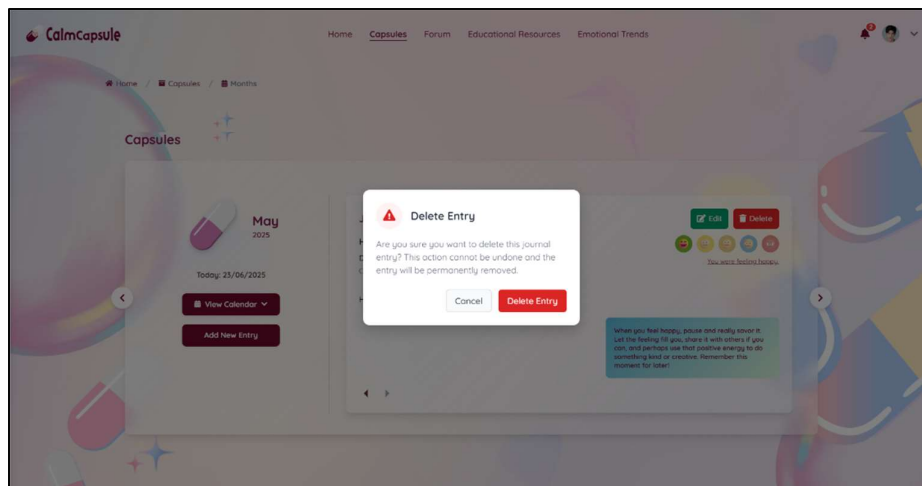


Figure 4. 61 Confirmation Modal to Delete Entry

```
// Delete functionality
function showDeleteModal(entryId) {
  currentDeleteEntryId = entryId;
  const modal = document.getElementById('deleteModal');
  modal.classList.add('show');

  // Prevent body scroll
  document.body.style.overflow = 'hidden';
}

function hideDeleteModal() {
  currentDeleteEntryId = null;
  const modal = document.getElementById('deleteModal');
  modal.classList.remove('show');

  // Restore body scroll
  document.body.style.overflow = '';
}
```

Figure 4. 62 Code Snippet for Confirmation Delete Modal

4.5.9 Add Entry Page

The Add New Entry Page allows users to record their current emotional state through journaling. To go to this page, users need to select a monthly capsule and click “Add New Entry” button. The system integrates emotion labelling, optional guided reflection, and automatic feedback to encourage self-awareness and emotional processing. Core interactions include:

i. Date Selection

- Defaults to the current date if the user is adding an entry in the current month.
- Past dates in the current month can also be selected.
- Future dates are disabled.

ii. Emotion Label Selection

- Users must select one of the following: Happy, Just Okay, Unsure, Sad, Angry
- The emotion label is required for submission and is used to generate related advice and metrics.

iii. Guided Reflection Prompt (Optional)

- Users can toggle whether they want a guided prompt.
- If enabled, they must select the prompt type: General (default) or Academic
- The system randomly selects a manually written prompt matching the emotion and type from the database. These prompts are professionally developed reflection questions designed to guide users through structured emotional self-exploration. Figure 4.92 demonstrates how the admin creates and categorizes these prompts by emotion and type to ensure therapeutic appropriateness.
- Users may click “Get Another” to fetch another random prompt.

iv. Entry Title and Content

- Title and content fields are required.
- The system ensures all fields are filled before enabling the Submit button.

v. Post-Submission

- After submission, the entry is saved to the user's monthly capsule.
- A random emotion-based advice chosen from the database is shown based on the selected emotion. This advice is manually created by the admin through the interface shown in Figure 4.91, ensuring therapeutic appropriateness and relevance for university students' emotional wellness needs.
- The user is redirected to the View Entry Page to view the saved entry.

Emotion-Based Advice System

Upon successful entry submission, CalmCapsule automatically provides users with supportive advice tailored to their selected emotion. This system operates through a systematic process that connects the user's emotional state with relevant guidance stored in the database.

When a user completes their journal entry, the system immediately identifies the emotion label selected during the entry creation process. Using this emotion as a search parameter, the system queries the database to retrieve advice specifically categorized for that emotional state. The advice is randomly selected from all available options matching the user's emotion, ensuring users receive varied responses that address their current emotional needs.

The selected advice appears in a visually distinct blue information box positioned at the bottom-right corner of the entry display, providing immediate emotional support without interrupting the user's journaling flow. This advice serves as a form of automated emotional validation and guidance, offering users practical suggestions, motivational messages, or coping strategies relevant to their emotional state.

For example, when a user selects "Happy" as their emotion, the system might display advice such as "When you feel happy, pause and really savour it. Let the feeling fill you, share it with others if you can, and perhaps use that positive energy to do something kind or creative." Conversely, for users experiencing sadness, the advice might offer comfort and practical coping suggestions.

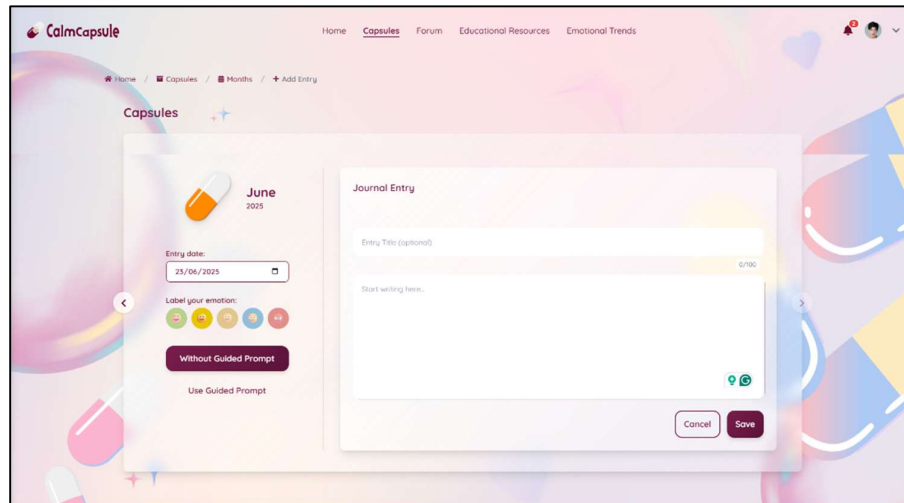


Figure 4. 63 Add New Entry (Without Guided Prompt) Page

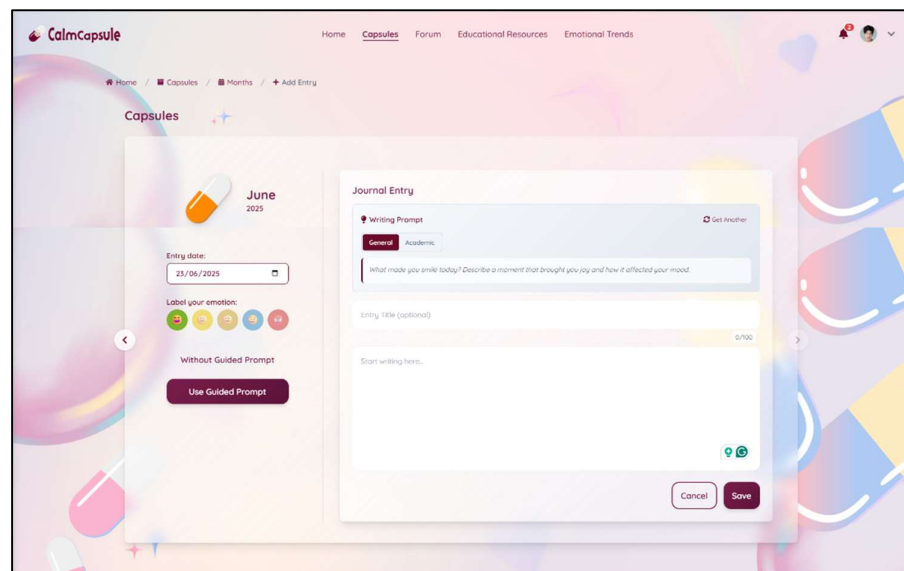


Figure 4. 64 Add New Entry (Use Guided Prompt) Page

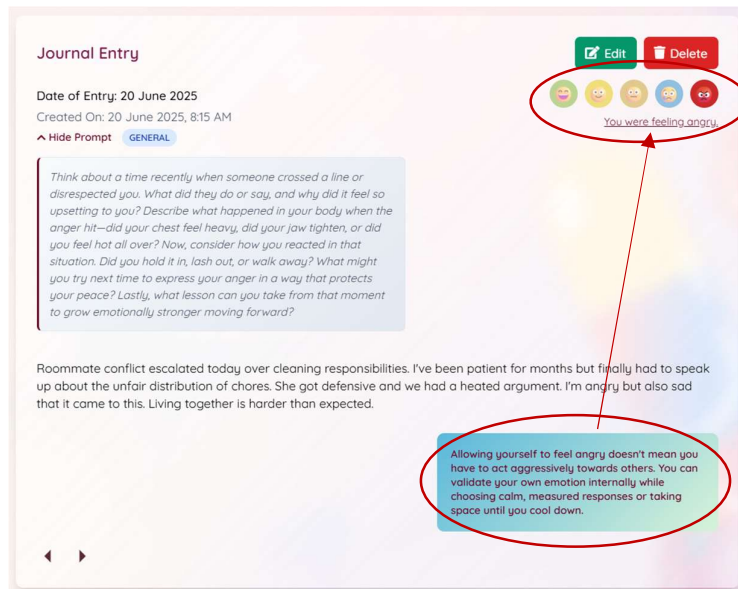


Figure 4. 65 Emotion-Based Advice-Based (blue box) on the User's Selected Emotion

```
// Process form submission for journal entry
if ($_SERVER['REQUEST_METHOD'] === 'POST') {
    // Get form data
    $content = isset($_POST['content']) ? trim($_POST['content']) : '';
    $title = isset($_POST['title']) ? trim($_POST['title']) : '';
    $emotionID = isset($_POST['emotion']) ? (int)$_POST['emotion'] : null;
    $entry_date = isset($_POST['entry_date']) ? $_POST['entry_date'] : date('Y-m-d');
    $guidedPromptUsed = isset($_POST['guidedPromptUsed']) ? (int)$_POST['guidedPromptUsed'] : 0;
    $promptID = isset($_POST['promptID']) && $_POST['promptID'] != '' ? (int)$_POST['promptID'] : null;
    $promptType = isset($_POST['promptType']) && $_POST['promptType'] != '' ? $_POST['promptType'] : null;

    // Validate prompt type if provided
    if ($promptType && !in_array($promptType, ['general', 'academic'])) {
        $promptType = null; // Reset to null if invalid
    }

    // Set timezone to Malaysia time
    date_default_timezone_set('Asia/Kuala_Lumpur');
    $dateCreated = date('Y-m-d H:i:s'); // Current date and time in Malaysian timezone

    // Use the date from the date picker as the intended_date
    $intended_date = $entry_date;

    // Extract month name from the selected date (intended date)
    $capsuleMonth = date('F', strtotime($intended_date));
    $year = date('Y', strtotime($intended_date));

    // Get a random predefinedAdviceID that matches the emotionID
    // Make sure to use RAND() for true randomization
    $predefinedAdviceID = null;

    if ($emotionID) {
        // First check if there are any advice entries for this emotion
        $check_stmt = $conn->prepare("SELECT COUNT(*) as count FROM predefinedadvice WHERE emotionID = ?");
        $check_stmt->bind_param("i", $emotionID);
        $check_stmt->execute();
        $check_result = $check_stmt->get_result();
        $count_row = $check_result->fetch_assoc();

        if ($count_row['count'] > 0) {
            // Now get a random advice
            $stmt = $conn->prepare("SELECT adviceID FROM predefinedadvice WHERE emotionID = ? ORDER BY RAND() LIMIT 1");
            $stmt->bind_param("i", $emotionID);
            $stmt->execute();
            $result = $stmt->get_result();

            if ($row = $result->fetch_assoc()) {
                $predefinedAdviceID = $row['adviceID'];

                // For debugging (comment out in production)
                // error_log("Selected adviceID: " . $predefinedAdviceID . " for emotionID: " . $emotionID);
            }
        }
    }
}
```

Figure 4. 66 Code Snippet for Entry Submission

4.5.10 Anonymous Sharing Forum

The Anonymous Sharing Forum provides a space for users to express their thoughts and emotions publicly while maintaining complete anonymity. Users can share their experiences by writing posts (creating new content) and engaging with existing posts through likes and comments. This feature is designed to foster emotional openness and peer support within a moderated environment. Upon accessing the forum from the homepage, users are directed to a feed of existing posts submitted by other anonymous users. Each post displays:

- i. Emotion icon (as labelled during submission)
- ii. Title and post content
- iii. Post timestamp
- iv. Interaction tools such as like and comment buttons
- v. Options menu (three-dot icon) for reporting content

Users may engage with the forum in the following ways:

i. Write a Post (Anonymous Sharing)

By clicking the “+” (Add Post) icon to share their thoughts, a submission form will appear where the users are required to:

- Select an emotion (Happy, Just Okay, Unsure, Sad, Angry)
- Provide a title and post content
- The system ensures that all fields are filled before enabling submission. Upon submission, the post is added anonymously to the forum.

ii. Interact with Posts

Users can click the Like button to express support or submit comments that are also anonymous. These interactions are updated in real-time and appear below the respective post.

iii. Report Inappropriate Content

To maintain a safe environment, users may report any inappropriate or harmful posts or comments. This is done by clicking the three-dot menu on a post or comment and selecting “Report”. The system displays a list of predefined report categories (e.g., Harassment, Hate Speech, Spam), or users may enter a custom reason. Reports are submitted to the admin for review.

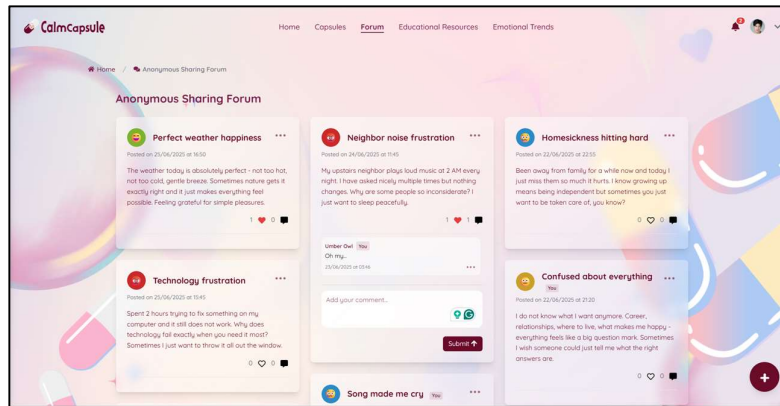


Figure 4. 67 Anonymous Forum Page of CalmCapsule

Figure 4. 68 A Submission Form to Create New Anonymous Post for Sharing

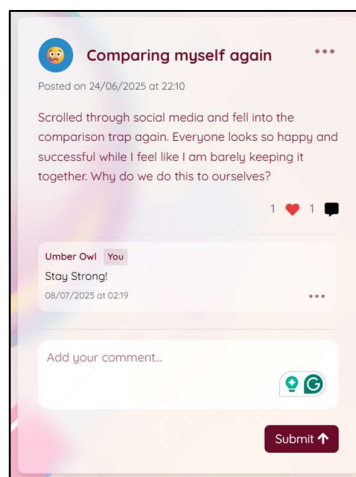


Figure 4. 69 Post Like and Comment Interaction

```
// Handle POST request to create a new forum post
if ($_SERVER['REQUEST_METHOD'] === 'POST' && isset($_POST['action']) && $_POST['action'] === 'create_post') {
    $title = isset($_POST['title']) ? trim($_POST['title']) : '';
    $content = isset($_POST['content']) ? trim($_POST['content']) : '';
    $emotionID = isset($_POST['emotionID']) ? (int)$_POST['emotionID'] : null;

    // Validate inputs
    if (empty($title)) {
        $response = [
            'success' => false,
            'message' => 'Post title cannot be empty'
        ];
        echo json_encode($response);
        exit();
    }

    if (empty($content)) {
        $response = [
            'success' => false,
            'message' => 'Post content cannot be empty'
        ];
        echo json_encode($response);
        exit();
    }

    if (!$emotionID || $emotionID < 1 || $emotionID > 5) {
        $response = [
            'success' => false,
            'message' => 'Please select an emotion for your post'
        ];
        echo json_encode($response);
        exit();
    }

    // Create the post
    $postID = createForumPost($conn, $userID, $title, $content, $emotionID);

    if ($postID) {
        // Create notification for new post
        createNewPostNotification($conn, $postID, $userID, $title);

        $response = [
            'success' => true,
            'message' => 'Post created successfully',
            'postID' => $postID
        ];
    } else {
        $response = [
            'success' => false,
            'message' => 'Failed to create post: ' . $conn->error
        ];
    }

    echo json_encode($response);
    exit();
}
```

Figure 4. 70 Code Snippet for Create New Forum Post

Figure 4. 71 Reporting Modal and Category Options

```

function createReport($conn, $reporterID, $reportedUserID, $reportType, $contentID, $reason, $description = '') {
    // Check if user has already reported this content
    $checkSql = "SELECT reportID FROM forum_reports WHERE reporterID = ? AND reportType = ? AND contentID = ?";
    $checkStmt = $conn->prepare($checkSql);
    $checkStmt->bind_param("isi", $reporterID, $reportType, $contentID);
    $checkStmt->execute();
    $checkResult = $checkStmt->get_result();

    if ($checkResult->num_rows > 0) {
        return false; // Already reported
    }

    $sql = "INSERT INTO forum_reports (reporterID, reportedUserID, reportType, contentID, reason, description) VALUES (?, ?, ?, ?, ?, ?)";
    $stmt = $conn->prepare($sql);
    $stmt->bind_param("iisiss", $reporterID, $reportedUserID, $reportType, $contentID, $reason, $description);

    if ($stmt->execute()) {
        $reportID = $conn->insert_id;

        // Create notification for the reporter
        require_once 'notification_functions.php';
        createReportSubmittedNotification($conn, $reportID, $reporterID, $reportType, $reason);

        return $reportID;
    }

    return false;
}

```

Figure 4. 72 Code Snippet for Creating a Report

4.5.11 Educational Resources Page

The Educational Resources section offers curated resources aimed at promoting mental well-being and emotional literacy. These resources include articles, infographics, and reading guides. From the homepage, users can select “Educational Resources”, leading to a page displaying a list of resource previews, each including:

- i. Title
- ii. Short description (Preview)
- iii. “Read More” button

Clicking “Read More” opens the full content view of the selected resource, which may include:

- i. Textual information
- ii. Images (optional)

All resources are categorized and updated by the admin. The system ensures that the material remains concise, relevant, and visually accessible.

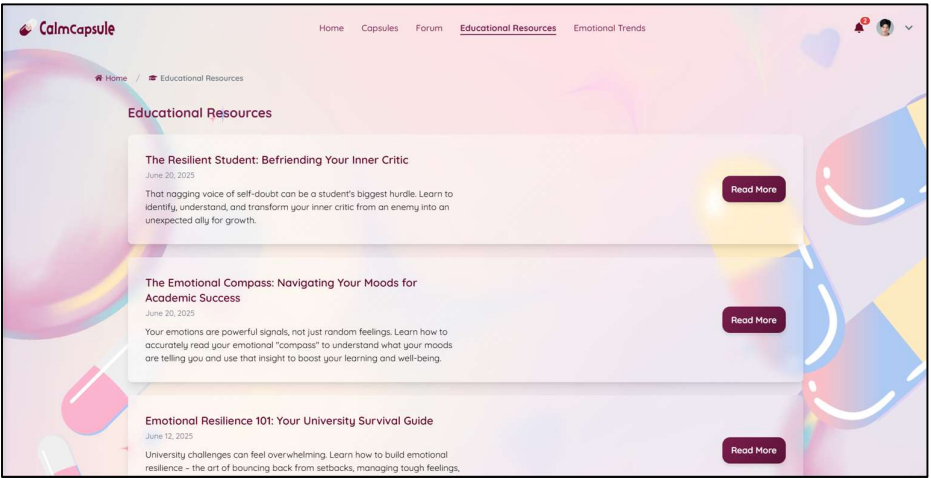


Figure 4. 73 Educational Resources List

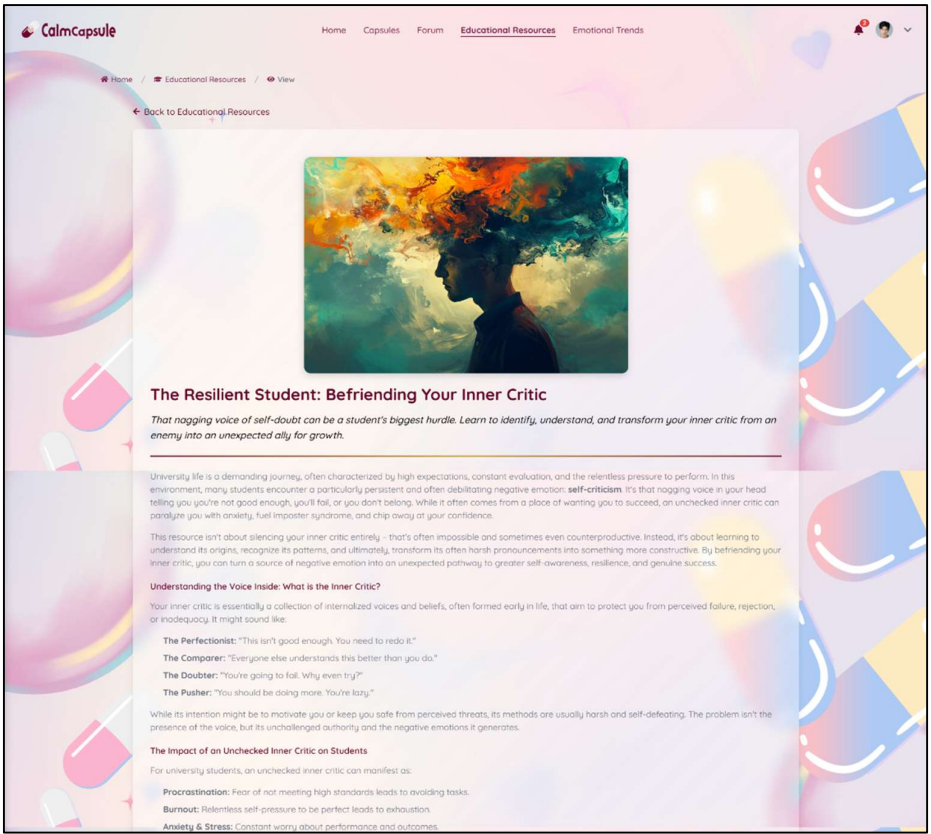


Figure 4. 74 Full View of a Selected Title

```

// Get resource ID from URL parameter
$resourceID = isset($_GET['id']) ? (int)$_GET['id'] : 0;

if ($resourceID <= 0) {
    header("Location: edures.php");
    exit();
}

// Fetch the specific educational resource from database
$stmt = $conn->prepare("SELECT resourceID, title, preview, content, attachedpic, last_updated FROM EducationalResource WHERE resourceID = ?");
$stmt->bind_param("i", $resourceID);
$stmt->execute();
$result = $stmt->get_result();

if ($result->num_rows === 0) {
    header("Location: edures.php");
    exit();
}

$resource = $result->fetch_assoc();
$stmt->close();
}

```

Figure 4. 75 Code Snippet for Fetch Specific Educational Resource Details

4.5.12 Emotional Trend Review Page

The Emotional Trend Review feature enables users to reflect on their emotional patterns over time using visual data representations. Upon clicking “Review Emotional Trend” from the homepage, users are asked to select a time period for the analysis:

Time Period Selection

1. Weekly

Retrieves entries from a seven-day period starting from the selected date

2. Monthly

Retrieves all entries for a selected calendar month

The system assigns numerical values to each emotion as follows:

Table 3. 27 Emotion Scoring System

Emotion	Value
Happy 😊	5
Just Okay 😐	4
Unsure 🤔	3
Sad 😞	2
Angry 😡	1

No Entry	0
----------	---

Daily Emotional Average Calculation

1. Single Entry Per Day

When a user has only one emotional entry for a specific day, that emotion's numerical value becomes the daily average for that day.

