



Faculty of Computer Science and Information Technology

**UNIMAS JobConnect: MOBILE APP FOR SEARCH PART-TIME JOBS AND
FREELANCE PROJECT POSTED BY CAMPUS ORGANIZATIONS AND
DEPARTMENTS**

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DECLARATION

I solemnly declare that this project is a result of my own work and original research. I have not copied any material from other students' work or from any other sources, except where proper reference or acknowledgement is clearly provided in the text. Additionally, no part of this project has been written by anyone else on my behalf.

ACKNOWLEDGEMENT

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CHAPTER 1:INTRODUCTION

1.1 Introduction

In today's dynamic and competitive academic environment, students often seek part-time jobs or freelance opportunities not only to support their education but also to gain valuable work experience and develop crucial skills for their future careers. Kishwer et al. (2023) suggests that part-time employment helps students develop essential skills such as teamwork and communication, which are crucial for their future careers. The student and staff population at Universiti Malaysia Sarawak (UNIMAS) has been growing annually. By 2024, UNIMAS estimated to have around 13,700 students and more than 770 staff members, spread across an expansive area of 810 hectares (eTawau, 2025). With massive number of students, the opportunity to become part-timer or freelancer also increase. UNIMAS recognizes the importance of these opportunities and wholeheartedly encourages students to pursue them. However, finding such opportunities within the campus environment can often be challenging due to the lack of a centralized platform for connecting students with potential employers.

This project proposes the development of an innovative and user-friendly mobile application designed specifically to address this gap. The app will serve as a vital bridge between students and campus organizations or departments looking for part-time job seekers or individuals to help with project-based tasks. By providing a centralized and accessible platform, the mobile application aims to streamline the process, making it easier for students to find suitable work opportunities and for campus organizations to find reliable and talented students to meet their needs. This initiative will not only enhance the overall educational experience of the students but also foster a stronger sense of community within the university.

1.2 Problem Statement

In the current campus environment, there is a notable absence of a centralized or organized platform where campus departments and organizations can seamlessly post part time job openings or freelance project opportunities. For instance, UNIMAS Now, an all-in-one app used by UNIMAS members, lists vacancies primarily for high-requirement jobs that are not suitable for students who are simply looking for part-time or freelance work. This limitation means that students who wish to gain work experience or earn extra income through more flexible and less demanding roles often find themselves at a disadvantage.

In addition to the lack of a centralized platform, lecturers, campus departments, and organizations often resort to posting part-time job or freelance opportunities in social media groups like WhatsApp and Telegram. While these platforms are widely used, they are not

designed for job postings and can be quite inefficient for this purpose. The high volume of messages in these groups means that job advertisements can easily get lost in the noise, leading to a high chance of being overlooked by potential applicants. This method not only makes it difficult for students to stay informed about available opportunities but also poses challenges for organizations trying to reach a broad audience of potential student workers. Consequently, this leads to inefficiencies in filling positions and completing projects, as the right candidates may never see the job postings

Addressing this issue with a robust and user-friendly platform is crucial to bridging this gap, thereby ensuring that students can more easily access opportunities and that organizations can efficiently find the help they need. Ultimately, the absence of such a platform leads to significant lost potential for both students and the wider campus community.

1.3 Scope

The application will cater to three user categories, each with distinct access levels and functions. UNIMAS students can create profiles, search, and apply for jobs or projects. Campus organizations or departments can post job openings or freelance projects, review applications, and manage their listings. The admin will supervise the platform, oversee user activities, with the authority to manage user accounts.

The functional scope of the apps covers various essential features, beginning with a secure authentication and authorization system using email and password, complemented by role-based access control to ensure students, campus organizations, and administrators have appropriate access. Campus organizations can post job openings or freelance projects with all necessary details, making it easy for students to browse and filter these listings. Students can apply directly through the app by submitting simple application forms, with the system tracking application statuses for both students and organizations. Users will receive push notifications for job alerts, application updates, and important announcements. Finally, the app will manage data securely by storing user profiles, job postings, and applications in a database with strict privacy controls to protect user data.

The technical scope of the app encompasses several key aspects. The initial development will focus on Android platform while also making plans for future expansion in iOS devices. It will feature a user-friendly frontend designed for easy navigation and a simple, intuitive interface. The backend, implemented using Firebase, will handle job postings, user profiles, applications, and notifications. A cloud-based Firebase database will store all relevant data, including job postings, user profiles, and applications. REST APIs will connect the

frontend to the backend, ensuring smooth communication between components. Security measures will include secure authentication and data storage to protect users' information and maintain privacy.

1.4 Objective

The primary objective of this project is as follows:

- To develop mobile application that enables UNIMAS campus organizations and departments to post part-time job opportunities and freelance projects.
- To develop mobile application which allows UNIMAS students to search, view, and apply for these opportunities through the app by helping students quickly find and apply for position that match their skills and interest.