Example:

March 15: User logged "Happy" (value = 5)

Daily average for March 15 = 5

2. Multiple Entries Per Day

When a user has multiple emotional entries for a single day, the system calculates the arithmetic mean of all emotion values recorded on that day.

Calculation Formula:

$$\text{Daily Average} = (\text{Sum of all emotion values for the day}) \div (\text{Number of entries for the day})$$

Example:

March 16: User logged three entries

- Entry 1: "Happy" (value = 5)
- Entry 2: "Just Okay" (value = 4)
- Entry 3: "Sad" (value = 2)

Daily average for March 16 = $(5 + 4 + 2) \div 3 = 11 \div 3 = 3.67$

3. Days with No Entries

For days within the selected period where no emotional entries were recorded, the system assigns a value of 0, representing "No Entry."

Example:

March 17: No entries recorded

Daily average for March 17 = 0

Data Visualization

The calculated daily averages are displayed in a line graph with the following elements:

1. X-axis: Dates in the selected period (chronological order)
2. Y-axis: Emotion scale (0-5, where 0 = No Entry, 5 = Happy)
3. Data points: Daily emotion averages (including decimal values for days with multiple entries)

Summary Statistics

The resulting graph is accompanied by comprehensive summary statistics:

1. Overall Average: The mean of all daily averages within the selected period
 - Formula: $(\text{Sum of all daily averages}) \div (\text{Number of days in period})$
2. Emotion Frequency: Count of how often each emotion type was recorded during the period
3. Entry Coverage: Percentage of days with at least one emotional entry

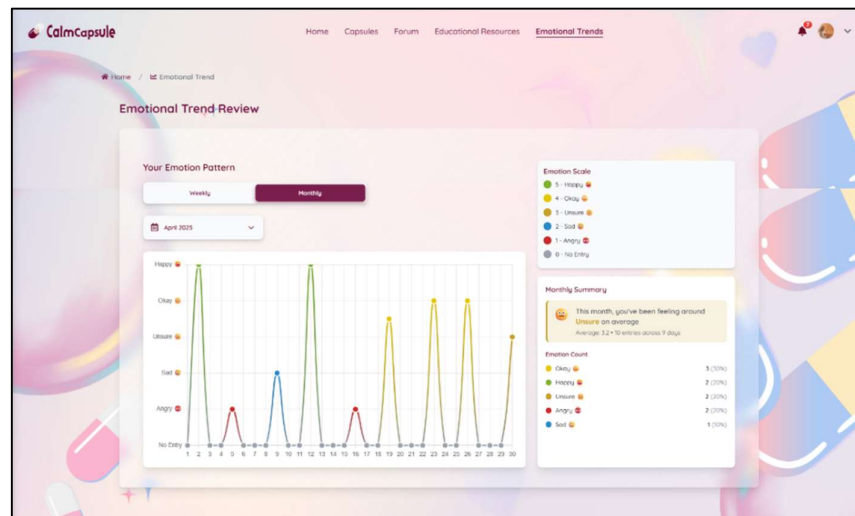


Figure 4. 76 Emotional Trend Graph (Monthly)

```
// Function to convert database emotionID to display scale
function convertEmotionToDisplayScale($dbEmotionID) {
    // Database: 1=happy, 2=okay, 3=unsure, 4=sad, 5=angry
    // Display: 5=happy, 4=okay, 3=unsure, 2=sad, 1=angry
    return 6 - intval($dbEmotionID);
}

// Function to convert display scale back to database emotionID
function convertDisplayToDbScale($displayValue) {
    // Reverse conversion
    return 6 - intval($displayValue);
}
```

Figure 4. 77 Code Snippet for Emotion Scale Conversion

4.5.13 Profile Page

The Profile Page allows users to view and manage their personal account details, including their username, email, profile picture, and password. It emphasizes clarity and account security by incorporating real-time validation and feedback. When users access the Profile Page (by clicking the profile picture in the top right navigation bar), the system displays:

- Username (editable)
- Email (editable)
- Password (hidden; can be updated via dedicated password fields)
- Profile Picture (can be uploaded and previewed immediately)

User interactions on this page include:

a) Update Username and Email

- i. Input fields are prefilled with existing data.
- ii. Validation checks are performed as the user types:
- iii. Username and email must not be empty.
- iv. The email must follow a valid format (e.g., name@example.com).
- v. Username and email must not already exist in the database.
- vi. The “**Save**” button is enabled only when all validations pass.

b) Update Password

- i. The password update is handled independently through the following steps:
- ii. User must enter the current password.
- iii. Then enter a new password, followed by confirm new password.
- iv. Validation ensures:

- Current password is correct.
 - New password meets security criteria.
 - New and confirm password fields match.
- v. If successful, the password is updated, and the user is notified.

The screenshot displays the 'Profile' page of the CalmCapsule application. The page features a user profile for 'Yasmin' with the email 'yaminotari@gmail.com' and a membership date of 'Member since April 2024'. Below the profile information, there are three input fields for 'Username', 'Email', and 'Password'. The 'Username' field contains 'Yasmin', the 'Email' field contains 'yaminotari@gmail.com', and the 'Password' field is masked with dots. A 'Change Password' section is also visible, containing three input fields: 'Current Password', 'New Password', and 'Confirm New Password'. The 'Current Password' field contains the text 'Enter current password'. The 'New Password' and 'Confirm New Password' fields contain the text 'Enter new password'. At the bottom of the 'Change Password' section, there are 'Cancel' and 'Update' buttons. At the bottom of the entire form, there are 'Reset' and 'Save' buttons. The background of the page is a colorful, abstract design with various shapes and colors.

Figure 4. 78 Profile Page with Editable Fields (Username, Email and Password)

```
// Handle AJAX requests for real-time validation
if (isset($_POST['action'])) {
    header('Content-type: application/json');

    if ($_POST['action'] == 'check_username') {
        $username = trim($_POST['username']);
        $response = ['available' => true, 'message' => ''];

        if (strlen($username) < 3) {
            $response = ['available' => false, 'message' => 'Username must be at least 3 characters long'];
        } elseif ($username != $_SESSION['username']) {
            $stmt = $conn->prepare("SELECT userID FROM user WHERE username = ? AND userID != ?");
            $stmt->bind_param("si", $username, $userID);
            $stmt->execute();
            if ($stmt->get_result()->num_rows > 0) {
                $response = ['available' => false, 'message' => 'Username already exists'];
            }
            $stmt->close();
        }
    }

    echo json_encode($response);
    exit;
}

if ($_POST['action'] == 'check_email') {
    $email = trim($_POST['email']);
    $response = ['available' => true, 'message' => ''];

    if (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
        $response = ['available' => false, 'message' => 'Invalid email format'];
    } elseif ($email != $_SESSION['email']) {
        $stmt = $conn->prepare("SELECT userID FROM user WHERE email = ? AND userID != ?");
        $stmt->bind_param("si", $email, $userID);
        $stmt->execute();
        if ($stmt->get_result()->num_rows > 0) {
            $response = ['available' => false, 'message' => 'Email already exists'];
        }
        $stmt->close();
    }
}

echo json_encode($response);
exit;
}

if ($_POST['action'] == 'verify_current_password') {
    $currentPassword = $_POST['current_password'];
    $response = ['valid' => false];

    $stmt = $conn->prepare("SELECT password FROM user WHERE userID = ?");
    $stmt->bind_param("i", $userID);
    $stmt->execute();
    $result = $stmt->get_result();
    if ($userData = $result->fetch_assoc()) {
        $response['valid'] = password_verify($currentPassword, $userData['password']);
    }
    $stmt->close();
}
```

Figure 4. 79 Code Snippet for Dynamic Form Validation

c) Update Profile Picture

- i. Users may upload a new image file.
- ii. Once selected, the image is immediately previewed, prompt to be cropped and uploaded after clicking the “Apply” button.
- iii. The system compresses and stores the image appropriately.

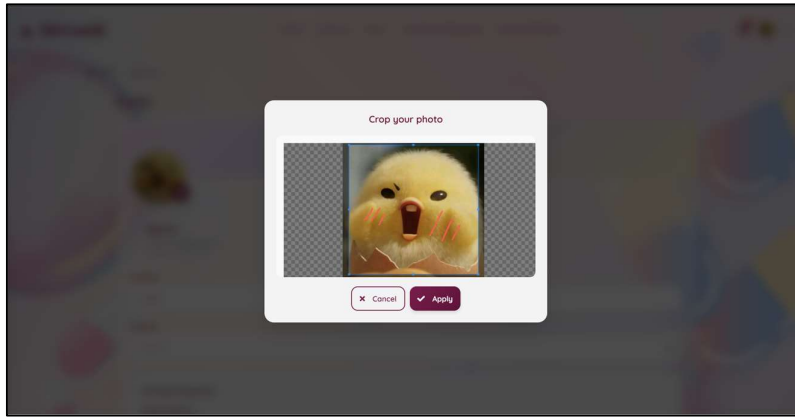


Figure 4. 80 Modal to Crop Photo

```
// Handle profile picture upload
if ($SERVER["REQUEST_METHOD"] == "POST" && isset($_FILES['profile_picture'])) {
    $uploadDir = "uploads/";

    // Create uploads directory if it doesn't exist
    if (!file_exists($uploadDir)) {
        mkdir($uploadDir, 0777, true);
    }

    if ($_FILES['profile_picture']['error'] == 0) {
        $allowedTypes = array('jpg', 'jpeg', 'png', 'gif');
        $fileName = $_FILES['profile_picture']['name'];
        $fileSize = $_FILES['profile_picture']['size'];
        $fileTmp = $_FILES['profile_picture']['tmp_name'];
        $fileType = strtolower(pathinfo($fileName, PATHINFO_EXTENSION));

        // Check if file type is allowed
        if (in_array($fileType, $allowedTypes)) {
            // Check file size (limit to 5MB)
            if ($fileSize < 5000000) {
                // Generate filename based on userID
                $newFileName = "profile" . $userID . "." . $fileType;
                $uploadPath = $uploadDir . $newFileName;

                // Delete old profile picture if exists
                $oldImageStmt = $conn->prepare("SELECT profile_image FROM user WHERE userID = ?");
                $oldImageStmt->bind_param("i", $userID);
                $oldImageStmt->execute();
                $oldImageResult = $oldImageStmt->get_result();

                if ($oldImageResult->num_rows > 0) {
                    $oldImageData = $oldImageResult->fetch_assoc();
                    if (!empty($oldImageData['profile_image']) && $oldImageData['profile_image'] != 'defaultprofile.png') {
                        $oldImagePath = $oldImageData['profile_image'];
                        if (file_exists($oldImagePath)) {
                            unlink($oldImagePath);
                        }
                    }
                }
            }
        }
        $oldImageStmt->close();

        if (move_uploaded_file($fileTmp, $uploadPath)) {
            // Update database with new profile picture path
            $updateStmt = $conn->prepare("UPDATE user SET profile_image = ? WHERE userID = ?");
            $updateStmt->bind_param("si", $uploadPath, $userID);

            if ($updateStmt->execute()) {
                $uploadSuccess = "Profile picture updated successfully!";
                // Update session and local user data
                $_SESSION['profile_image'] = $uploadPath;
                $user['profile_image'] = $uploadPath;
            } else {
                $uploadError = "Error updating profile picture in database.";
            }
            $updateStmt->close();
        } else {
            $uploadError = "Error uploading file.";
        }
    }
}
```

Figure 4. 81 Code Snippet for Profile Picture Update

4.5.14 Informational Pages

CalmCapsule includes several informational pages to support transparency, community standards, and user understanding. These pages are designed with consistent styling and accessible language.

i. About Page

- Introduces the CalmCapsule platform, its objectives, and emotional journaling concept.
- May include brief developer background.

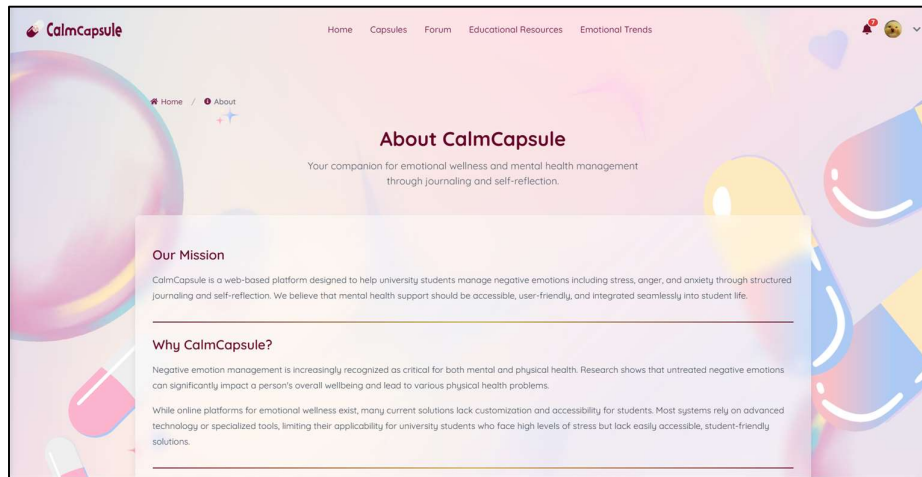


Figure 4. 82 About Page of CalmCapsule

ii. Frequently Asked Questions (FAQ) Page

- Contains commonly asked questions with expandable answers.
- Helps guide new users and clarify functionalities.

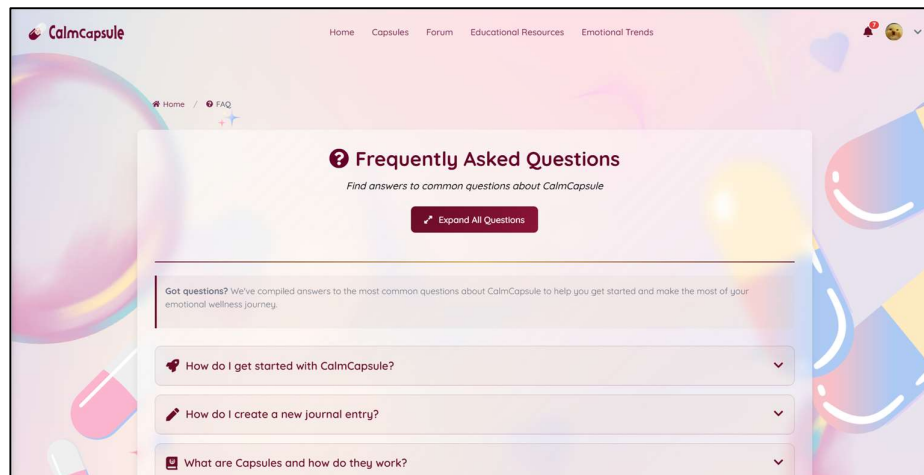


Figure 4. 83 FAQ Page of CalmCapsule

iii. Community Guidelines Page

- Outlines acceptable behaviour in the Anonymous Sharing Forum.
- Encourages respectful, safe, and supportive interactions.

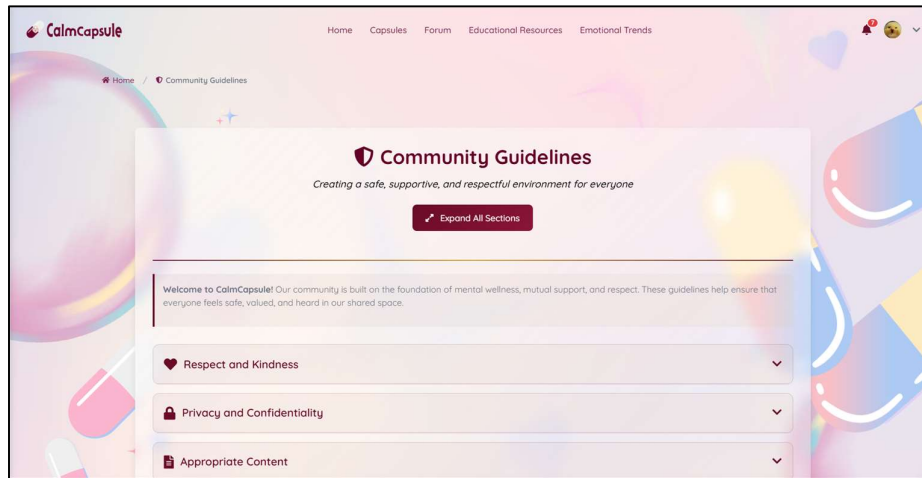


Figure 4. 84 Community Guidelines Page of CalmCapsule

iv. Privacy Policy Page

- Describes how user data is handled, stored, and protected.
- Fulfills ethical and legal transparency requirements.

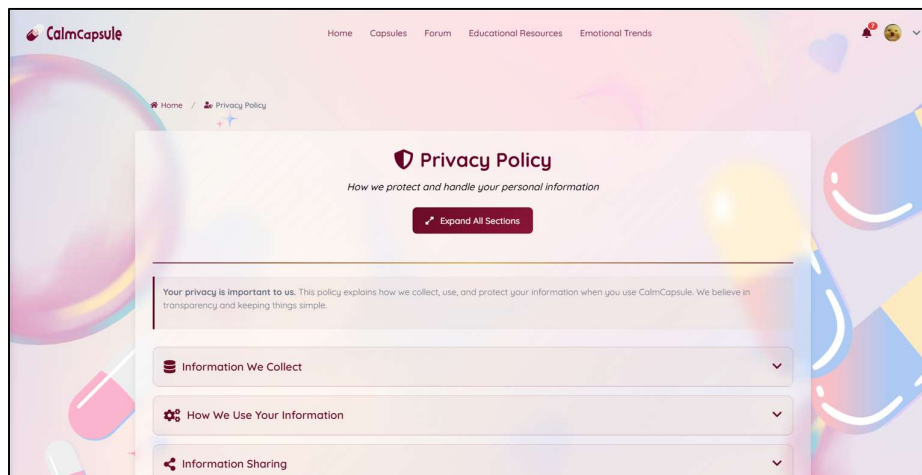


Figure 4. 85 Privacy Policy Page of CalmCapsule

v. Terms of Use Page

- Explains the conditions users agree to when using the CalmCapsule platform.
- Covers account responsibilities and platform rights.

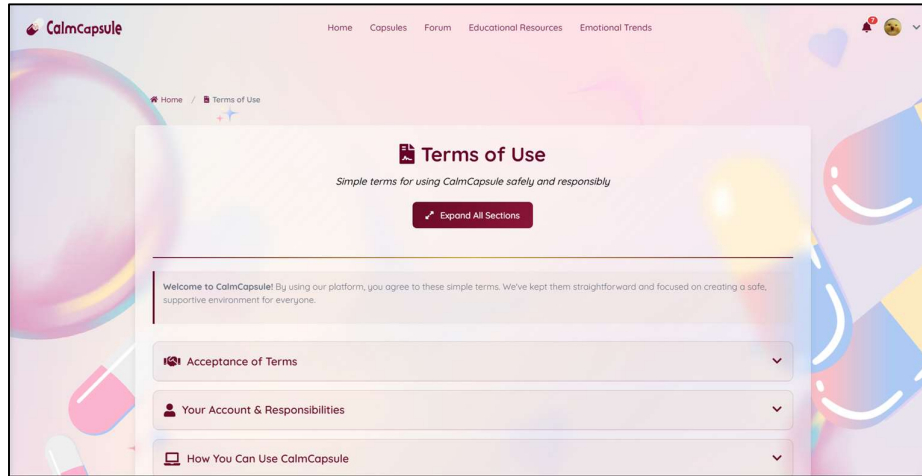


Figure 4. 86 Terms of Use Page of CalmCapsule

Each page is static, scrollable, and responsive. These pages require no user interaction beyond basic navigation.

4.5.15 Notification Centre

Users have access to a notification centre (located at the top right navigation bar) organized into three tabs:

- i. **All** – Displays all system and forum-related notifications
- ii. **Activity** – Covers new forum posts, likes, and comments
- iii. **System** – Displays administrative messages, such as report status updates or system alerts

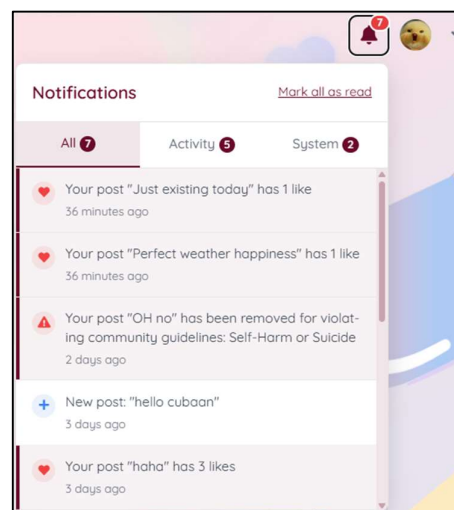


Figure 4. 87 Notification Center of a User

```

function displayNotifications(notifications) {
  const notificationList = document.getElementById('notificationList');

  if (notifications.length === 0) {
    notificationList.innerHTML = '<div class="notification-empty">No notifications yet</div>';
    return;
  }

  let html = '';
  notifications.forEach(notification => {
    const iconClass = getNotificationIcon(notification.type);
    const isUnread = notification.isRead === 0;

    // Determine click action based on notification type
    let clickAction = '';
    if (notification.type === 'content_removed_violation' || notification.type === 'report_update') {
      if (notification.reportID) {
        clickAction = 'handleReportNotificationClick(${notification.notificationID}, ${notification.reportID})';
      } else {
        clickAction = 'handleSystemNotificationClick(${notification.notificationID})';
      }
    } else {
      clickAction = 'handleNotificationClick(${notification.notificationID}, ${notification.postID || 'null'})';
    }

    html += `
    <div class="notification-item ${isUnread ? 'unread' : ''}"
      onclick="${clickAction}">
      <div class="notification-icon ${notification.type}">
        <i class="${iconClass}"></i>
      </div>
      <div class="notification-content">
        <div class="notification-message">${notification.message}</div>
        <div class="notification-time">${notification.timeAgo}</div>
      </div>
    </div>
  `;
  });
  notificationList.innerHTML = html;
}

```

Figure 4. 88 Code Snippet for Function Display Notifications

4.6 Admin Interface Overview

The CalmCapsule platform includes a dedicated Admin Interface to support system oversight, user management, and content moderation. The interface is designed to offer administrative users a streamlined, centralized environment to perform essential platform tasks. The design prioritizes clarity, efficient navigation, and functional segmentation through tabbed layouts and actionable components. All admin-accessible features are available only after secure authentication. Each section is explained below.

4.6.1 Admin Dashboard

The Admin Dashboard functions as the central control panel for all administrative operations within the CalmCapsule platform. Upon successful login, the administrator is directed to a clean and structured interface that facilitates user management, content oversight, and forum moderation. The layout prioritizes functionality, with visually distinct sections and actionable tabs for streamlined navigation. The Admin Dashboard consists of the following components:

i. Monthly Active Users Graph

- Displays a bar graph that visualizes the number of active users for each month of the current year.
- The graph helps the admin monitor user engagement trends over time by clearly showing monthly participation levels.

- Admin can also view the report in detail by clicking “View Report” button.

ii. Primary Administrative Controls

- Located beneath the graph, three large, clearly labelled buttons direct the administrator to the core management modules:
 - **Manage Content:** Opens tools to edit and update platform-facing resources.
 - **Manage User Accounts:** Provides access to registered user details and account controls.
 - **Manage Anonymous Sharing Forum:** Opens the moderation panel for user-generated forum content.

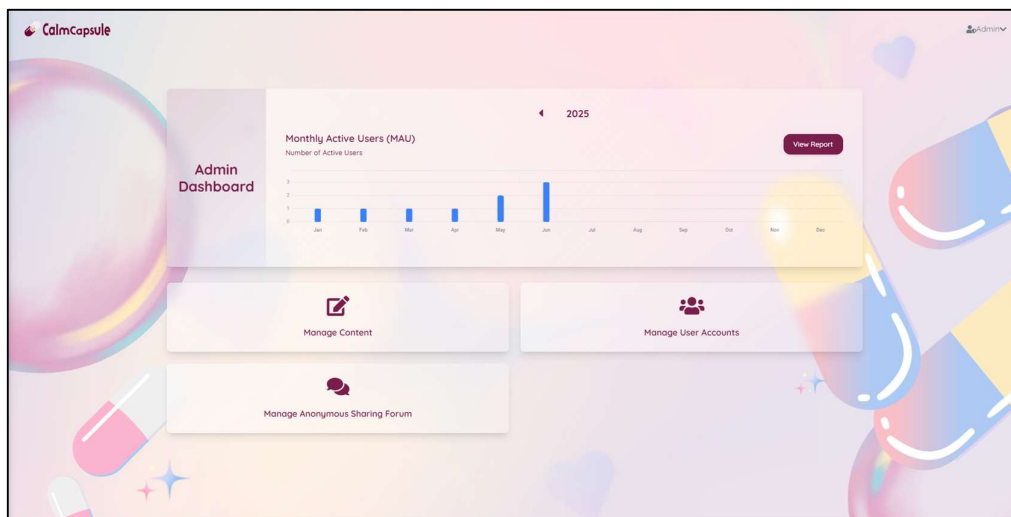


Figure 4. 89 Admin Dashboard of CalmCapsule

```

// Fetch Monthly Active Users data for the specified year
$mauData = [];
$months = [];
$isCurrentOrPast = [];

// Get current month for comparison
$currentMonth = date('Y-m');

// Create base date for the dashboard year (January 1st of the dashboard year)
$baseDate = "$dashboardYear-01-01";

// Get data for all 12 months of the specified year
for ($i = 0; $i < 12; $i++) {
    $targetMonth = date('Y-m', strtotime("$baseDate +$i months"));
    $monthName = date('M', strtotime("$baseDate +$i months"));

    // Check if this month is current or past
    $isPastOrCurrent = $targetMonth <= $currentMonth;
    $isCurrentOrPast[] = $isPastOrCurrent;

    if ($isPastOrCurrent) {
        // Query to get unique active users for the month
        $query = "
            SELECT COUNT(DISTINCT userID) as active_users
            FROM (
                -- Users who created journal entries
                SELECT userID, DATE_FORMAT(dateCreated, '%Y-%m') as activity_month
                FROM entry
                WHERE DATE_FORMAT(dateCreated, '%Y-%m') = ?

                UNION

                -- Users who posted in forums
                SELECT userID, DATE_FORMAT(dateCreated, '%Y-%m') as activity_month
                FROM forum_post
                WHERE DATE_FORMAT(dateCreated, '%Y-%m') = ? AND isDeleted = 0

                UNION

                -- Users who liked posts
                SELECT userID, DATE_FORMAT(dateCreated, '%Y-%m') as activity_month
                FROM forum_like
                WHERE DATE_FORMAT(dateCreated, '%Y-%m') = ?

                UNION

                -- Users who commented on posts
                SELECT userID, DATE_FORMAT(dateCreated, '%Y-%m') as activity_month
                FROM forum_comment
                WHERE DATE_FORMAT(dateCreated, '%Y-%m') = ? AND isDeleted = 0
            ) as active_users_union
        ";

        $stmt = $conn->prepare($query);
        $stmt->bind_param("ssss", $targetMonth, $targetMonth, $targetMonth, $targetMonth);
        $stmt->execute();
    }
}

```

Figure 4. 90 Code Snippet for Calculating MAU

4.6.2 Manage Content Page

CalmCapsule's content management system is built on a foundation of manual content creation, where all guided prompts and advice are professionally written and manually keyed in by admin. This approach ensures that therapeutic content maintains quality, appropriateness, and emotional safety standards, distinguishing it from AI-generated content systems. Content categories are organized into four tabs for easier access and control.

i. Advice Tab

The advice management interface allows administrator to manually create and organize supportive content tailored to each emotional state. This manual curation process ensures that all advice maintains therapeutic value and appropriateness for the target demographic. When adding new advice, administrator must select the target emotion from a dropdown menu and compose supportive text that addresses the specific emotional state. This emotion-specific categorization ensures that users receive contextually appropriate guidance after completing their journal entries. The system randomly selects advice from the database matching the user's

chosen emotion, providing immediate feedback upon entry submission. This automated delivery system ensures that users receive timely emotional support without requiring manual intervention, contributing to the platform's goal of providing accessible mental wellness tools.

Admin may:

- Add new advice (must select the related emotion from dropdown menu).
- Edit existing advice entries to improve content quality or relevance.
- Delete advice that is no longer appropriate or needed.

All advice content is stored in the database with emotion labels, making it immediately available for random selection when users with matching emotional states complete their journal entries.

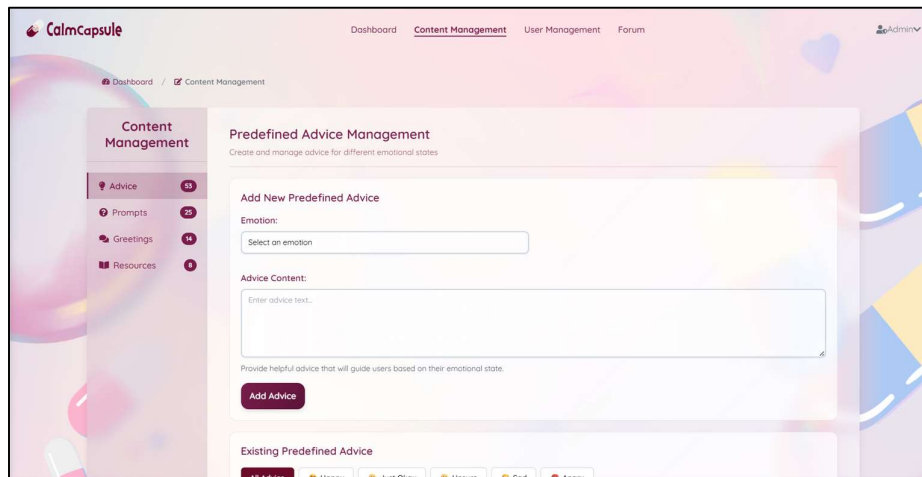
The image is a screenshot of the CalmCapsule Admin Dashboard. The top navigation bar includes links for Dashboard, Content Management (which is active), User Management, and Forum. On the left, a sidebar menu shows 'Content Management' with sub-items: Advice (53), Prompts (25), Greetings (14), and Resources (4). The main content area is titled 'Predefined Advice Management' with the subtitle 'Create and manage advice for different emotional states'. It features a form to 'Add New Predefined Advice' with two fields: 'Emotion' (a dropdown menu labeled 'Select an emotion') and 'Advice Content' (a large text area labeled 'Enter advice text...'). Below the text area is a note: 'Provide helpful advice that will guide users based on their emotional state.' and an 'Add Advice' button. At the bottom, there is a section for 'Existing Predefined Advice' with a filter bar showing 'All Advice' and several emotion-based filters: Happy, Just Okay, Unsure, Sad, and Angry.

Figure 4. 91 Form to Add New Advice

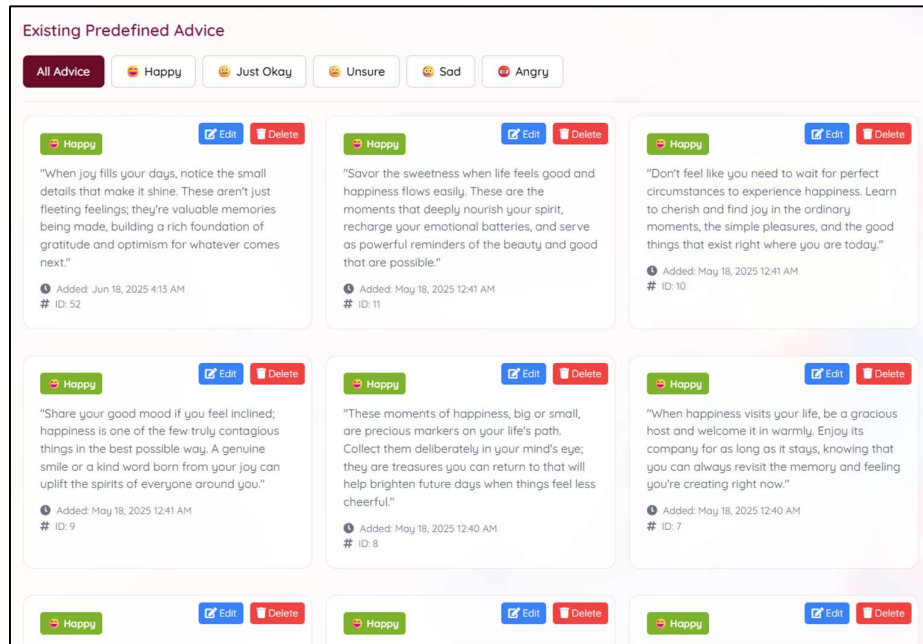


Figure 4. 92 Existing Emotion-Based Advice

ii. Prompts Tab

This prompts management interface facilitates the manual creation and management of guided reflection prompts, which are professionally written questions or instructions categorized by emotion and type (General or Academic). This manual approach ensures that prompts maintain therapeutic relevance and encourage meaningful self-reflection. Admin may:

- Add a new prompt with specified emotion and type.
- Edit or delete existing prompts.

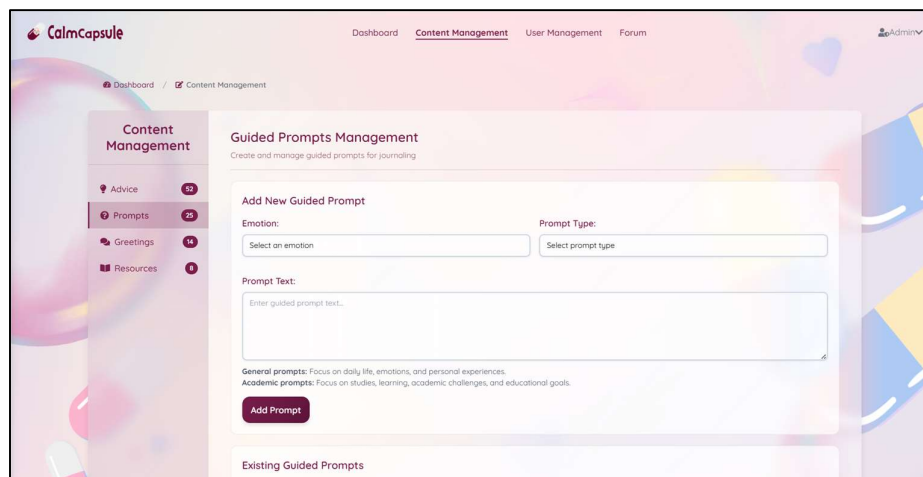


Figure 4. 93 Form to Add New Prompt

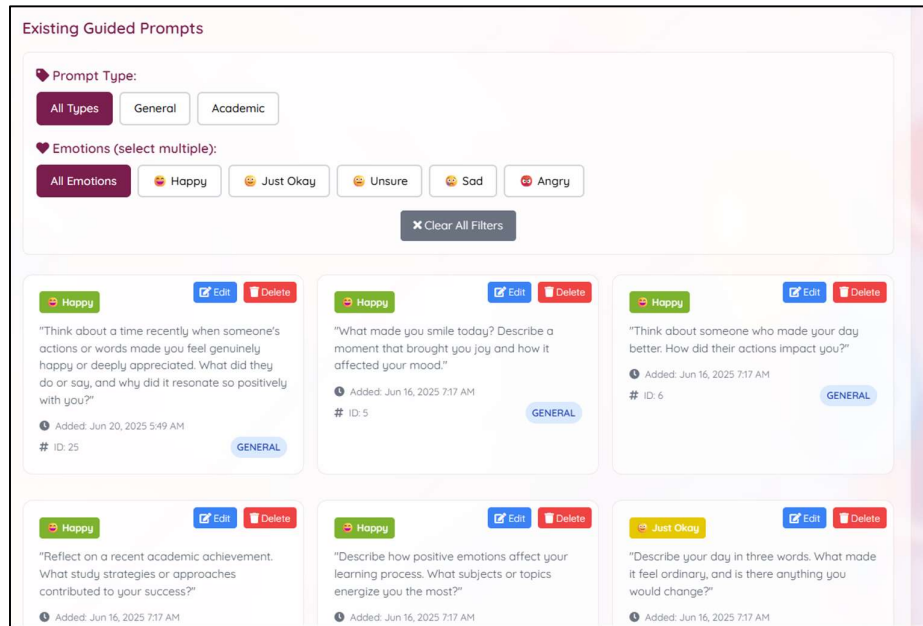


Figure 4. 94 Existing Guided Reflection Prompts

iii. Greetings Tab

Allows updating of greeting messages displayed randomly on the user homepage. Admin enters a new message and submits it for storage in the database.

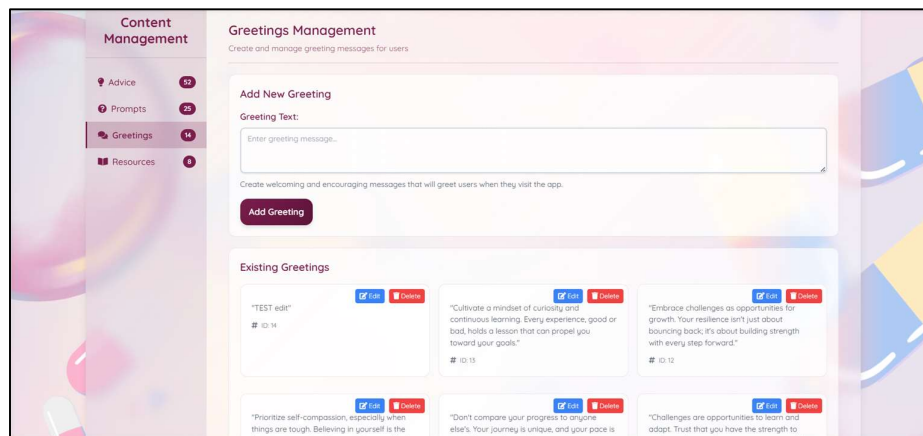


Figure 4. 95 Form to Add New Greetings and Existing Greetings

iv. Resources Tab

Enables the admin to manage educational materials on mental health and wellness. Admin may:

- Add new resources (title, preview, content, optional image).
- Edit or delete existing resources.

Content Management

- Advice (32)
- Prompts (25)
- Greetings (14)
- Resources (8)**

Educational Resources Management

Create and manage educational content for users

Add New Educational Resource

Title:

Attached Picture (Optional):
 No file chosen
Accepted formats: JPG, JPEG, PNG, GIF. Maximum size: 5MB.

Preview:

Brief description that will be displayed as a preview of the resource.

Content:

Normal
B
I
U
G
A
■
■
■
■
■
■
■
■
■
■

Full content of the educational resource with rich text formatting.

Figure 4. 96 Form to Add New Educational Resource

Existing Educational Resources

Search Resources:

Filter by Date:

The Resilient Student: Befriending Your Inner Critic

June 20, 2025

That nagging voice of self-doubt can be a student's biggest hurdle. Learn to identify, understand, and transform your inner critic from an enemy into an unexpected ally for growth.



Updated: Jun 20, 2025 6:54 AM
ID: 10

The Emotional Compass: Navigating Your Moods for Academic Success

June 20, 2025

Your emotions are powerful signals, not just random feelings. Learn how to accurately read your emotional "compass" to understand what your moods are telling you and use that insight to boost your learning and well-being.