1.5 Brief Methodology

The development of this project will follow the Waterfall Methodology, given the project's requirements are well-defined from the outset. The waterfall method's linear and organized nature allows for efficient and systematic development, ensuring each stage is carefully executed (Alda et al., 2023). This approach involves sequential stages like requirements, design, implementation, testing, and maintenance, providing a structured framework for development.

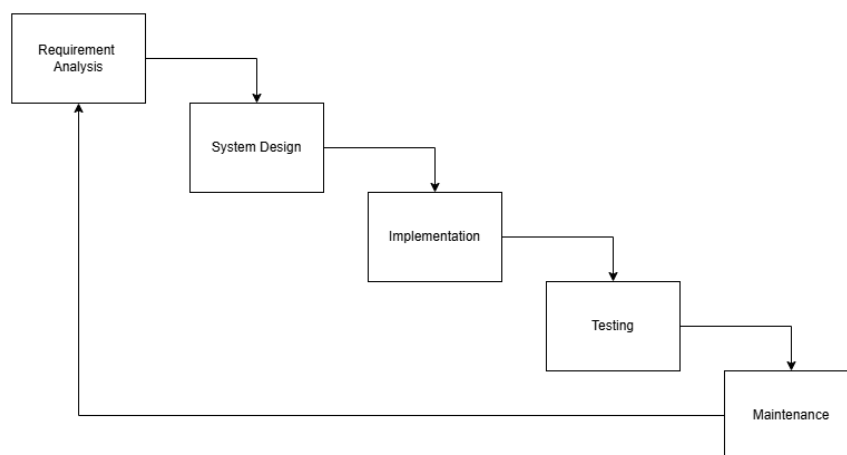


Figure 1.1: Waterfall Model

The requirements analysis phase will define the application's needs, aimed at enhancing the overall university experience for job-seeking students by providing a dedicated platform for accessing information on jobs or freelance opportunities advertised within UNIMAS. The design phase will focus on ensuring a clear and user-friendly interface for both students and organizations, creating a robust backend architecture for managing job postings, and outlining

the database structure for secure data storage. During the implementation phase, each component will be built according to the design, ensuring that job search functionalities, application submissions, and notifications work seamlessly. Thorough testing will be conducted to identify and resolve any issues in job searches, application processing, or user registration flows before the app goes live. This phase is important so that any error or bugs can be minimized before publishing the final application to public. Any bugs will be fixed once the application going live. Additionally, ongoing user feedback will be gathered to continuously improve the app's features and usability.

1.6 Significance of Project

UNIMAS JobConnect is important to campus organization and students of UNIMAS. It improves overall university experience for job seeking students by providing dedicated platform which allow students to access information on jobs or freelances that advertise within campus.

1.7 Project Schedule

Table 1.1: Final Year Project 1 schedule

Task	Start Date	Finish Date	Duration
Submission of approved brief proposal	10 October 2024	20 October 2024	10 Days
Feedback and comment from reviewer/examiner	20 October 2024	28 October 2024	8 Days
Submission of full proposal	28 October 2024	14 November 2024	17 Days
Submission of Chapter 1	14 November 2024	21 November 2024	8 Days
Submission of Chapter 2	21 November 2024	13 December 2024	20 Days
Submission of Chapter 3	13 December 2024	5 January 2025	19 Days
Submission of FYP 1 final report & paper for assessment	5 January 2025	12 January 2025	16 Days