Updated: Jun 20, 2025 5:05 AM
ID: 8

Figure 4. 97 Existing Educational Resources

This section heavily implements Create, Read, Update, and Delete (CRUD) operations, reflecting standard content management functionality within the administrative interface.

```
// Handle form submissions
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    if (isset($_POST['action'])) {
        $adminID = $_SESSION['adminID']; // Get admin ID from session
        $lastUpdated = date("Y-m-d H:i:s"); // current datetime in MY time

        // ADVICE ACTIONS
        if ($_POST['action'] == 'add_advice') {
            $emotionID = $_POST['emotionID'];
            $content = trim($_POST['content']);

            if ($emotionID < 1 || $emotionID > 5) {
                $errorMessage = 'Error: Invalid emotion ID. Must be between 1 and 5.';
            } elseif (empty($content)) {
                $errorMessage = 'Advice content cannot be empty.';
            } else {
                $stmt = $conn->prepare("INSERT INTO PredefinedAdvice (adminID, emotionID, content, lastUpdated) VALUES (?, ?, ?, ?)");
                $stmt->bind_param("iiss", $adminID, $emotionID, $content, $lastUpdated);

                if ($stmt->execute()) {
                    $successMessage = 'Advice added successfully!';
                } else {
                    $errorMessage = 'Error: ' . $stmt->error;
                }
                $stmt->close();
            }
        }
        elseif ($_POST['action'] == 'edit_advice') {
            $adviceID = $_POST['adviceID'];
            $emotionID = $_POST['emotionID'];
            $content = trim($_POST['content']);

            if ($emotionID < 1 || $emotionID > 5) {
                $errorMessage = 'Error: Invalid emotion ID. Must be between 1 and 5.';
            } elseif (empty($content)) {
                $errorMessage = 'Advice content cannot be empty.';
            } else {
                $stmt = $conn->prepare("UPDATE PredefinedAdvice SET emotionID = ?, content = ?, lastUpdated = ? WHERE adviceID = ?");
                $stmt->bind_param("iissi", $emotionID, $content, $lastUpdated, $adviceID);

                if ($stmt->execute()) {
                    $successMessage = 'Advice updated successfully!';
                } else {
                    $errorMessage = 'Error: ' . $stmt->error;
                }
                $stmt->close();
            }
        }
        elseif ($_POST['action'] == 'delete_advice') {
            $adviceID = $_POST['adviceID'];

            $stmt = $conn->prepare("DELETE FROM PredefinedAdvice WHERE adviceID = ?");
            $stmt->bind_param("i", $adviceID);

            if ($stmt->execute()) {
                $successMessage = 'Advice deleted successfully!';
            } else {
                $errorMessage = 'Error: ' . $stmt->error;
            }
        }
    }
}
```

Figure 4. 98 Code Snippet for CRUD Operations (Advice)

4.6.3 Manage User Accounts Page

The Manage User Accounts Page allows for oversight and control of all registered user profiles in the platform.

i. User Table

Displays a list of users along with:

- Username
- Email
- Registration Date

ii. User Account Actions

Admin may perform the following actions per user:

- View Details: Opens the user profile and activity summary.
- Edit Info: Update username or email with duplicate-check validation.

- Resend Password Reset Link: Used if the system fails to automatically deliver.
- Delete Account: Prompts a confirmation modal requiring the input of DELETE to proceed.

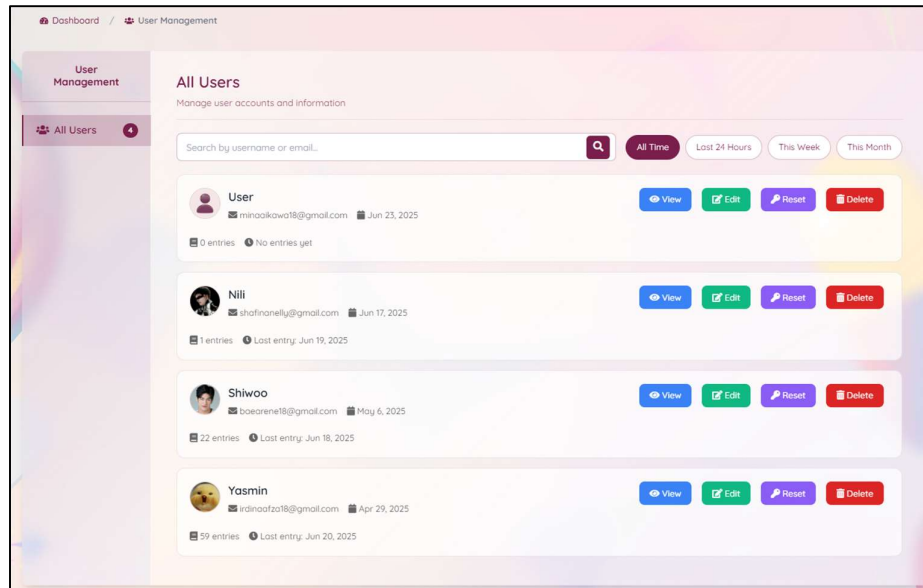


Figure 4. 99 User Management Page of CalmCapsule

```

// Get users with entry count
$sql = "SELECT u.*,
              COUNT(DISTINCT e.entryID) AS entryCount,
              MAX(e.dateCreated) AS lastEntryDate
        FROM user u
        LEFT JOIN entry e ON u.userID = e.userID
        WHERE $whereClause
        GROUP BY u.userID
        ORDER BY u.registrationDate DESC
        LIMIT ? OFFSET ?";

$params[] = $limit;
$params[] = $offset;
$types .= "ii";

$stmt = $conn->prepare($sql);
if (!empty($params)) {
    $stmt->bind_param($types, ...$params);
}
$stmt->execute();
$result = $stmt->get_result();
$users = $result->fetch_all(MYSQLI_ASSOC);

// Get total count for pagination with same filter
$countSql = "SELECT COUNT(*) as total FROM user WHERE $whereClause";
$countStmt = $conn->prepare($countSql);
if (!empty($params) && count($params) > 2) { // Exclude limit and offset
    $countParams = array_slice($params, 0, -2);
    $countTypes = substr($types, 0, -2);
    if (!empty($countParams)) {
        $countStmt->bind_param($countTypes, ...$countParams);
    }
}
$countStmt->execute();
$totalItems = $countStmt->get_result()->fetch_assoc()['total'];
$totalPages = ceil($totalItems / $limit);

/**
 * Format user registration date
 * @param string $date
 * @return string
 */
function formatUserRegistrationDate($date) {
    return date('M j, Y', strtotime($date));
}
?>

```

Figure 4. 100 Code Snippet for Retrieving User Data with Statistics

4.6.4 Manage Anonymous Sharing Forum Page

This section enables forum content moderation and review of submitted reports. The interface is designed to accommodate current single-admin operations while maintaining scalability for potential multi-admin environments in future implementations. It is divided into three tabs:

i. Posts Tab

Displays a chronological list of all user-submitted posts and comments. Admin may:

- Open full post content.
- Delete any post or comment deemed inappropriate (confirmation required).

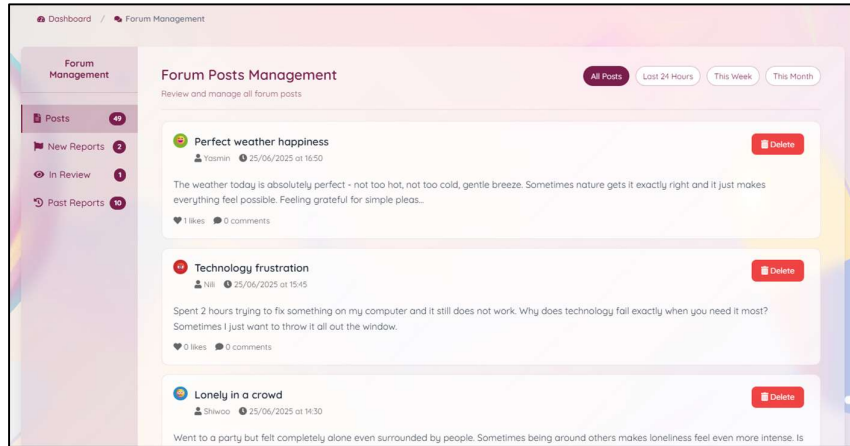


Figure 4. 101 Forum Posts Management Page of CalmCapsule

```
<!-- Content Section -->
<div class="content-section">
  <?php if ($section === 'posts'): ?>
    <!-- Posts Management -->
    <div class="content-header">
      <div>
        <h2 class="content-title brand-text">Forum Posts Management</h2>
        <p class="content-subtitle brand-text">Review and manage all forum posts</p>
      </div>
    </div>
    <!-- Post Filters -->
    <div class="report-filters">
      <a href="#">section=posts class="filter-btn <?php echo $postFilter === '' ? 'active' : ''; ?>>
        All Posts
      </a>
      <a href="#">section=posts&filter=24hours class="filter-btn <?php echo $postFilter === '24hours' ? 'active' : ''; ?>>
        Last 24 Hours
      </a>
      <a href="#">section=posts&filter=week class="filter-btn <?php echo $postFilter === 'week' ? 'active' : ''; ?>>
        This Week
      </a>
      <a href="#">section=posts&filter=month class="filter-btn <?php echo $postFilter === 'month' ? 'active' : ''; ?>>
        This Month
      </a>
    </div>
  </div>
  <div class="posts-list">
    <?php if (empty($posts)): ?>
      <div class="text-center py-8">
        <p class="text-gray-500">No posts found.</p>
      </div>
    <?php else: ?>
      <?php foreach ($posts as $post):
        $emotionIcon = getEmotionIcon($post['emotionID']);
        $emotionColor = getEmotionColorClass($post['emotionID']);
      <?>
      <div class="post-card" data-post-id="<?php echo $post['postID']; ?>">
        <div class="post-header">
          <div class="flex items-start gap-3">
            <div class="emotion-icon <?php echo $emotionColor; ?>">
              <?php echo $emotionIcon; ?>
            </div>
            <div>
              <h3 class="font-semibold text-lg text-gray-800 mb-1">
                <?php echo htmlspecialchars($post['title']); ?>
              </h3>
              <div class="post-meta">
                <span><i class="fas fa-user mr-1"></i><?php echo htmlspecialchars($post['username']); ?></span>
                <span><i class="fas fa-clock mr-1"></i><?php echo formatForumDate($post['dateCreated']); ?></span>
              </div>
            </div>
          </div>
          <div class="flex gap-2">
            <?php if ($post['commentCount'] > 0): ?>
              <button class="action-btn btn-expand onclick="toggleComments(<?php echo $post['postID']; ?>)">
                <i class="fas fa-comments mr-1"></i>
                <span id="expand-text-<?php echo $post['postID']; ?>">View Comments</span>
            </button>
          </div>
        </div>
      </div>
    <?php endforeach; ?>
  </div>
</div>
```

Figure 4. 102 Code Snippet for Forum Posts Management Page

ii. New Reports Tab

Lists all incoming reports, showing:

- Reporter identity
- Reported user
- Type of content (Post or Comment)
- Reason and date of submission

Admin actions:

- **Assign to Me:** While the current system operates with a single admin, this feature is implemented to support future scalability where multiple administrators may manage different reports simultaneously.
- **View Details:** Inspect the reported content.

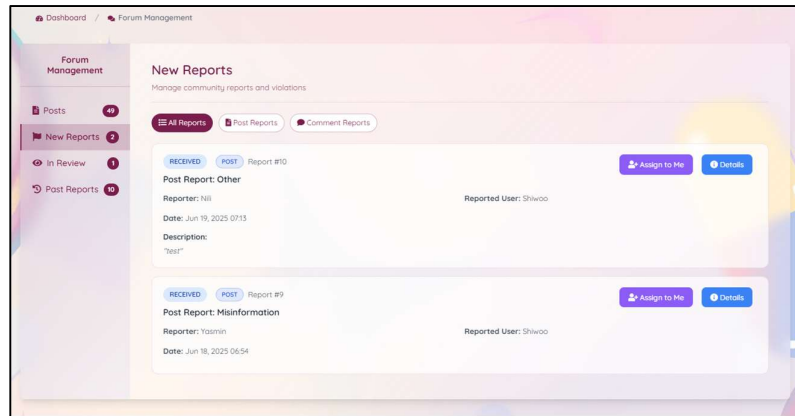


Figure 4. 103 New Reports Page with Details and Assignment Button

```
<?php elseif ($section === 'reports'): ?>
<!-- Reports Management -->
<div class="content-header">
  <div>
    <h2 class="content-title brand-text">
      <?php
      switch($reportStatus) {
        case 'received': echo 'New Reports'; break;
        case 'in.review': echo 'Reports In Review'; break;
        case 'past': echo 'Past Reports'; break;
        default: echo 'All Reports';
      }
    </h2>
    <p class="content-subtitle brand-text">Manage community reports and violations</p>
  </div>
  <!-- Report Type Filters for New Reports -->
  <?php if ($reportStatus === 'received'): ?>
  <div class="report-filters">
    <a href="?section=reports&status=received" class="filter-btn <?php echo $reportType === '' ? 'active' : '' ?>">
      <i class="fas fa-list mr-1"></i>All Reports
    </a>
    <a href="?section=reports&status=received&type=post" class="filter-btn <?php echo $reportType === 'post' ? 'active' : '' ?>">
      <i class="fas fa-file-alt mr-1"></i>Post Reports
    </a>
    <a href="?section=reports&status=received&type=comment" class="filter-btn <?php echo $reportType === 'comment' ? 'active' : '' ?>">
      <i class="fas fa-comment mr-1"></i>Comment Reports
    </a>
  </div>
<?php endif; ?>
```

Figure 4. 104 Code Snippet for New Report Page

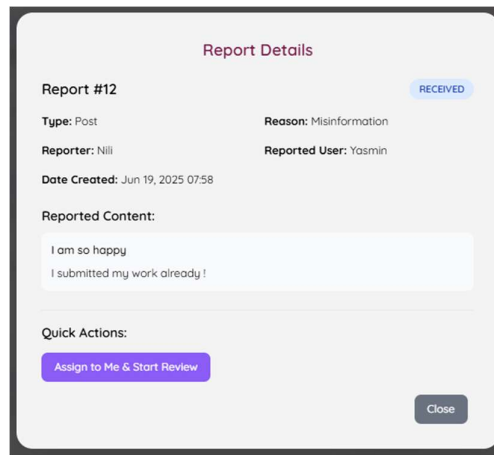


Figure 4.105 Modal Displaying Report Details

iii. In Review and Past Reports Tabs

In Review: Once a report is assigned (automatically assigned to the current admin), the admin acts by either:

- **Delete:** Deletes the offending content, sends warnings, and marks the report as deleted.
- **Dismiss:** No action is taken on content; reporter is notified.

Past Reports: Provides a history of all deleted and dismissed reports with filtering options for administrative record-keeping and pattern analysis.

The current single-admin implementation streamlines the workflow by automatically assigning reports, while the tabbed structure maintains organizational clarity and prepares the system for potential expansion to multiple administrators in future versions.

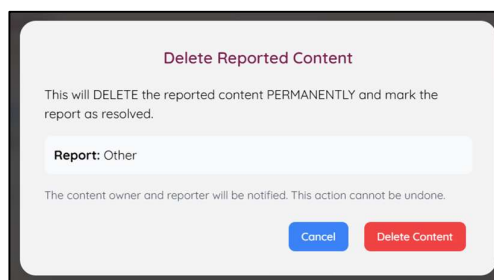


Figure 4.106 Confirmation Modal to Delete Content Report

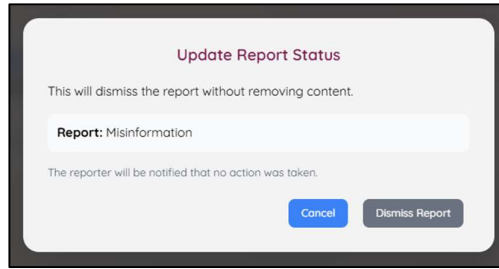


Figure 4. 107 Confirmation Modal to Dismiss Report

```
// Update report status confirmation
function confirmUpdateReportStatus(reportId, newStatus, reportReason) {
  currentReportId = reportId;
  currentReportStatus = newStatus;

  document.getElementById('reportReasonToUpdate').textContent = reportReason;

  const confirmBtn = document.getElementById('confirmUpdateStatusBtn');

  if (newStatus === 'resolved') {
    document.getElementById('updateStatusMessage').textContent = 'This will mark the report as RESOLVED and PERMANENTLY REMOVE the reported content.';
    document.getElementById('updateStatusWarning').textContent = 'The content owner and reporter will be notified. This action cannot be undone.';
    confirmBtn.textContent = 'Resolve Report';
    confirmBtn.className = 'action-btn btn-resolve';
  } else if (newStatus === 'dismissed') {
    document.getElementById('updateStatusMessage').textContent = 'This will dismiss the report without removing content.';
    document.getElementById('updateStatusWarning').textContent = 'The reporter will be notified that no action was taken.';
    confirmBtn.textContent = 'Dismiss Report';
    confirmBtn.className = 'action-btn btn-dismiss';
  }

  document.getElementById('updateReportStatusModal').classList.add('active');
  document.body.style.overflow = 'hidden';
}
```

Figure 4. 108 Code Snippet for Delete or Dismiss Report

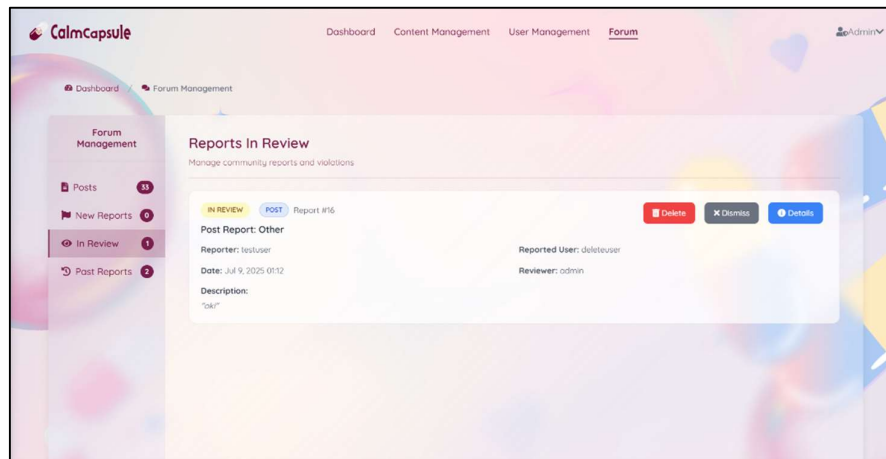


Figure 4. 109 In Review - Reports Page

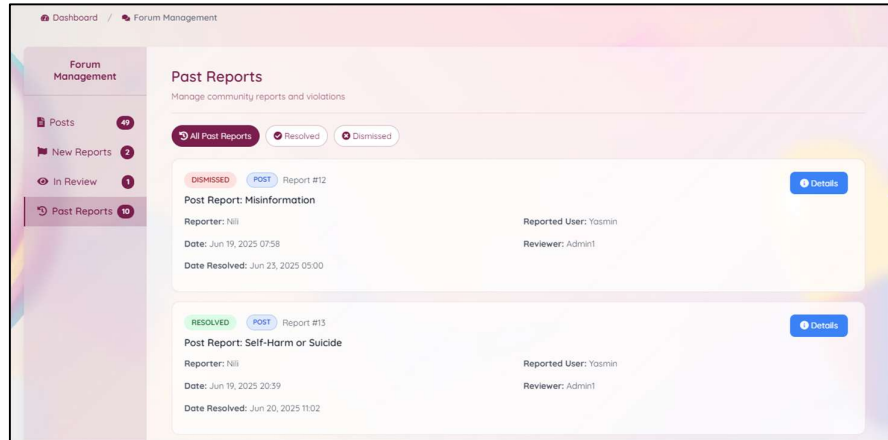


Figure 4. 110 Past Reports Page

4.7 Summary

The development of the CalmCapsule platform demonstrates how a web-based system can be effectively designed to promote mental wellness through structured journaling and emotional self-reflection. The platform incorporates essential features such as guided prompts for reflection, emotion-based advice, anonymous sharing, emotional trend visualization, and access to educational materials. These components are delivered within a calming and intuitive interface that prioritizes ease of use and emotional safety. By utilizing responsive web technologies and modular content management, CalmCapsule ensures a smooth and consistent user experience. In summary, CalmCapsule serves as a digital space that encourages users to reflect on their emotions, track their mental well-being, and access relevant support materials, ultimately fulfilling its intended role as a supportive emotional wellness tool.

CHAPTER 5: TESTING & EVALUATION

5.1 Introduction

Testing plays a vital role in the system development process, ensuring that the final product meets functional requirements and delivers a reliable user experience. For the CalmCapsule platform, a series of testing activities were carried out to validate the system's ability to perform as intended, focusing on aspects such as system functionality, usability, and compatibility. In accordance with Agile Methodology, testing was conducted iteratively at the end of each development sprint to allow for continuous feedback and incremental improvements. As CalmCapsule is currently a localhost prototype and not yet deployed for public access, all testing activities were executed in a controlled environment. Specifically, the testing was conducted using desktop and laptop platforms, as the system is primarily designed for these environments. Although certain responsive design elements are present to allow limited access via mobile devices, this testing phase does not evaluate mobile-specific performance.

This chapter is structured into two main testing categories, functional testing and usability testing. Functional testing consists of unit testing and integration testing, which aim to verify that individual components of the system and their interactions function correctly. Usability testing, as part of non-functional testing, evaluates the system's user interface and overall experience from the perspective of end users. Each section outlines the relevant methodology, testing procedures, and the outcomes of the tests conducted.

5.2 Functional Testing

Functional testing for CalmCapsule validates that all system features perform according to their specified requirements and user expectations within the localhost development environment. This testing phase examines the system's behavior through input-output relationships, data processing accuracy, and feature completeness to ensure reliable operation for emotional wellness management. The functional testing approach encompasses two primary methodologies, unit testing, which examines individual components in isolation, and integration testing, which validates the interaction between different modules to ensure seamless system operation.

5.2.1 Unit Testing

Unit testing focuses on validating individual components and functions of CalmCapsule in isolation to ensure each operates correctly according to its specific requirements. This testing approach examines discrete system elements such as user registration, login authentication, entry creation, forum functionality, and administrative operations without considering their interactions with other components. The testing methodology involves systematic validation of each functional module against predetermined criteria, including input validation, data processing, output generation, and error handling to ensure robust performance across various usage scenarios. The following tables present comprehensive test cases for each functional module, documenting test objectives, input parameters, expected outcomes, actual results, and pass or fail status.

5.2.1.1 User Authentication Module

This module was tested to validate user registration processes, login authentication mechanisms, and password reset functionality. Testing focused on ensuring secure user account creation with proper validation, successful authentication with valid credentials, appropriate error handling for invalid inputs, and secure password recovery processes.

Table 5. 1 TC_AUTH_001: User Registration Test Cases

Test Case ID: TC_AUTH_001					
Test Case Objective: Validate user registration functionality with real-time validation					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_AUTH_01_01	Valid user registration	Username: "shiwoochoi", Email: "shiwoo@gmail.com", Password: "SecurePass123", Confirm Password: "SecurePass123"	All fields validate in real-time, sign-up button enabled, account created successfully	Fields validated as typed, sign-up button enabled when all requirements met, account created, "Registration successful" message shown,	Pass

				redirected to login page	
TC_A UTH_0 01_02	Registration with existing email	Username: "newuser", Email: "existing@gmail.com", Password: "SecurePass123", Confirm Password: "SecurePass123"	Real-time validation shows email error, sign-up button disabled	"This email is already registered" error displayed immediately after typing, sign-up button remains disabled, registration cannot proceed	Pass
TC_A UTH_0 01_03	Registration with existing username	Username: "existinguser", Email: "new@email.com", Password: "SecurePass123", Confirm Password: "SecurePass123"	Real-time validation shows username error, sign-up button disabled	"This username is already taken" error displayed immediately after typing, sign-up button remains disabled	Pass
TC_A UTH_0 01_04	Registration with weak password	Username: "validuser", Email: "valid@email.com", Password: "123", Confirm Password: "123"	Real-time validation shows password error, sign-up button disabled	"Password must be at least 8 characters with uppercase, lowercase, and numbers or special characters" error shown as user types, sign-up button disabled	Pass
TC_A UTH_0 01_05	Registration with mismatched confirm password	Username: "validuser", Email: "valid@email.com", Password: "SecurePass123",	Real-time validation shows password mismatch	"Passwords do not match" error displayed immediately after typing in confirm	Pass

		Confirm Password: “DifferentPass456”	error, sign-up button disabled	password field, sign-up button remains disabled	
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Table 5. 2 TC_AUTH_002: User Login Test Cases

Test Case ID: TC_AUTH_002					
Test Case Objective: Validate user login functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_A UTH_0 02_01	Valid user login	Valid email or username and password	Redirect to homepage, user session created	Successfully redirected to homepage, user session established, welcome message displayed	Pass
TC_A UTH_0 02_02	Invalid email or username login	Non-existent email or username, any password	Error message: “Invalid Credentials”	“No account found with that username or email” error message displayed, remains on login page	Pass
TC_A UTH_0 02_03	Invalid password login	Valid email or username, wrong password	Error message: “Invalid credentials”	“Incorrect password” error message displayed, login form cleared	Pass
TC_A UTH_0 02_04	Admin login	Admin credentials via admin login page	Redirect to admin dashboard	Successfully redirected to admin dashboard with administrative menu options visible	Pass

TC_A UTH_0 02_05	User logout	Click logout button while logged in	User session terminated, redirect to login page	User successfully logged out, session cleared, redirected to login page with “You have been logged out” message	Pass
TC_A UTH_0 02_06	Access protected page after logout	Try to access profile page after logout	Redirect to login page	Attempted to access profile page, automatically redirected to login with “Please log in to continue” message	Pass
TC_A UTH_0 02_07	Admin logout	Click logout button in admin dashboard	Admin session terminated, redirect to admin login	Admin successfully logged out, session cleared, redirected to admin login page	Pass

Table 5. 3 TC_AUTH_003: Password Reset Test Cases

Test Case ID: TC_AUTH_003					
Test Case Objective: Validate password reset functionality with real-time validation					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_A UTH_0 03_01	Valid password reset request	Registered email address	Reset link sent to email, confirmation message shown	“Password reset instructions have been sent to your email address. Please check your inbox and follow the instructions to	Pass

				reset your password.” confirmation displayed, reset token generated in database	
TC_A UTH_0 03_02	Invalid email for reset	Non-registered email	Same generic confirmation message shown for security	“If an account with that email address exists, password reset instructions have been sent to your inbox.” message displayed (no indication email doesn’t exist)	Pass
TC_A UTH_0 03_03	Empty email field	Empty email input	Error message: “Email required”	“Please enter your email address” field validation error shown	Pass
TC_A UTH_0 03_04	Valid password reset with token	Valid token, New Password: “NewSecure123”, Confirm Password: “NewSecure123”	Password reset successful, redirect to login	Token validated, passwords match, password updated in database, “Your password has been successfully updated! A confirmation email has been sent to your email address. You can now login with your new password.”	Pass

				message, redirected to login page	
TC_A UTH_0 03_05	Password reset with mismatched passwords	Valid token, New Password: "NewSecure123", Confirm Password: "DifferentPass456"	Real-time validation shows password mismatch error, reset button disabled	"Passwords do not match" error displayed immediately, reset button remains disabled	Pass
TC_A UTH_0 03_06	Password reset with weak password	Valid token, New Password: "123", Confirm Password: "123"	Real-time validation shows password strength error, reset button disabled	"Password must be at least 8 characters with uppercase, lowercase, and numbers" error shown, reset button disabled	Pass
TC_A UTH_0 03_07	Password reset with empty confirm password	Valid token, New Password: "NewSecure123", Confirm Password: ""	Real-time validation shows confirm password required, reset button disabled	"Please confirm your new password" validation message appears, reset button disabled	Pass
TC_A UTH_0 03_08	Password reset with expired token	Expired token, valid passwords	Error message about expired token	"Reset link has expired. Please request a new one." error displayed, form disabled	Pass
TC_A UTH_0 03_09	Password reset button state validation	Gradually fill password fields	Reset button enables only when all validations pass and	Button remains disabled until valid passwords entered and confirmed, then enables automatically	Pass

			passwords match		
--	--	--	--------------------	--	--

5.2.1.2 Profile Management Module

Testing of this module validated user profile viewing capabilities and profile editing functionality. The tests ensured that authenticated users can access their profile information correctly, update personal details with proper validation, and receive appropriate feedback for both successful updates and validation errors.

Table 5. 4 TC_PROFILE_001: Profile Viewing Test Cases

Test Case ID: TC_PROFILE_001					
Test Case Objective: Validate profile viewing functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_PROFILE_001_01	View profile while logged in	User clicks profile icon	Display user's username, email, and other details	Profile page loaded showing username: "shiwoochoi", email: "shiwoo@gmail.com", join date, profile picture	Pass
TC_PROFILE_001_02	View profile while not logged in	Unauthorized access attempt	Redirect to login page	Automatically redirected to login page	Pass

Table 5. 5 TC_PROFILE_002: Profile Editing Test Cases

Test Case ID: TC_PROFILE_002					
Test Case Objective: Validate profile editing functionality with real-time validation					

Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_PR OFILE _002_0 1	Valid profile update	New username: "newusername", Email: "new@email.com", valid data	Real-time validation passes, save button enabled, profile updated successfully	Fields validated as typed, save button enabled when all valid, username updated to "newusername", "Profile updated successfully" message shown, changes visible immediately	Pass
TC_PR OFILE _002_0 2	Update with existing email	Username: "validuser", Email: "existing@email.com"	Real-time validation shows email error, save button disabled	"Email already exists" error displayed immediately after typing, save button remains disabled	Pass
TC_PR OFILE _002_0 3	Update with existing username	Username: "existinguser", Email: "valid@email.com"	Real-time validation shows username error, save button disabled	"This username is already taken" error displayed immediately after typing, save button remains disabled	Pass
TC_PR OFILE _002_0 4	Update with short username	Username: "ab", Email: "valid@email.com"	Real-time validation shows username length error, save button disabled	"Username must be at least 3 characters" validation error shown immediately, save button disabled	Pass

TC_PR OFILE _002_0 5	Update with username containing special characters	Username: “user@123”, Email: “valid@email.c om”	Real-time validation shows username format error, save button disabled	“Username can only contain letters, numbers, and underscores” validation error displayed, save button disabled	Pass
TC_PR OFILE _002_0 6	Update with empty required field	Username: “”, Email: “valid@email.c om”	Real-time validation shows required field error, save button disabled	“Username cannot be empty” validation error shown immediately, save button disabled and cannot be clicked	Pass
TC_PR OFILE _002_0 7	Valid password update	Current Password: “OldPass123”, New Password: “NewSecure456 ”, Confirm Password: “NewSecure456 ”	Real-time validation passes, update button enabled, password update successful	Current password verified, update button enabled when all valid, new passwords match, password updated in database, “Password updated successfully” message shown	Pass
TC_PR OFILE _002_0 8	Password update with incorrect current password	Current Password: “WrongPass123 ”, New Password: “NewSecure456 ”, Confirm Password:	Current password validation fails, new password and confirm password fields disabled	“Current password is incorrect” error displayed, new and confirm password fields remain disabled, password update prevented	Pass

		“NewSecure456”			
TC_PR OFILE _002_0 9	Password update with mismatched new passwords	Current Password: “OldPass123”, New Password: “NewSecure456”, Confirm Password: “DifferentPass789”	Real-time validation shows password mismatch error, update button disabled	“New passwords do not match” error displayed immediately, update button remains disabled	Pass
TC_PR OFILE _002_1 0	Password update with weak new password	Current Password: “OldPass123”, New Password: “123”, Confirm Password: “123”	Real-time validation shows password strength error, update button disabled	“Password must meet security requirements” error displayed with specific criteria shown, update button disabled	Pass
TC_PR OFILE _002_1 1	Password update with empty confirm password	Current Password: “OldPass123”, New Password: “NewSecure456”, Confirm Password: “”	Real-time validation shows confirm password required, update button disabled	“Please confirm your new password” validation message appears, update button disabled	Pass
TC_PR OFILE _002_1 2	Valid profile picture update	Upload valid image file (JPG, 2MB)	Image validates in real-time, update button enabled, profile picture updated	Image validated upon selection, update button enabled, image uploaded and displayed as new profile picture, “Profile picture	Pass

				updated” confirmation shown	
TC_PR OFILE _002_1 3	Profile update button state validation	Gradually modify fields with invalid then valid data	Update button disabled for invalid data, enabled only when all fields valid	Button remains disabled during invalid input states, automatically enables when all validation requirements met	Pass

5.2.1.3 Capsule and Entry Management Module

This module testing focused on capsule viewing functionality and journal entry creation processes. Tests validated the display of monthly capsules, entry creation with emotion labelling, guided prompt functionality, and proper date restrictions to prevent future date entries.

Table 5. 6 TC_CAPSULE_001: Capsule Viewing Test Cases

Test Case ID: TC_CAPSULE_001					
Test Case Objective: Validate capsule viewing functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_CA PSULE _001_0 1	View capsules while logged in	User selects “View Capsule”	Display 12 monthly capsules	Capsule page loaded showing 12 capsules labeled “January” through “December”	Pass
TC_CA PSULE _001_0 2	Select capsule with entries	Click on a month capsule	Display most recent entry in capsule	Opened capsule showing most recent entry dated today with emotion	Pass

				“Happy” and content preview	
TC_CA PSULE _001_0 3	Select empty capsule	Click on capsule with no entries	Message: “No entries available”, option to add new entry	“No journal entries found for this month. Click “Add New Entry” to create your first entry for December.” message displayed	Pass
TC_CA PSULE _001_0 4	Access future month capsule	Try to access next month’s capsule	Access denied, notification shown	“Month is Locked” notification displayed, capsule remains not selectable	Pass

Table 5. 7 TC_ENTRY_001: Entry Creation Test Cases

Test Case ID: TC_ENTRY_001					
Test Case Objective: Validate entry creation functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_EN TRY_0 01_01	Create entry with valid data	Date: today, Emotion: “Happy”, Title: “Great Day”, Content: “Good day today!”	Entry saved successfully, emotion-based advice shown	Entry saved with timestamp, “When you feel happy, pause and really savor it. Let the feeling fill you, share it with others if you can, and perhaps use that positive energy to do something kind	Pass

				or creative. Remember this moment for later!” advice displayed, entry visible in capsule	
TC_EN TRY_0 01_02	Attempt to save without selecting emotion	No emotion selected, attempt to click save	Error message: “Please choose your emotion first”	“Please choose your emotion first” error message displayed, entry not saved, title and content fields remain disabled	Pass
TC_EN TRY_0 01_03	Select emotion enables input fields	Select emotion “Sad”	Title and content fields become enabled for input	After selecting “Sad” emotion, title and content input fields are enabled and can be clicked/typed in	Pass
TC_EN TRY_0 01_04	Create entry with future date	Date: tomorrow, Emotion: “Happy”, Title: “Future Day”, Content: “Tomorrow’s content”	Error message: “Cannot select future date”, form submission prevented	“Please select a valid date (today or earlier)” error message shown on submission, entry not saved	Pass
TC_EN TRY_0 01_05	Create entry with empty content after emotion selection	Emotion: “Happy”, Title: “”, Content: “”	Error message about required fields, form submission prevented	“Please write something about your day” validation error displayed on submission, entry not saved	Pass

TC_EN TRY_0 01_06	Access guided prompts without emotion selection	No emotion selected, attempt to click “Use Guided Prompts”	Guided prompts button disabled or shows error message	“Please choose your emotion first” message shown, guided prompts feature unavailable until emotion selected	Pass
TC_EN TRY_0 01_07	Access guided prompts after emotion selection	Emotion: “Sad” selected, click “Use Guided Prompts”	Guided prompts interface becomes available	Guided prompts button enabled after emotion selection, prompts interface accessible with “Sad” emotion options	Pass

Table 5. 8 TC_ENTRY_002: Entry Creation Test Cases

Test Case ID: TC_ENTRY_002					
Test Case Objective: Validate guided prompts functionality with emotion-first requirement					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_EN TRY_0 02_01	Access guided prompts after selecting emotion	Emotion: “Happy”, Type: “General”	Display general prompts related to happiness	Emotion selected first, guided prompts enabled, “What made you happy today?” general prompt displayed with text area for response	Pass

TC_EN TRY_0 02_02	Select academic prompts with emotion	Emotion: “Angry”, Type: “Academic”	Display academic prompts related to anger	“Analyse the root cause of your anger using the cognitive model” academic prompt shown after emotion selection	Pass
TC_EN TRY_0 02_03	Submit guided prompt response with complete entry	Emotion: “Sad”, prompt responses, title and content filled	Entry saved with guided responses	Prompt responses saved, entry created with structured reflection content included	Pass
TC_EN TRY_0 02_04	Attempt to access guided prompts without emotion	No emotion selected, try to access guided prompts	Error message or feature disabled	“Please choose your emotion first” message shown, guided prompts interface unavailable	Pass
TC_EN TRY_0 02_05	Submit guided prompt without response content	Emotion selected, prompt displayed, but no response written	Error message: “Please provide a response”, form submission prevented	“Please write something about your day” validation error shown on submission, entry not saved	Pass

5.2.1.4 Anonymous Sharing Forum Module

Testing validated forum post viewing, creation, interaction, and reporting capabilities. The tests ensured anonymous posting functionality, proper display of forum content, like and comment features, and robust reporting mechanisms for inappropriate content.

Table 5. 9 TC_FORUM_001: Forum Post Viewing Test Cases

Test Case ID: TC_FORUM_001					
Test Case Objective: Validate forum post viewing functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_FORUM_001_01	View forum posts	Access Anonymous Sharing Forum	Display list of available posts	Forum page loaded showing 5 anonymous posts with titles, emotions, and timestamps	Pass
TC_FORUM_001_02	View empty forum	No posts available	Message: “No posts available”	“No posts yet. Be the first to share!” message displayed with “Create Post” button	Pass
TC_FORUM_001_03	View post details	Click on specific post	Display full post content and comments	Post opened showing full content, 3 comments, like count, and interaction options	Pass

Table 5. 10 TC_FORUM_002: Forum Post Creation Test Cases

Test Case ID: TC_FORUM_002					
Test Case Objective: Validate forum post creation (anonymous sharing) functionality with submission validation					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)

TC_FO RUM_ 002_01	Create valid post for sharing	Emotion: “Sad”, Title: “Feeling down”, Content: “Having a tough day”	All fields completed, post created and published anonymously	All fields completed, post created successfully, “Your post has been shared anonymously” confirmation shown, post visible in forum	Pass
TC_FO RUM_ 002_02	Create post without emotion	No emotion selected, valid title and content, click submit	Validation error displayed on submission, post not created	“Please select an emotion for your post” validation error displayed after clicking submit, post not created	Pass
TC_FO RUM_ 002_03	Create post without title	Emotion selected, empty title, valid content, click submit	Validation error displayed on submission, post not created	“Please add a title to your post” error shown after submission attempt, post not created	Pass
TC_FO RUM_ 002_04	Create post without content	Emotion and title provided, empty content, click submit	Validation error displayed on submission, post not created	“Please share your thoughts” validation error displayed after submission attempt, post not created	Pass
TC_FO RUM_ 002_05	Submit empty form	All fields empty, click submit	Multiple validation errors displayed, post not created	All required field errors shown: “Please select an emotion”, “Please add a title”, “Please	Pass

				share your thoughts”, post not created	
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Table 5. 11 TC_FORUM_003: Forum Interaction Test Cases

Test Case ID: TC_FORUM_003					
Test Case Objective: Validate forum interaction functionality with visual validation alerts					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_FORUM_003_01	Like a post	Click like button on post	Like count increases by 1, UI updates	Like count changed from 5 to 6, heart icon filled, UI updated instantly	Pass
TC_FORUM_003_02	Comment on post	Enter comment text and submit	Comment added to post anonymously, displayed in comments section	Comment “Hope you feel better soon” added to post, displayed with timestamp	Pass
TC_FORUM_003_03	Comment with empty text	Submit empty comment	Visual alert on comment field, form submission prevented	Blinking red border appears around comment input field, “Please write something before posting” validation error shown on submission, comment not added	Pass

Table 5. 12 TC_FORUM_004: Forum Reporting Test Cases

Test Case ID: TC_FORUM_004					
Test Case Objective: Validate forum reporting functionality with standard validation					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_FORUM_004_01	Report post with valid reason	Select “Inappropriate Content” reason	Report submitted successfully, confirmation message shown	“Thank you for reporting. We’ll review this content” confirmation displayed, report logged	Pass
TC_FORUM_004_02	Report with custom reason	Select “Other”, provide custom reason: “Spam content”	Report submitted with custom reason	Custom reason “Spam content” recorded, report submitted successfully with confirmation	Pass
TC_FORUM_004_03	Report without reason	No reason selected or provided, click submit	Submit button disabled, form submission prevented	Blinking red border appears around reason selection area, “Please select or specify a reason for reporting” validation error shown on submission, submit button remains disabled, report not submitted	Pass

5.2.1.5 Educational Resources Module

This module was tested to validate the display and access of educational content. Testing focused on ensuring proper loading of available resources, correct display of selected content, and appropriate messaging when no resources are available.

Table 5. 13 TC_EDUCATION_001: Educational Resources Access Test Cases

Test Case ID: TC_EDUCATION_001					
Test Case Objective: Validate educational resources functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_EDUCATION_001_01	View available resources	Access Educational Resources	Display list of available topics	Resources page loaded showing 8 topics: “Managing Stress”, “Mindfulness”, “Sleep Hygiene”, etc.	Pass
TC_EDUCATION_001_02	Select resource topic	Click “Read More” button on “Managing Stress” topic	Display full content of selected resource	Full article on stress management opened with text, images, and “Return to Resources” button	Pass

5.2.1.6 Emotional Trend Analysis Module

Testing validated the generation of emotional trend graphs and summaries. Tests ensured accurate calculation of emotional averages, proper handling of multiple daily entries, correct graph generation for weekly and monthly periods, and appropriate messaging for periods with no data.

Table 5. 14 TC_TREND_001: Emotional Trend Analysis Test Cases

Test Case ID: TC_TREND_001					
Test Case Objective: Validate emotional trend analysis functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_TR END_0 01_01	Generate weekly trend	Select “Weekly”, choose start date: 2024-06-17	Display 7-day emotional trend graph with summary	Line graph displayed showing daily emotions from June 17-23, average emotion: 3.8, summary stats shown	Pass
TC_TR END_0 01_02	Generate monthly trend	Select “Monthly”, choose June 2024	Display monthly emotional trend graph with summary	Monthly graph displayed for June 2024, 15 entries recorded, average emotion: 3.6, emotion breakdown provided	Pass
TC_TR END_0 01_03	Trend with no data	Select period with no entries (January 2024)	Display a blank graph, “No entries recorded” message displayed	Blank graph displayed, “No entries recorded, start journaling to see your emotion trends!” message displayed in summary section.	Pass
TC_TR END_0 01_04	Trend with multiple daily entries	Select day with 3 entries (different emotions)	Display averaged emotion values for days with multiple entries	Day showing average of Happy(5), Sad(2), Just Okay(4) = 3.7 (Just Okay), correctly calculated	Pass

				and displayed on graph	
TC_TR END_0 01_05	Default time period selection	Don't select time period	Default to weekly view	Weekly view automatically selected, current week displayed by default with proper date range	Pass

5.2.1.7 Emotion-Based Advice Module

This module testing focused on validating the emotion-based advice delivery system that provides users with supportive guidance after journal entry submission. Testing ensured that appropriate advice is selected and displayed based on the user's chosen emotion, with proper randomization and consistent delivery mechanisms.