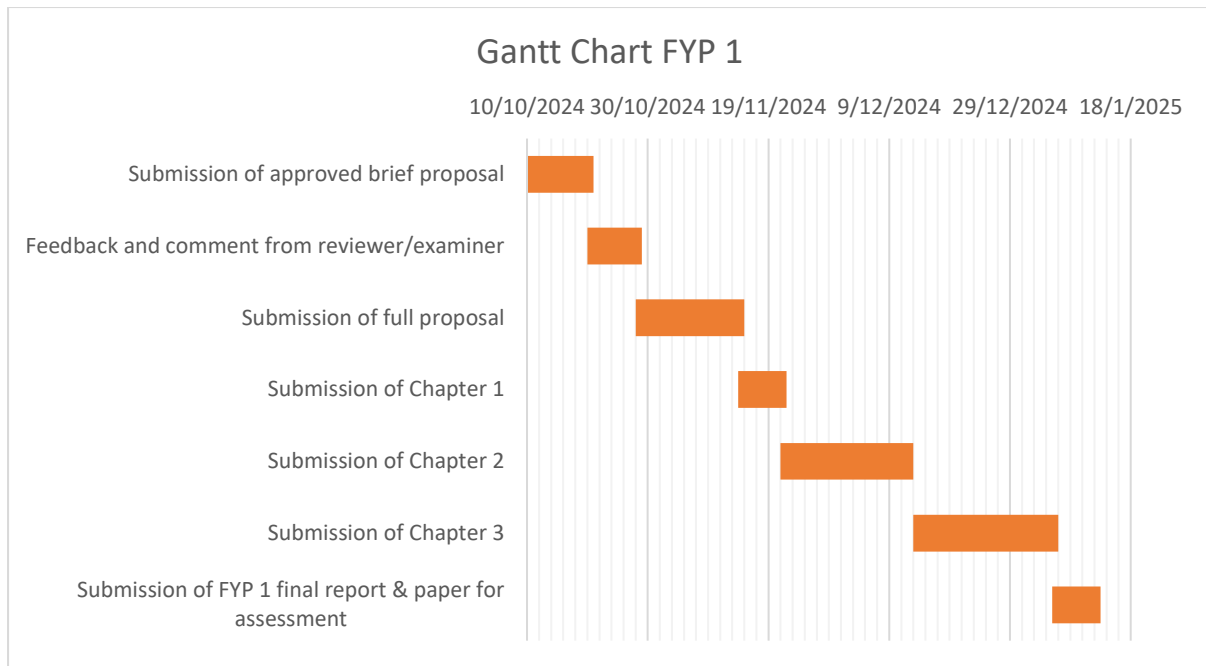


Figure 1.2: Gantt Chary for FYP 1

Table 1.2: Final Year Project 2 schedule

Task	Start Date	Finish Date	Duration
Submission of Proposed/Revised Structure FYP Report, Title and Gantt Chart	17 March 2025	1 April 2025	10 Days
Submission of First Draft for Chapter 4	20 April 2025	15 May 2025	8 Days
Submission of First Draft for Chapter 5, 6 and Abstract for Paper	28 May 2025	31 May 2025	17 Days
Submission of First Draft for FYP2 Full Report and Paper	14 May 2025	10 Jun 2025	8 Days
Submission of Final Report, source code, installation kit, user manual, and Paper for Assessments	21 Jun 2025	23 Jun 2025	20 Days

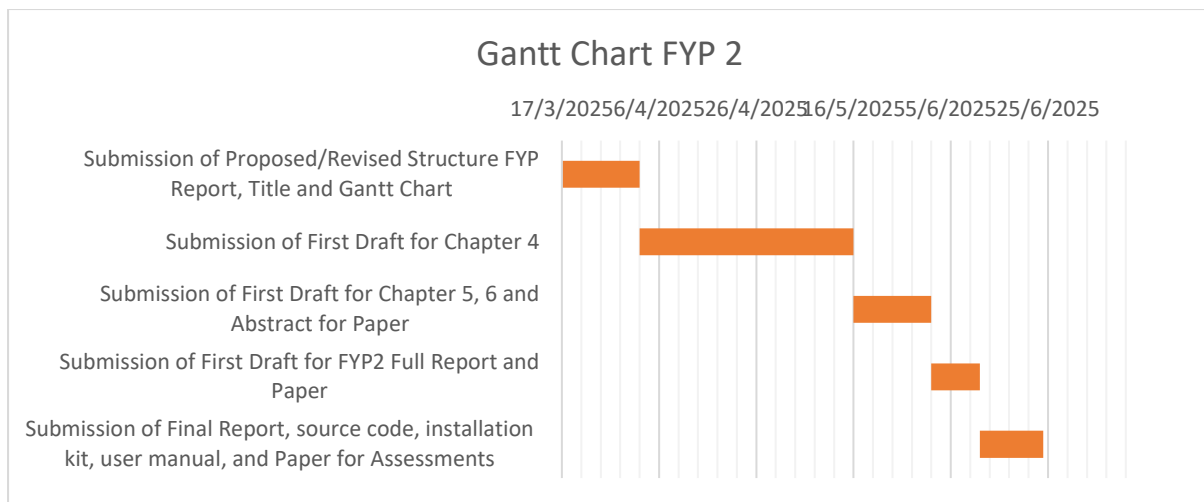


Figure 1.3: Gantt Chart for FYP 2

1.8 Expected Outcome

The expected outcome of this project is that this mobile application will be developed and made available to UNIMAS students. Once this app available to public, the app expected to make it easy for student to search for part-time job and freelance opportunities posted by campus organization and department.

Moreover, the app expected to improve communication between students and campus organizations. Campus organizations and departments will be able to post job opportunities and receive applications directly through the app, enhancing communication and eliminating outdated methods like bulletin boards or email chains. Both parties can track the progress of applications in real-time, ensuring a smoother process.

For campus organizations, the app expected to offer efficient application management. Organizations can easily manage applications, review student profiles, filter candidates, and track the application process. This will lead to faster and more organized recruitment processes for campus jobs and freelance projects, allowing departments and organizations to focus on selecting the best candidates rather than spending time on manual recruitment processes.