Table 5. 15 TC_ADVICE_001: Emotion-Based Advice Test Cases

Test Case ID: TC_ADVICE_001					
Test Case Objective: Validate emotion-based advice delivery functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_A DVICE _001_0 1	Advice delivery for Happy emotion	Create entry with "Happy" emotion, save entry	System displays advice specific to Happy emotion from database	"When you feel happy, pause and really savor it. Let the feeling fill you, share it with others if you can, and perhaps use that positive energy to do something kind or creative." advice displayed in blue box	Pass

TC_A DVICE _001_0 2	Advice delivery for Sad emotion	Create entry with “Sad” emotion, save entry	System displays advice specific to Sad emotion from database	“Remember that difficult times pass. Consider reaching out to someone you trust, practicing self-care, or engaging in activities that usually bring you comfort.” advice displayed	Pass
TC_A DVICE _001_0 3	Advice delivery for Angry emotion	Create entry with “Angry” emotion, save entry	System displays advice specific to Angry emotion from database	“When anger arises, try taking deep breaths or stepping away from the situation. Physical exercise or writing about your feelings can help process this emotion constructively.” advice displayed	Pass
TC_A DVICE _001_0 4	Advice delivery for Just Okay emotion	Create entry with “Just Okay” emotion, save entry	System displays advice specific to Just Okay emotion from database	“Feeling ‘just okay’ is completely normal. Sometimes neutral days are exactly what we need. Consider doing something small that brings you joy or checking	Pass

				in with yourself.” advice displayed	
TC_A DEVICE _001_0 5	Advice delivery for Unsure emotion	Create entry with “Unsure” emotion, save entry	System displays advice specific to Unsure emotion from database	“Uncertainty can feel uncomfortable, but it’s part of being human. Take time to reflect on what you’re feeling and consider talking to someone you trust about your thoughts.” advice displayed	Pass
TC_A DEVICE _001_0 6	Random advice selection	Create multiple entries with same emotion (“Happy”)	Different advice messages displayed for same emotion across multiple entries	First entry: “happiness advice 1”, Second entry: “happiness advice 2”, Third entry: “happiness advice 3” - different advice shown each time	Pass
TC_A DEVICE _001_0 7	Advice display format	Complete any journal entry and save	Advice appears in designated blue information box at bottom- right of entry display	Advice correctly displayed in light blue box with proper formatting and positioning	Pass
TC_A DEVICE _001_0 8	Advice persistence	View previously saved entry that has associated advice	Previously delivered advice remains linked to the entry	Original advice “When you feel happy...” still displayed with the	Pass

				saved entry upon viewing	
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5.2.1.8 Notification System Module

This module testing validated the notification system functionality that keeps users informed of forum activities and system updates. Testing focused on notification generation, display, categorization, and user interaction with different notification types.

Table 5. 16 TC_NOTIFICATION_001: Notification System Test Cases

Test Case ID: TC_NOTIFICATION_001					
Test Case Objective: Validate notification system functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_NOTIFICATION_001_01	View notification center	Click notification icon in top navigation	Notification center opens with three tabs: “All”, “Activity”, “System”	Notification center opened displaying all tabs, default view shows “All” notifications with proper categorization	Pass
TC_NOTIFICATION_001_02	Forum activity notification generation	Another user likes or comments on user’s forum post	New notification appears in “Activity” tab	Notification generated: “Your post ‘Feeling stressed’ received a new like” with timestamp and proper formatting	Pass
TC_NOTIFICATION_001_03	System notification display	Admin resolves user’s report	New notification appears in “System” tab	System notification displayed: “Your report has been reviewed and	Pass

N_001_03				resolved. Thank you for helping maintain our community standards.”	
TC_N OTIFI CATIO N_001_04	Notification tab filtering - Activity	Click on “Activity” tab	Display only forum-related notifications	Activity tab showing 3 forum notifications: 2 likes, 1 comment on user’s posts, no system notifications visible	Pass
TC_N OTIFI CATIO N_001_05	Notification tab filtering - System	Click on “System” tab	Display only system/admin notifications	System tab showing 1 report resolution notification, no activity notifications visible	Pass
TC_N OTIFI CATIO N_001_06	Empty notification state	Access notification center with no notifications	Display empty state message	“No notifications yet” message displayed with appropriate empty state icon	Pass
TC_N OTIFI CATIO N_001_07	Notification click navigation	Click on forum activity notification	Navigate to related forum post	Clicked notification “Your post received a like”, successfully redirected to forum page with specific post highlighted	Pass
TC_N OTIFI CATIO N_001_08	Notification timestamp display	View any notification in center	Notifications display with relative timestamps	Notifications showing “2 hours ago”, “1 day ago”, “3 days ago” with	Pass

				proper time formatting	
TC_N OTIFI CATIO N_001 _09	Multiple notification handling	Receive multiple notifications of different types	All notifications properly categorized and displayed	5 notifications total: 3 in Activity tab (forum interactions), 2 in System tab (admin actions), all properly sorted by timestamp	Pass

5.2.1.9 Admin Management Module

This module testing focused on administrative functions including user account management, forum moderation, and content management capabilities. Tests validated admin access controls, user management operations with username validation and editing capabilities, forum content moderation, and administrative content update functionality. Username management includes validation for length, format, and uniqueness when admins edit user accounts.

Table 5. 17 TC_ADMIN_001: User Account Management Test Cases

Test Case ID: TC_ADMIN_001					
Test Case Objective: Validate user account management functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_A DMIN_ 001_01	View user accounts	Access “Manage User Accounts”	Display list of registered users	User management page showing 12 registered users with usernames, emails, join dates, and action buttons	Pass
TC_A DMIN_ 001_02	Search users by email	Search term: “shiwoo@gmail.com”	Display matching users	Search results showing 1 user matching “	Pass

				shiwoo@gmail.com” with highlighted search term	
TC_A DMIN_ 001_03	Search users by username	Search term: “shiwoochoi”	Display matching users	Search results showing 1 user matching “shiwoochoi” with highlighted search term	Pass
TC_A DMIN_ 001_04	Search non-existent user	Search term: “nonexistent@email.com”	Message: “No users found”	“No users match your search criteria” message displayed with option to clear search	Pass
TC_A DMIN_ 001_05	Edit user username with validation	Update username to existing username	Error message displayed, update prevented	“This username is already taken” error displayed, admin prevented from saving duplicate username	Pass
TC_A DMIN_ 001_06	Edit user username with invalid format	Update username to “us” (too short)	Error message displayed, update prevented	“Username must be at least 3 characters” error displayed, update blocked	Pass
TC_A DMIN_ 001_07	Edit user username successfully	Update username to valid new username	Username updated successfully	Username changed from “olduser” to “newuser”, database updated, confirmation message shown	Pass

TC_A DMIN_ 001_08	Delete user account	Select user and confirm deletion	User account deleted, removed from list	Confirmation dialog appeared, user account deleted, removed from user list, success message shown	Pass
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Table 5. 18 TC_ADMIN_002: Forum Moderation Test Cases

Test Case ID: TC_ADMIN_002					
Test Case Objective: Validate forum moderation functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/Fail)
TC_A DMIN_ 002_01	View forum posts	Access forum moderation panel	Display all posts with timestamps and engagement metrics	Moderation panel showing 8 forum posts with creation dates, like counts, comment counts, and moderation options	Pass
TC_A DMIN_ 002_02	Delete inappropriate post	Select post and confirm deletion	Post deleted, removed from forum	Confirmation dialog appeared, post deleted from database and forum, “Post removed successfully” message shown	Pass

TC_A DMIN_ 002_03	View reports	Access “New Reports” tab	Display all submitted reports with details	Reports tab showing 3 pending reports with reported content, reasons, reporter info, and timestamps	Pass
TC_A DMIN_ 002_04	Delete content report	Select report and choose “Delete”	Report marked as deleted, content deleted	Content deleted based on report, offending content removed, reporter and poster notified, report closed	Pass
TC_A DMIN_ 002_05	Dismiss report	Select report and choose “Dismiss”	Report marked as dismissed, content remains	Report dismissed, content kept online, reporter notified of decision, report marked as dismissed	Pass

Table 5. 19 TC_ADMIN_003: Content Management Test Cases

Test Case ID: TC_ADMIN_003					
Test Case Objective: Validate content management functionality					
Test ID	Test Case	Input	Expected Result	Actual Result	Status (Pass/ Fail)
TC_AD MIN_00 3_01	Update greeting message	Enter new greeting: “Welcome to your emotional	Greeting updated, displayed to users on homepage	Greeting updated in database, “Content updated successfully” message shown,	Pass

		wellness journey!”		new greeting visible on user homepage	
TC_AD MIN_00 3_02	Add new advice	Emotion: “Happy”, Advice: “Celebrate your achievements today!”	Advice added to database, available for users	New advice added to Happy emotion category, “Advice added successfully” confirmation, available in random advice rotation	Pass
TC_AD MIN_00 3_03	Edit existing advice	Modify existing advice text for Sad emotion	Advice updated in database	Existing advice text updated, changes saved to database, “Advice updated successfully” message displayed	Pass
TC_AD MIN_00 3_04	Delete advice	Select advice and confirm deletion	Advice removed from database	Confirmation dialog shown, advice deleted from database, removed from advice list, success notification displayed	Pass
TC_AD MIN_00 3_05	Add guided prompt	Emotion: “Sad”, Type: “General”, Prompt: “What support do you need right now?”	Prompt added and available for users	New prompt added to Sad/General category, “Prompt added successfully” confirmation, available in user prompt selection	Pass
TC_AD MIN_00 3_06	Update educational resource	Edit title: “Advanced Stress	Resource updated and	Resource title and content updated, new image	Pass

		Management”, update content and image	available to users	uploaded, “Resource updated successfully” message, changes visible to users	
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5.2.2 Integration Testing

Integration testing evaluates the interaction and data flow between different modules of CalmCapsule to ensure seamless operation when components function collectively as an integrated system. This testing phase validates interface compatibility, data consistency across modules, workflow continuity, and system-wide functionality that emerges from component interactions, which is crucial for maintaining data integrity between user profiles, journal entries, emotional trends, and forum interactions. The testing approach examines critical integration points including authentication flow across modules, data persistence operations, real-time updates, and cross-module data consistency to ensure the platform functions as a cohesive emotional wellness management system. The subsequent sections detail comprehensive integration test cases that systematically validate inter-module functionality, data flow integrity, and system-wide operational consistency.

5.2.2.1 User Authentication Integration

This integration testing validated how authentication mechanisms interact with other system modules. Testing focused on session management across different features, access control enforcement, and proper redirection after login to ensure authenticated users can seamlessly access all platform functionality.

Table 5. 20 IT_AUTH_001: Authentication Integration Test Cases

Test Case ID: IT_AUTH_001					
Test Case Objective: Test authentication integration with other modules					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)

IT_AUT H_001_0 1	Login to profile access	Authentication → Profile Module	Successful login allows access to profile features	User logged in successfully, profile page accessible, user data correctly displayed from session	Pass
IT_AUT H_001_0 2	Login to capsule access	Authentication → Capsule Module	Authenticated user can view and create capsules	User session maintained, capsule page loaded with user-specific data, entry creation available	Pass
IT_AUT H_001_0 3	Admin authentica tion	Authentication → Admin Dashboard	Admin login provides access to administrative features	Admin session created, dashboard accessible, user management and moderation tools available	Pass
IT_AUT H_001_0 4	Logout from any module	Authentication → All Modules	Logout terminates session and blocks access to protected pages	User logged out from forum page, session terminated, subsequent attempts to access profile/capsules redirect to login	Pass

5.2.2.2 Data Flow Integration

Testing validated data consistency and persistence across different modules. This included ensuring that user data changes reflect across all interfaces, new entries immediately appear in trend analysis, and administrative content updates are instantly available to users.

Table 5. 21 IT_DATA_001: Data Flow Integration Test Cases

Test Case ID: IT_DATA_001					
Test Case Objective: Test data consistency across modules					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)
IT_DATA_001_01	Entry creation to trend analysis	Entry Module → Trend Analysis	New entries immediately reflect in emotional trends	Created “Happy” entry, immediately visible in weekly trend graph with correct emotion value (5) plotted	Pass
IT_DATA_001_02	Profile update consistency	Profile Module → All User Data	Profile changes reflect across all user interactions	Updated username from “shiwoochoi” to “shiwoo”, change reflected in profile display and all user interfaces across the system	Pass
IT_DATA_001_03	Admin content updates	Admin Module → User Interface	Admin content changes immediately available to users	Admin updated greeting message, new greeting immediately visible on user homepage.	Pass
IT_DATA_001_04	Forum post to admin panel	Forum Module → Admin Moderation	New forum posts appear in admin moderation panel	User created forum post, immediately appeared in admin moderation panel with correct timestamp and content	Pass

5.2.2.3 Business Logic Integration

This integration testing focused on business rule enforcement across modules. Tests validated emotion-based advice delivery, guided prompt selection based on user choices, date restrictions across entry creation paths, and proper workflow for report processing from forum to admin panel.

Table 5. 22 IT_LOGIC_001: Business Logic Integration Test Cases

Test Case ID: IT_LOGIC_001					
Test Case Objective: Test business rule enforcement across modules					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)
IT_LOG IC_001_ 01	Emotion-based advice delivery	Entry Module → Advice System	Correct advice displayed based on selected emotion	Created “Sad” entry, received appropriate sad-emotion advice: “Remember that difficult times pass. Consider reaching out to someone you trust.”	Pass
IT_LOG IC_001_ 02	Guided prompt selection	Entry Module → Prompt System	Appropriate prompts shown based on emotion and type	Selected “Angry” emotion with “Academic” type, displayed relevant prompt: “Describe any academic frustrations you are experiencing. What specific challenges are causing stress?”	Pass

IT_LOG IC_001_ 03	Capsule date restrictions	Capsule Module → Entry Module	Future date entries properly blocked across modules	Attempted to create entry for tomorrow's date, correctly blocked with error message across all entry creation paths	Pass
IT_LOG IC_001_ 04	Report processing workflow	Forum Module → Admin Module	Reports trigger proper admin notification and review process	User reported inappropriate post, report immediately appeared in admin panel with all details and proper workflow options	Pass
IT_LOG IC_001_ 05	Password confirmation consistency	Registration → Password Reset → Profile	Confirm password validation rules consistent across all modules	Password confirmation validation follows same rules across registration, password reset, and profile update with real-time feedback	Pass

5.2.2.4 Database Integration

Testing validated database operations and data persistence across all system modules. This included ensuring proper data storage and retrieval for user registrations, journal entries, forum interactions, and administrative content updates.

Table 5. 23 IT_DB_001: Database Integration Test Cases

Test Case ID: IT_DB_001					
Test Case Objective: Test database operations and data persistence					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)
IT_DB_001_01	User registration data persistence	Frontend → Backend → Database	User data correctly stored and retrievable	User registration completed, data correctly stored in users table, login successful with stored credentials	Pass
IT_DB_001_02	Entry submission and retrieval	Entry Form → Database → Capsule View	Entries stored and displayed correctly	Entry submitted with emotion “Happy”, content stored in database, correctly retrieved and displayed in capsule view	Pass
IT_DB_001_03	Forum interaction persistence	Forum Interface → Database → Admin Panel	Forum data correctly stored and accessible	Forum post created, likes and comments added, all interactions correctly stored and visible in admin moderation panel	Pass
IT_DB_001_04	Admin content updates persistence	Admin Interface → Database → User View	Admin changes correctly stored and reflected	Admin updated educational resource, changes stored in database, immediately visible to users in educational section	Pass

5.2.2.5 User Interface Integration

This integration testing focused on UI component interactions and navigation flow consistency. Tests validated seamless navigation between modules, form submission feedback, real-time UI updates, and responsive layout consistency across different viewport sizes.

Table 5. 24 IT_UI_001: User Interface Integration Test Cases

Test Case ID: IT_UI_001					
Test Case Objective: Test UI component interactions and navigation flow					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)
IT_UI_01_01	Navigation between modules	Header Navigation → All Modules	Seamless navigation between all platform sections	Successfully navigated between Homepage → Capsules → Forum → Educational Resources → Profile with consistent UI state	Pass
IT_UI_01_02	Form submission and feedback	All Forms → User Feedback	Forms provide appropriate success/error feedback	All forms (registration, login, entry creation, forum post) provide clear success messages and error handling	Pass
IT_UI_01_03	Real-time UI updates	Forum Interactions → Live Updates	UI updates in real-time for forum interactions	Forum like button clicked, like count updated immediately, comment added and displayed instantly	Pass

				without page refresh	
IT_UI_01_04	Responsive layout consistency	All Pages → Different Desktop/Laptop Screen Sizes	Layout remains functional across different desktop and laptop viewport sizes	Tested on multiple desktop resolutions (1920x1080, 1366x768, 1440x900), all components properly responsive and functional across desktop/laptop environments	Pass

5.2.2.6 End-to-End Integration

Testing validated complete user workflows from start to finish. This included testing full user journeys from registration through active platform usage, complete administrative workflows, and cross-feature data consistency to ensure the platform functions as an integrated emotional wellness management system.

Table 5. 25 IT_E2E_001: End-to-End Integration Test Cases

Test Case ID: IT_E2E_001					
Test Case Objective: Test complete user workflows from start to finish					
Test ID	Test Case	Integration Points	Expected Result	Actual Result	Status (Pass/Fail)
IT_E2E_001_01	Complete new user journey	Register → Login → Create Entry → View Trends →	Entire workflow functions seamlessly	Successfully completed full user journey: registered new account, logged in, created journal entry with	Pass

		Use Forum → Logout		“Happy” emotion, viewed emotional trend showing new entry, posted in forum, received appropriate feedback at each step	
IT_E2E_001_02	Complete admin workflow	Admin Login → Manage Users → Moderate Forum → Update Content → Logout	Complete admin workflow functions correctly	Admin logged in successfully, viewed user list (15 users), moderated forum (resolved 2 reports), updated greeting message, all changes reflected immediately to users	Pass
IT_E2E_001_03	Cross-feature data consistency	Create Entry → Forum Post → Trend Analysis → Profile Update	Data remains consistent across all features, trend analysis only reflects journal entry emotions	Created entry with “Sad” emotion, posted in forum with “Happy” emotion, trend analysis correctly showed only the journal entry “Sad” emotion (forum emotions not counted), profile updates reflected across all user content	Pass

5.3 Usability Testing

5.3.1 User Acceptance Testing (UAT)

User Acceptance Testing (UAT) is a critical phase of non-functional testing that involves real users testing the system to ensure it meets their requirements and expectations. The primary goal of UAT is to validate that the system functions correctly from the user's perspective and delivers the intended value and usability. Specifically, UAT verifies that the system meets the business and user requirements as specified in the project documentation, ensuring that it is user-friendly and provides a satisfactory user experience for emotional wellness management. Additionally, UAT helps identify any usability issues or functional defects that may have been overlooked during earlier testing phases and obtains user feedback and approval before the system could be considered for deployment to a live environment.

The first step in conducting UAT is to observe users as they interact with the CalmCapsule platform to assess the system's ease of use and navigation, ensuring that users can interact and perform emotional wellness tasks effectively. The testing process involves evaluating the platform's core functionalities including journal entry creation with emotion-first workflow, guided reflection prompts, emotional trend analysis, anonymous forum participation, and educational resource access. Then, identify any usability issues or challenges they encounter to validate that the system accurately captures emotional data, provides relevant emotion-based advice and recommendations, and supports the emotional wellness needs of university students. Lastly, gather feedback from end-users on their overall satisfaction with the system, including any suggestions for improvements or additional features that would enhance their emotional wellness experience.

5.3.1.1 Testing Methodology

Given that CalmCapsule is developed as a localhost prototype, the UAT was conducted through in-person testing sessions using a demonstration and hands-on approach. This methodology was chosen to ensure comprehensive evaluation while accommodating the technical constraints of the localhost environment. Each testing session was structured to provide participants with both guided demonstration of system features and independent hands-on exploration to assess natural user interaction patterns.

Feedback was collected using Google Form (see Index B for a full set of questions) from a total of 15 participants who are university students and young adults, representing the target demographic for the CalmCapsule platform. The participants were recruited from various academic levels including undergraduate students, graduate students, and recent graduates to ensure diverse perspectives on emotional wellness needs in academic environments. Each participant attended an individual testing session lasting approximately 25-30 minutes, conducted on the researcher's laptop with the CalmCapsule system running on a localhost development server.

The testing sessions followed a structured format beginning with a brief introduction and system demonstration, followed by guided hands-on tasks where participants were asked to complete specific scenarios such as creating journal entries, exploring guided prompts, viewing emotional trends, and participating in the anonymous forum. Throughout the hands-on testing phase, participants were encouraged to think aloud, sharing their thoughts, expectations, and any difficulties encountered while navigating the system. This approach provided valuable insights into user behavior and system usability from the perspective of the intended user base.

After completing the hands-on testing, participants were asked to fill out a comprehensive questionnaire covering five key areas: demographic information, functionality assessment, performance evaluation, usability and interface design, and overall feedback and recommendations. The questionnaire consisted of 15 closed-ended questions using multiple-choice, Likert scale, and radio button formats to ensure standardized and analysable responses. For reference, the complete user acceptance survey form is included in the appendices.

The participants were required to explore the application's core features including the emotion-first journal entry workflow, guided reflection prompts (both general and academic types), emotional trend visualization, anonymous forum posting and interaction, and educational resource browsing. After experiencing the full range of system functionalities, the testers completed the questionnaire regarding their satisfaction with the platform's usability, performance, and appropriateness for emotional wellness management in academic settings.

5.3.1.2 Data Analysis Approach

After receiving all responses, a thorough analysis was conducted to evaluate the system's acceptance among the target user group. The feedback was systematically analysed to identify

common themes, usability patterns, and areas requiring improvement. Quantitative data from the closed questions like MCQs and Likert scale responses were compiled to measure overall satisfaction levels, feature preferences, and performance ratings. Qualitative insights from the “Other” response options were categorized to understand user behaviour and expectations.

The following is a detailed analysis of the responses received from 15 university student participants across five key areas: User Demographics, Functionality, Performance, Usability and Interface, and Feedback and Recommendations.

User Demographics

The demographic data collected provides valuable insights into the target user base. As shown in Figure 5.1, the age distribution indicates that 53.3% (8 respondents) are aged between 21-23 years, 26.7% (4 respondents) are aged 18-20 years, 20% (3 respondents) are aged 24-26 years, and no respondents were in the 27-29 age group. This distribution aligns well with the target demographic of university students and young adults.

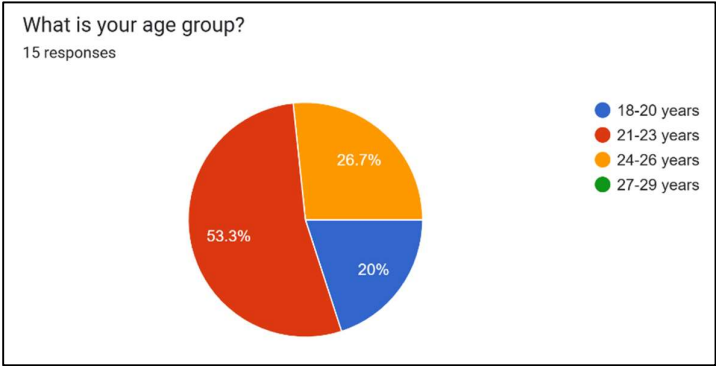


Figure 5. 1 Participants' Age Group

Figure 5.2 presents the academic status of participants, revealing that 53.3% (8 respondents) are undergraduate students in Year 3-4, 20% (3 respondents) are undergraduate students in Year 1-2, 13.3% (2 respondents) are graduate students pursuing master’s degrees, another 13.3% (2 respondents) are graduate students in PhD programs, and no recent graduates participated in the study. This diverse academic representation ensures comprehensive feedback from different educational levels.

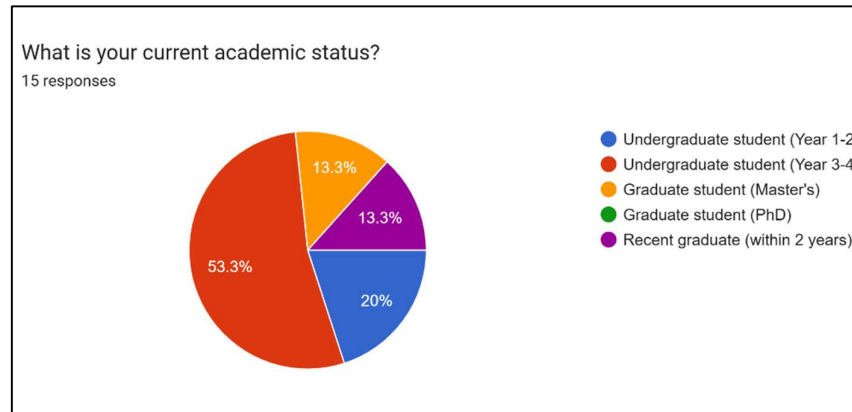


Figure 5. 2 Participants' Academic Background

Functionality

The functionality assessment evaluates CalmCapsule's core features for emotional wellness management. Figure 5.3 demonstrates strong positive feedback regarding feature completeness, with 46.7% (7 respondents) rating the features as "Good - Most features I need are available" and 40% (6 respondents) rating them as "Excellent - All features I need are available." Only 13.3% (2 respondents) felt that some important features were missing, while no respondents indicated that many essential features were absent.

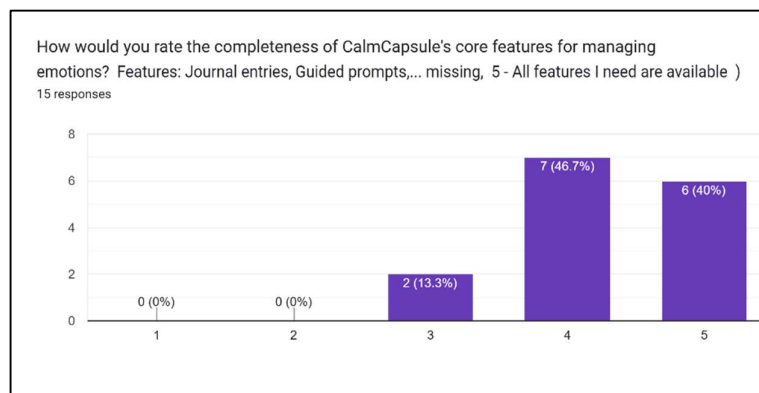


Figure 5. 3 Feature Completeness of CalmCapsule

Figure 5.4 reveals user preferences for CalmCapsule's features, showing that 53.3% (8 respondents) find personal journal entries with emotion labeling most valuable, followed by 13.3% each for guided reflection prompts and emotional trend analysis. Educational resources and anonymous sharing forum each received 6.7% of preferences, while emotion-based advice received 13.3%.

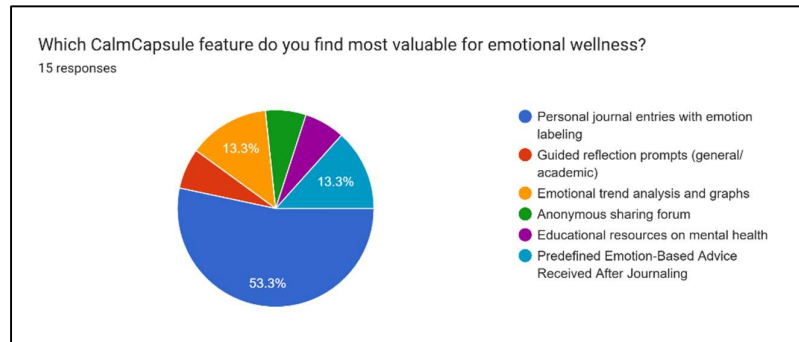


Figure 5. 4 Most Valuable Feature for Emotional Wellness

Figure 5.5 illustrates how well the system meets student needs, with impressive results showing 60% (9 respondents) indicating the features “Perfectly meet my needs” and 33.3% (5 respondents) stating they “Meet most of my needs.” Only 6.7% (1 respondent) felt the features met some of their needs, with no negative responses recorded.

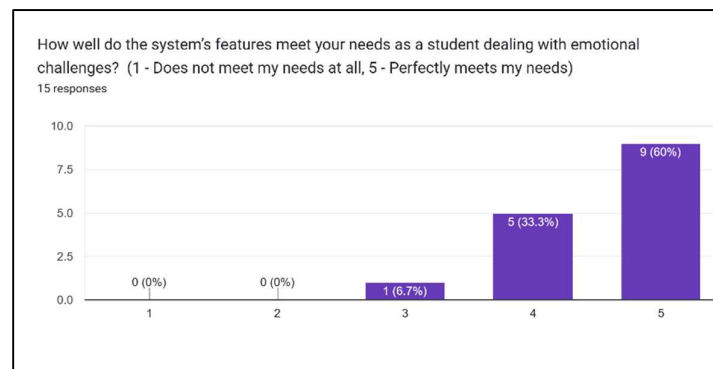


Figure 5. 5 How well the system meets students' needs

Performance

The performance evaluation focuses on system speed and responsiveness during testing sessions. Figure 5.6 shows excellent loading speed results, with 73.3% (11 respondents) rating the loading speed as “Fast (2-3 seconds)” and 26.7% (4 respondents) rating it as “Acceptable (3-5 seconds).” No respondents experienced slow loading times, indicating optimal performance in the localhost environment.

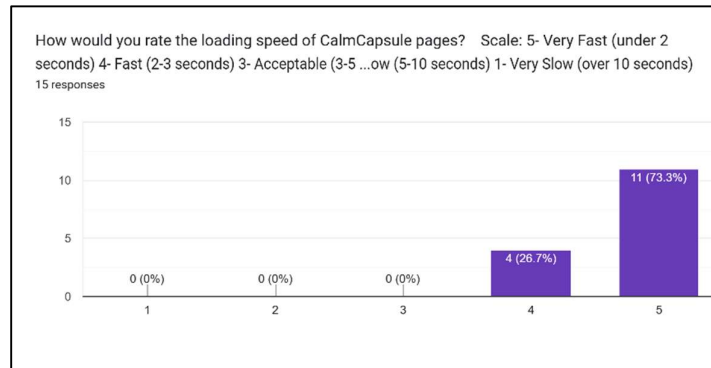


Figure 5. 6 The Speed of the System during testing sessions

Figure 5.7 demonstrates strong system responsiveness, with 60% (9 respondents) rating the system as “Very Responsive - Immediate feedback” and 40% (6 respondents) rating it as “Responsive - Quick feedback (1-2 seconds).” No participants experienced delays or slow responses during their testing sessions.

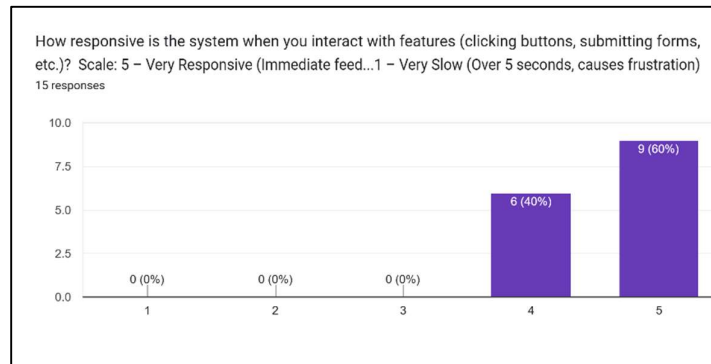


Figure 5. 7 Feature Responsiveness of CalmCapsule

Figure 5.8 presents overall performance satisfaction results, showing 66.7% (10 respondents) were “Very Satisfied” and 33.3% (5 respondents) were “Satisfied” with CalmCapsule’s performance during testing sessions. No neutral, dissatisfied, or very dissatisfied responses were recorded, indicating excellent performance optimization.

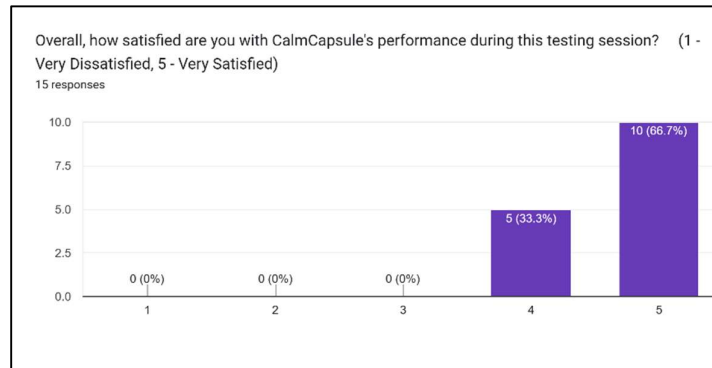


Figure 5. 8 Satisfaction Percentage of Participants with the platform's performance

Usability and Interface

The usability assessment evaluates navigation ease and interface design appropriateness. Figure 5.9 shows exceptional navigation results, with 73.3% (11 respondents) finding navigation “Very Easy - Intuitive and straightforward” and 26.7% (4 respondents) rating it as “Easy - Clear with minimal learning curve.” No participants experienced navigation difficulties.

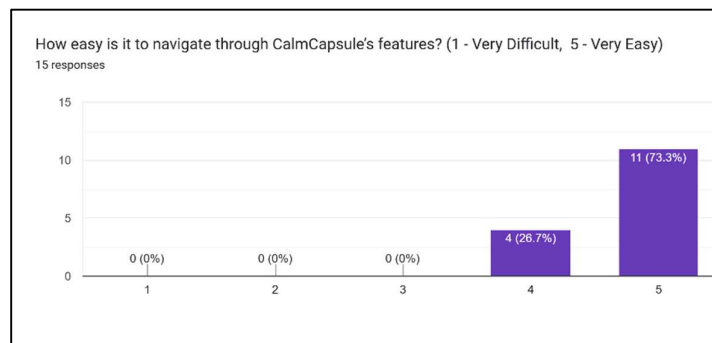


Figure 5. 9 The Navigation Difficulty Level

Figure 5.10 presents visual design ratings, with 66.7% (10 respondents) rating the design as “Excellent - Very appealing and professional” and 33.3% (5 respondents) rating it as “Good - Pleasant and appropriate.” No participants provided negative feedback about the visual design.

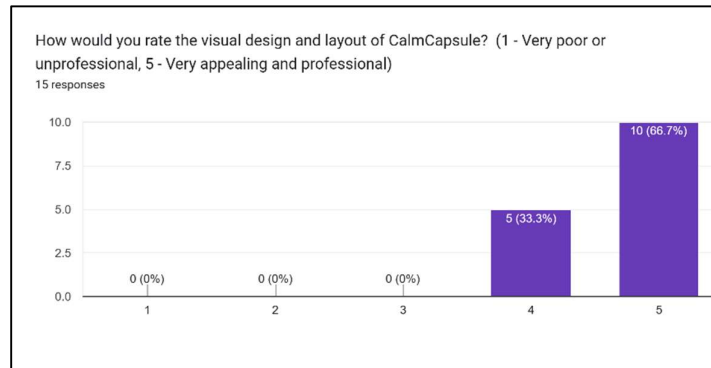


Figure 5. 10 Rating of Visual Design and Layout

Figure 5.11 evaluates interface appropriateness for emotional wellness, showing outstanding results with 66.7% (10 respondents) rating it as “Very Appropriate - Design enhances the emotional wellness experience” and 33.3% (5 respondents) rating it as “Appropriate - Design supports the purpose well.” No neutral or negative responses were recorded.

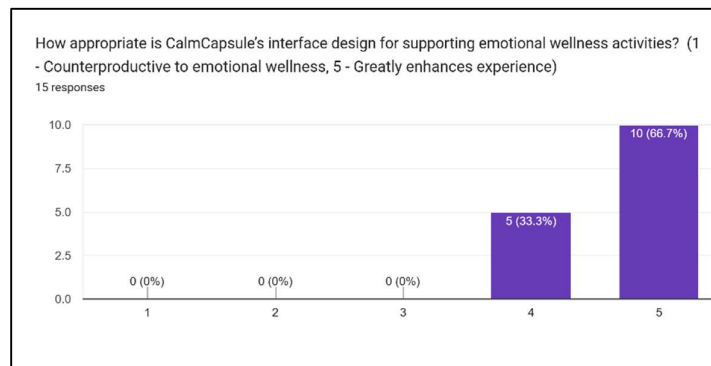


Figure 5. 11 The Interface Appropriateness for Emotional Wellness

Feedback and Recommendations

The final section assesses overall satisfaction and future usage intentions. Figure 5.12 demonstrates high overall satisfaction, with 66.7% (10 respondents) being “Very Satisfied” and 33.3% (5 respondents) being “Satisfied” with CalmCapsule as an emotional wellness platform. No neutral or negative responses were recorded.

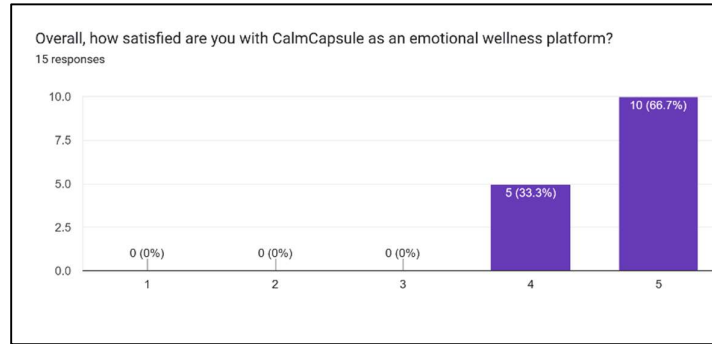


Figure 5. 12 The Overall Satisfaction and Future Usage Intentions

Figure 5.13 shows strong recommendation likelihood, with 60% (9 respondents) being “Very Likely” and 40% (6 respondents) being “Likely” to recommend CalmCapsule to other university students. This indicates strong user advocacy potential.

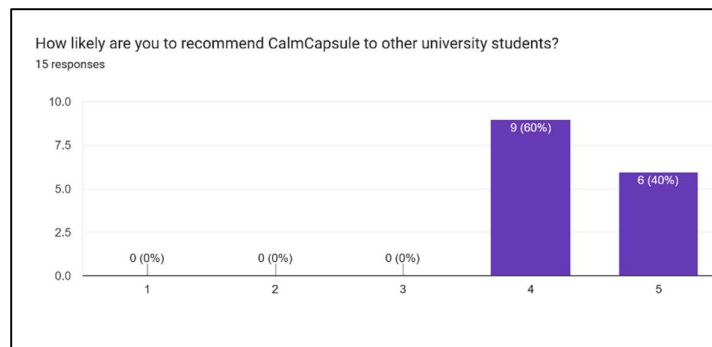


Figure 5. 13 Recommendation Likelihood

Figure 5.14 presents regular usage intentions, showing 46.7% (7 respondents) would be “Likely” to use it regularly, 26.7% each for “Possibly” and “Very Likely” (4 respondents each). No respondents indicated they would be unlikely to use the platform regularly.

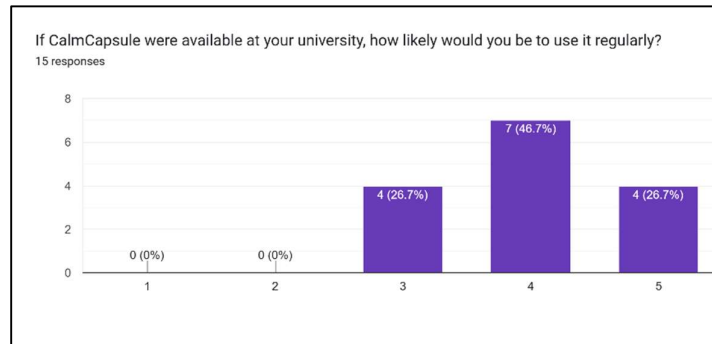


Figure 5. 14 Regular Usage Intentions

Figure 5.15 identifies improvement priorities, with mobile compatibility receiving the highest priority at 60% (9 respondents), followed by content quality improvement at 33.3% (5 respondents), and privacy/security features at 20% (3 respondents). Other areas including system performance, feature functionality, user interface, navigation ease, personalization features, academic integration, and data export options each received 6.7% (1 respondent).

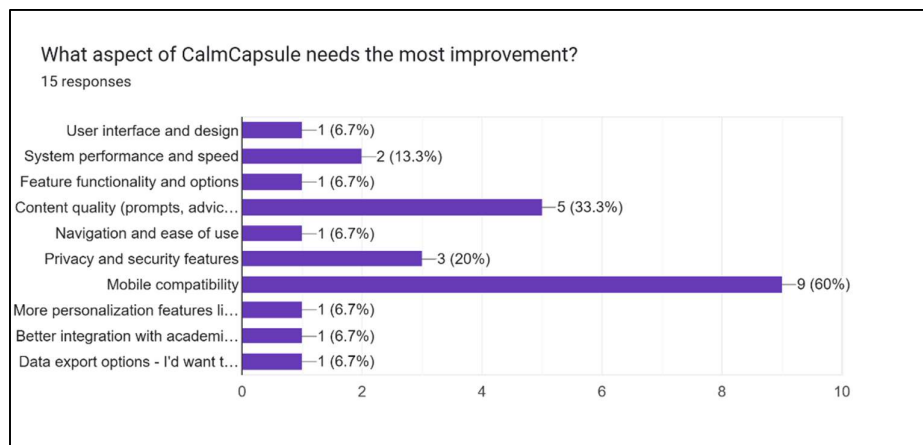


Figure 5. 15 Improvement Priorities

The UAT results demonstrate overwhelmingly positive feedback across all evaluation criteria, with particularly strong performance in usability, interface design, and overall satisfaction. The main area for improvement identified is mobile compatibility, which aligns with modern user expectations for cross-platform accessibility.

5.4 Discussion on Results

The comprehensive functional testing and user acceptance testing conducted for CalmCapsule demonstrate that the platform successfully meets its intended objectives for emotional wellness management among university students. The functional testing achieved a 100% pass rate across all test cases, validating all core functionalities including the emotion-first journal entry workflow, real-time validation for user details, visual validation alerts for content creation, guided reflection prompts, anonymous forum interactions, and emotional trend analysis. Furthermore, the usability testing results from 15 university student participants revealed overwhelmingly positive feedback, with 100% satisfaction rates in overall performance, navigation ease, and platform appropriateness for emotional wellness activities. The strong recommendation likelihood (100% positive responses) and high regular usage intentions (73.4% likely or very likely) confirm that CalmCapsule effectively addresses the emotional wellness needs of its target demographic.