1.9 Summary

This thesis is split into five chapters, each one digging into a major part of building the UNIMAS JobConnect mobile application. These chapters aim to walk you through the entire project, from the intro all the way to the planning and design stages. Chapter 1 start by introducing the project. It covers the background, goals, and why it's important. This chapter explains why UNIMAS JobConnect was created and the specific problem it wants to solve. It also gives a quick overview of what the project covers.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In this chapter, three systems that share similar features with the proposed UNIMAS JobConnect will be discussed. The selected systems are PartTimePost, Maukerja and freelance job posting in social media platform (WhatsApp/Telegram group chat). These systems have been chosen for review to analyse their functionality and how they address their current issues. Following the review of these existing systems, a comparison will be made between them and the proposed solution. Finally, a summary of the key points of the chapter will be provided.

2.2 Background

Freelancing has become a viable option for university students in Malaysia, providing them with opportunities to earn extra income while gaining valuable work experience. Izharuddin (2018) discussing the experiences of freelance academics in Malaysia, highlighting how graduate students and those seeking supplementary income engage in freelance work within academic. Another study made by Jiang et al. (2023) highlights that flexible work arrangement enhance employees' autonomy and motivation, which can stimulate innovative behaviours. This autonomy allows individuals to tailor their work experiences to better fit their personal and professional development needs, thus providing a conducive environment for students to gain relevant practical experience. Several platforms cater specifically to this demographic, allowing students to leverage their skills in various fields. Freelance roles provide practical experience that enhances resumes, making students more competitive in the job market (Fiers, 2024). Moreover, freelancing offers the flexibility to balance work with academic responsibilities, making it an ideal choice for students who need to manage their time effectively. However, despite these benefits, there are still gaps in the existing systems that need addressing to better serve the student community especially in UNIMAS.

2.3 Review of Existing System

Three existing systems, "PartTimePost", "Maukerja" and freelance job posting through social media platform will be carefully reviewed for their features, capabilities, and drawbacks. The proposed system, UNIMAS JobConnect, will then be compared with these platforms. This analysis aims to highlight the unique attributes of, UNIMAS JobConnect within the realm of mobile application dedicated to freelance job posting, emphasizing potential advantages over existing solutions.

2.3.1 PartTimePost

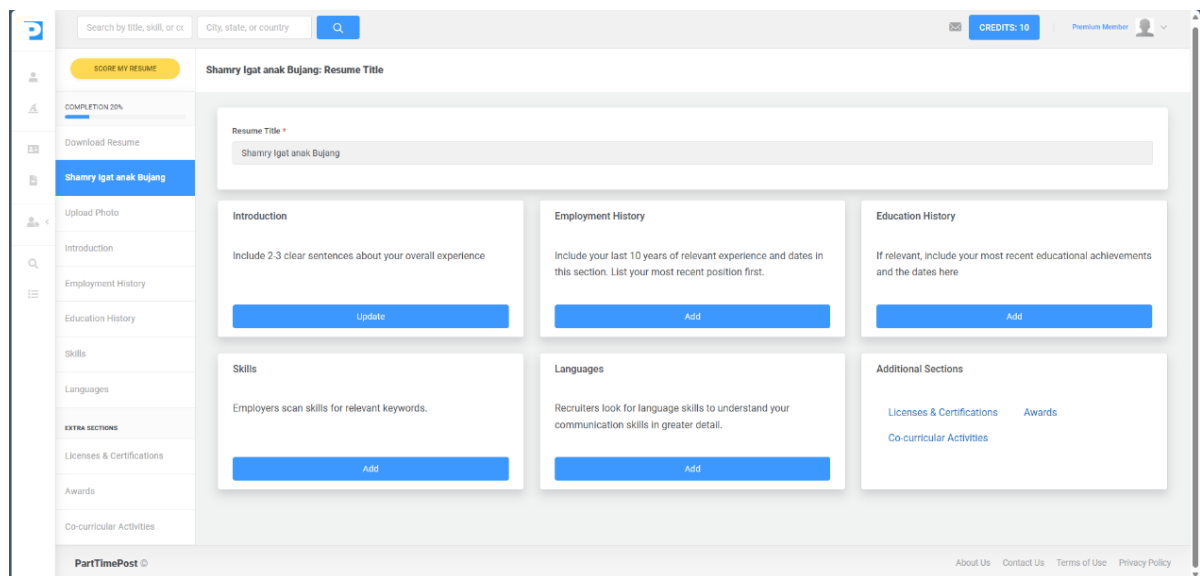


Figure 2.1: PartTimePost dashboard

PartTimePost is an online platform that connects job seekers with part-time, freelance, and flexible job opportunities, primarily in Malaysia (see