Despite the successful achievement of all functional and usability objectives, CalmCapsule is not yet ready for deployment to a real-world environment due to web hosting limitations and associated costs. Most reliable web hosting services that can support the platform's features, including database management, file uploads, and secure user authentication, require paid plans that exceed the scope of this academic project. Free hosting services such as basic shared hosting plans typically impose significant restrictions on storage capacity, bandwidth, database size, and processing power that would limit CalmCapsule's functionality, particularly the image upload features for profile pictures and educational resources. Professional hosting solutions that could adequately support the platform's requirements, including SSL certificates for secure data transmission, adequate storage for user-generated content, and reliable uptime guarantees, involve monthly subscription costs ranging from RM45 to RM225 or more depending on the service level. Consequently, CalmCapsule will remain deployed locally for demonstration and evaluation purposes until future development phases can address the hosting infrastructure requirements.

5.5 Summary

Testing represents a critical phase in the CalmCapsule development lifecycle, ensuring that the emotional wellness platform is both functionally robust and user-friendly for university students. The comprehensive testing approach was divided into two main categories: functional

testing and non-functional testing. Functional testing encompassed unit testing and integration testing, systematically validating that each individual component operates correctly in isolation and integrates seamlessly with other system modules, achieving a 100% pass rate across all test cases covering authentication, profile management, journal entry creation, forum interactions, and administrative functions. Non-functional testing focused on usability evaluation through User Acceptance Testing (UAT) conducted with 15 university student participants in a localhost environment, assessing system performance, interface design, navigation ease, and overall user satisfaction. The testing results demonstrated overwhelmingly positive feedback across all evaluation criteria, with participants expressing high satisfaction levels, strong recommendation likelihood, and genuine interest in regular platform usage, confirming that CalmCapsule successfully addresses the emotional wellness needs of its target demographic while maintaining excellent usability standards.

CHAPTER 6: CONCLUSION & FUTURE WORKS

6.1 Introduction

This final chapter concludes the development of CalmCapsule: An Online Platform for Managing Negative Emotions, summarizing the key outcomes and reflecting on how well the project objectives have been met. The chapter also outlines the limitations encountered throughout the development process and provides suggestions for future improvements to enhance the system's usability, functionality, and scalability. These proposed future enhancements aim to support the platform's potential as a mental wellness tool tailored for university students. By reflecting on both accomplishments and areas for growth, this chapter presents a holistic view of the project's current state and future direction.

6.2 Objectives and Achievements

In the planning phase of this project, specific objectives were set out in Chapter 1 to guide the development of CalmCapsule: An Online Platform for Managing Negative Emotions. All primary objectives have been successfully achieved through systematic implementation of the Agile Development Methodology. The primary goal was to create a comprehensive web-based emotional wellness platform that helps university students manage negative emotions such as stress, anger, and anxiety through journaling and self-reflection. The platform was designed to provide a structured, accessible, and stigma-free digital solution that integrates into normal student life without requiring expensive technology or equipment, addressing the gap in current solutions that often lack customization or accessibility for students.

The platform successfully implements the core therapeutic approaches outlined in the initial project scope: emotion-first journaling with five basic emotions (Happy, Just Okay, Neutral, Sad, and Angry), guided reflection prompts to encourage deeper self-reflection, emotion-based advice, an anonymous sharing forum for peer support, educational resources on mental health topics, and emotional trend reviews to help users understand their emotional patterns over time. The system organizes journaling through 12 monthly Capsules per year, allowing users to add daily entries with emotion labelling and guided prompts based on selected emotions, exactly as envisioned in the original project design. The following table summarizes the objectives and their corresponding achievements:

Table 6. 1 Objectives and Achievements of CalmCapsule

Objective	Achievement
To gather and identify requirements for the CalmCapsule system, with a focus on user requirements, platform objectives, and key features	Fully Achieved Comprehensive requirements analysis conducted targeting university students as primary users and admin for system management. User requirements focused on managing stress, anger, and anxiety through accessible journaling and self-reflection tools. Platform objectives centred on providing a structured digital solution that integrates into student life. Key features identified and implemented include the five basic emotions framework, monthly Capsule organization, guided reflection prompts, emotion-based advice, anonymous forum, and emotional trend analysis as originally planned.
To iteratively design and develop the system, assuring consistent implementation of functional and user-friendly features	Fully Achieved Agile Development Methodology successfully implemented through Plan, Design, Develop, Testing, Deploy, and Review phases as outlined in the brief methodology. System developed as a web-based platform with all core functionalities: journaling with emotion labelling, manually crafted guided reflection prompts (general and academic), professionally written emotion-based advice, anonymous sharing forum, educational resources, and emotional trend review. User-friendly interface created with calming design appropriate for emotional wellness. All features consistently implemented and thoroughly tested through iterative development cycles.
To evaluate the ability of the proposed online platform for managing negative emotions	Fully Achieved Comprehensive evaluation conducted through functional testing achieving 100% pass rate across all test cases and User Acceptance Testing with 15 university student participants. Testing validated the platform's ability to help students manage

	negative emotions through structured journaling and self-reflection. UAT results demonstrated 100% satisfaction rates and strong user acceptance, confirming the platform's effectiveness for emotional wellness management among the target demographic. Evaluation confirmed the system meets its intended purpose of providing accessible emotional support tools for university students.
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6.3 Limitations and Constraints

While CalmCapsule successfully achieved its primary objectives, several limitations and constraints were encountered during the development and evaluation phases that should be acknowledged. These limitations primarily stem from the project's scope as an academic prototype and the technical constraints of the development environment.

i. Technical Limitations

The most significant constraint is that CalmCapsule operates exclusively on a localhost development environment, preventing real-world deployment and broader user testing. This limitation restricts the platform's accessibility and prevents evaluation of its performance under real-world conditions with multiple concurrent users. Additionally, the system is optimized primarily for desktop and laptop platforms, with limited mobile responsiveness, which may not align with modern users' expectations for cross-platform accessibility.

ii. Testing and Evaluation Constraints

The usability testing was conducted with a limited sample size of 15 university student participants, all from the same geographical region and academic institution. This constraint may limit the generalizability of the findings to broader student populations with diverse cultural backgrounds, academic stress levels, and technological familiarity. Furthermore, the testing sessions were conducted in a controlled environment using the researcher's laptop, which may not accurately reflect how users would interact with the system in their natural environments.

iii. Functional Limitations

The current system focuses on five basic emotions and may not capture the full complexity of human emotional experiences. The anonymous forum lacks advanced moderation features such as automated content filtering or real-time sentiment analysis. Additionally, the platform does not include integration with external mental health resources, professional counseling services, or emergency support systems, which could be valuable for users experiencing severe emotional distress.

iv. Resource and Time Constraints

As an academic project, development was constrained by limited time and resources, preventing the implementation of advanced features such as artificial intelligence-driven insights, machine learning-based emotion prediction, or integration with wearable devices for physiological emotion tracking. The project also lacked access to mental health professionals for content validation and therapeutic approach verification.

6.4 Future Works

The successful development and evaluation of CalmCapsule provides a strong foundation for future enhancements and research directions. Several opportunities exist to extend the platform's capabilities and address current limitations to create a more comprehensive emotional wellness solution.

i. Deployment and Accessibility Improvements

The most immediate future work involves securing appropriate web hosting services to deploy CalmCapsule to a live environment, enabling broader user access and real-world performance evaluation. This includes implementing robust security measures, scalable database solutions, and reliable backup systems. Additionally, developing a fully responsive mobile application or progressive web app (PWA) would significantly improve accessibility and align with users' preferences for mobile-first experiences.

ii. Enhanced Emotional Intelligence Features

Future versions could incorporate artificial intelligence and machine learning algorithms to complement the existing manually crafted content system. While maintaining the current foundation of professionally written prompts and advice, AI could provide additional personalized insights, emotion prediction based on user patterns, and intelligent content

recommendations that work alongside the manually curated therapeutic content. Advanced analytics could identify emotional triggers, suggest optimal journaling times, and provide predictive warnings for potential negative emotional episodes. Integration with natural language processing could analyse journal content to provide more sophisticated emotional assessment beyond simple emotion labelling.

iii. Professional Integration, NGO Partnerships & Support

Building on CalmCapsule's integration with mental health professionals and crisis-support systems, a clear future direction is to collaborate with Malaysian NGOs such as the National Coalition for Mental Wellbeing (NCMW) and RELATE Mental Health Malaysia to embed the platform within existing community-driven wellness frameworks. For instance, the RELATE-ME protocol, a WhatsApp-based group journaling intervention co-led by community health workers demonstrated feasibility and acceptance in semi-rural Malaysia, enhancing emotional connectedness when digital literacy and local trust were addressed (Ting et al., 2025). Partnering with NGOs would amplify outreach to underserved communities, reduce stigma through trusted local networks, and support professional referrals and crisis pathways within the same ecosystem.

iv. Community and Social Features

Future developments could include enhanced community features such as moderated group discussions, peer mentorship programs, anonymous buddy systems, and collaborative emotional wellness challenges. Advanced forum moderation using AI-powered content analysis and real-time sentiment monitoring could improve community safety and support quality.

v. Research and Validation Opportunities

Long-term longitudinal studies could evaluate the platform's effectiveness in improving emotional regulation skills and overall mental health outcomes among university students. Collaboration with mental health researchers and institutions could provide opportunities for evidence-based feature development and therapeutic approach validation. Additionally, expanding the user base to also focus on different demographic groups could provide insights into the platform's broader applicability and cultural sensitivity requirements.

vi. Advanced Analytics and Integration

Future versions could incorporate integration with wearable devices, calendar applications, and academic management systems to provide contextual emotional insights related to academic

stress, sleep patterns, and physical activity. Advanced data visualization and reporting features could help users and potentially their healthcare providers better understand emotional patterns and intervention effectiveness.

6.5 Summary

This final chapter discussed the achieved project objectives of CalmCapsule: An Online Platform for Managing Negative Emotions and how it has successfully demonstrated the potential of digital solutions in supporting university students' emotional wellness needs. The significance of developing this platform towards the intended target group was highlighted through comprehensive testing results and strong adoption intentions, confirming the platform's effectiveness in providing accessible, stigma-free emotional support tools for students managing stress, anxiety, and anger. The future works of CalmCapsule were outlined in the previous sections to allow readers to understand the potential enhancements including mobile deployment, AI-driven insights, professional integration, and advanced community features that could be implemented to further improve the emotional wellness experience. This ensures that the project's effectiveness is maintained, and the value of the platform continues to meet evolving user needs. Despite the successful completion of the platform's prototype with comprehensive functionality including emotion-first journaling, guided reflection, anonymous forum, and emotional trend analysis, there are still opportunities to further enhance the therapeutic value and accessibility of CalmCapsule through real-world deployment and advanced technological integration.

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Appendix A

Final Year Project Survey: CalmCapsule - Web-based Platform for Managing Negative Emotions

Welcome and Thank You for Participating! 😊

Greetings, I am **Yasmin Irdina Afza**, a final-year Software Engineering student from Universiti Malaysia Sarawak (UNIMAS). This survey is part of my final year project, focused on developing **CalmCapsule: A Web-based Platform for Managing Negative Emotions**.

The aim of this project is to create an accessible and supportive space where users can log their emotions, reflect through predefined prompts, and receive calming advice tailored to their emotional needs.

Your feedback will provide valuable insights into:

- 💡 The challenges users face in managing their emotions.
- 📖 The key features and functionality users would prefer in an emotional journaling platform.
- 🎨 How the platform's design and usability can best serve its purpose.

The survey consists of 3 sections:

Section 1: Demographic Information – *Basic details about your background.*

Section 2: Current Challenges & Experience – *Insights into the difficulties faced in managing emotions and using journaling tools.*

Section 3: System Features & Preferences – *Opinions on CalmCapsule's proposed features, functionality, and design.*

🕒 **Time Required:** 3–5 minutes

🔒 **Confidentiality:** All responses are anonymous and will be used solely for academic purposes.

For any inquiries, feel free to contact me at **016-5283679**.

Thank you so much for your time and support! Your input is invaluable to the success of this project! 🙌💙

[Next](#)

[Clear form](#)

Section 1: Demographic Information

What is your age? *

- ☐ Under 18
- ☐ 18–24
- ☐ 25–34
- ☐ 35–44
- ☐ 45 and above

What is your occupation? *

- ☐ Student
- ☐ Educator
- ☐ Working Professional
- ☐ Unemployed
- ☐ Other: _____

What is your level of education? *

- ☐ Highschool
- ☐ Diploma/Certificate
- ☐ Undergraduate
- ☐ Postgraduate

Have you used any journaling or mindfulness apps before? *

- ☐ Yes
- ☐ No

How often do you engage in self-reflection or emotional journaling? *

- ☐ Daily
- ☐ Weekly
- ☐ Occasionally
- ☐ Never

Do you participate in any online communities or forums for emotional sharing or support? *

- ☐ Yes
- ☐ No

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Section 2: Current Challenges/Experience

Do you find it challenging to consistently reflect on your emotions? *

☐ Yes
☐ No

What prevents you from journaling or reflecting on your emotions? (Select all that apply) *

☐ Lack of time
☐ Not knowing what to write
☐ Fear of judgment (even when private)
☐ Difficulty understanding or labeling emotions
☐ Journaling feels unproductive
☐ Other:

What emotions do you struggle with the most in daily life? (Select all that apply) *

☐ Stress
☐ Anxiety
☐ Sadness
☐ Anger
☐ Other:

How often do you feel overwhelmed by negative emotions such as stress, anger, or anxiety? *

Scale: Never (1), Rarely (2), Sometimes (3), Often (4), Very Often (5)

Never
☐
☐
☐
☐
☐
Very Often

Have you ever used predefined prompts to help guide your journaling? (e.g., "What is currently causing you stress?") *

☐ Yes
☐ No

How likely are you to seek advice or resources for managing your emotions? *

Scale: Very Unlikely (1), Unlikely (2), Neutral (3), Likely (4), Very Likely (5)

Very Unlikely
☐
☐
☐
☐
☐
Very Likely

Would anonymous sharing of experiences (e.g., in forums) help you feel more understood? *

☐ Yes
☐ No

Have you ever used tools like motivational quotes or testimonials to stay positive? *

☐ Yes
☐ No

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Section 3: System Features/Preferences

Would you use an app that allows you to journal your emotions digitally? *

☐ Yes

☐ No

Which features are most important to you in a journaling platform? (Select all that apply) *

☐ Guided Prompts for Reflection (e.g., "What is currently causing you stress?")

☐ Emotion-Based Advice

☐ Anonymous Sharing Forum

☐ Educational Resources on Emotional Wellbeing

What motivates you to journal regularly? (Select all that apply) *

☐ Structured guidance and prompts (e.g., "What is one thing you're grateful for today?" or "What is a challenge you overcame recently?")

☐ Encouraging quotes or motivational nudges

☐ The ability to track progress over time

☐ Sharing experiences with others anonymously

Would you use these social or community-based features in a journaling app? (Select all that apply) *

☐ Anonymous forums for sharing stories

☐ Reading others' shared experiences

☐ Group journaling activities

How helpful would you find guided prompts that reframes challenges as opportunities for growth? (Example of guidance: "Instead of seeing failure as the end, reflect on what you've learned and how it can help you succeed next time.") *

Scale: Not Helpful (1), Slightly Helpful (2), Neutral (3), Helpful (4), Very Helpful (5)

Not Helpful 1 2 3 4 5 Very Helpful

How valuable is it for a journaling app to summarize your emotional trends over time? *

Scale: Not Valuable (1), Slightly Valuable (2), Neutral (3), Valuable (4), Very Valuable (5)

Not Valuable 1 2 3 4 5 Very Valuable

Which user interface elements do you find most engaging? (Select all that apply) *

☐ Calming and soft tones

☐ Intuitive navigation

☐ Animations or illustrations

☐ Minimalistic and engaging layout

What additional features or suggestions do you have for improving a journaling platform? (Optional)

Your answer

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Appendix B

User Acceptance Survey for CalmCapsule

Dear respected respondents,

My name is **Yasmin Indira Afza Binti Safuan**, and I am a final-year Software Engineering student at the Faculty of Computer Science and Information Technology (FCSTI), Universiti Malaysia Sarawak (UNIMAS). This questionnaire is part of my Final Year Project (FYP) titled **CalmCapsule: An Online Platform for Managing Negative Emotions**.

🌱 **CalmCapsule** is a web-based emotional wellness platform designed to help users reflect on their feelings through features such as journaling, guided prompts, emotion-based advice, educational resources, and an anonymous sharing forum. The platform aims to create a calm, safe, and supportive space for emotional expression and mental clarity – like a capsule for your thoughts.

🎯 The purpose of this survey is to gather your feedback on the usability and functionality of the CalmCapsule prototype. Your responses will help improve the system and ensure it meets user expectations.

📋 This questionnaire consists of **5 sections** with a total of **15 questions**:

- **Section A:** Demographic Information (2 questions)
- **Section B:** Functionality (3 questions)
- **Section C:** Performance (3 questions)
- **Section D:** Usability and Interface (3 questions)
- **Section E:** Feedback and Recommendation (4 questions)

⌚ The survey should take approximately **5-10 minutes** to complete.

🔒 All information collected will remain confidential and used solely for academic purposes. If you have any questions, please feel free to reach out to me via WhatsApp at **016-5283679** or email at 78588@siswa.unimas.my.

🙏 Thank you so much for your time and support. Your participation is truly appreciated and plays a big role in the success of this project!

Irdinaafza18@gmail.com [Switch account](#)

🔒 Not shared

[Next](#) [Clear form](#)

User Acceptance Survey for CalmCapsule

Irdinaafza18@gmail.com [Switch account](#)

🔒 Not shared

* Indicates required question

A. DEMOGRAPHIC INFORMATION

What is your age group? *

☐ 18-20 years

☐ 21-23 years

☐ 24-26 years

☐ 27-29 years

☐ Other: _____

What is your current academic status? *

☐ Undergraduate student (Year 1-2)

☐ Undergraduate student (Year 3-4)

☐ Graduate student (Master's)

☐ Graduate student (PHD)

☐ Recent graduate (within 2 years)

☐ Other: _____

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B. FUNCTIONALITY

How would you rate the completeness of CalmCapsule's core features for managing emotions? *

Features: Journal entries, Guided prompts, Emotion tracking, Anonymous forum, Educational resources

(1 - Most essential features are missing, 5 - All features I need are available)

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

Which CalmCapsule feature do you find most valuable for emotional wellness? *

☐ Personal journal entries with emotion labeling

☐ Guided reflection prompts (general/academic)

☐ Emotional trend analysis and graphs

☐ Anonymous sharing forum

☐ Educational resources on mental health

☐ Predefined Emotion-Based Advice Received After Journaling

☐ Other:

How well do the system's features meet your needs as a student dealing with emotional challenges? *

(1 - Does not meet my needs at all, 5 - Perfectly meets my needs)

1 2 3 4 5

Does not meet my needs ☐ ☐ ☐ ☐ ☐ Perfectly meets my needs

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C. PERFORMANCE

How would you rate the loading speed of CalmCapsule pages? *

Scale:

5- Very Fast (under 2 seconds)

4- Fast (2-3 seconds)

3- Acceptable (3-5 seconds)

2- Slow (5-10 seconds)

1- Very Slow (over 10 seconds)

1 2 3 4 5

Very Slow (over 10 seconds) ☐ ☐ ☐ ☐ ☐ Very Fast (under 2 seconds)

How responsive is the system when you interact with features (clicking buttons, submitting forms, etc.)? *

Scale:

5 - Very Responsive (Immediate feedback)

4 - Responsive (Quick, within 1-2 seconds)

3 - Moderately Responsive (Noticeable delay, 2-3 seconds)

2 - Slow (Significant delay, 3-5 seconds)

1 - Very Slow (Over 5 seconds, causes frustration)

1 2 3 4 5

Very Slow ☐ ☐ ☐ ☐ ☐ Very Responsive

Overall, how satisfied are you with CalmCapsule's performance during this testing session? *

(1 - Very Dissatisfied, 5 - Very Satisfied)

1 2 3 4 5

Very Dissatisfied ☐ ☐ ☐ ☐ ☐ Very Satisfied

D. USABILITY AND INTERFACE

How easy is it to navigate through CalmCapsule's features? *

(1 - Very Difficult, 5 - Very Easy)

12345

Very DifficultVery Easy

How would you rate the visual design and layout of CalmCapsule? *

(1 - Very poor or unprofessional, 5 - Very appealing and professional)

12345

Very PoorExcellent

How appropriate is CalmCapsule's interface design for supporting emotional wellness activities? *

(1 - Counterproductive to emotional wellness, 5 - Greatly enhances experience)

12345

Very InappropriateVery Appropriate

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E. FEEDBACK AND RECOMMENDATION

Overall, how satisfied are you with CalmCapsule as an emotional wellness platform? *

12345

Very DissatisfiedVery Satisfied

How likely are you to recommend CalmCapsule to other university students? *

12345

Very UnlikelyVery Likely

If CalmCapsule were available at your university, how likely would you be to use it regularly? *

12345

Very UnlikelyVery Likely

What aspect of CalmCapsule needs the most improvement? *

☐ User interface and design
☐ System performance and speed
☐ Feature functionality and options
☐ Content quality (prompts, advice, resources)
☐ Navigation and ease of use
☐ Privacy and security features
☐ Mobile compatibility
☐ Other: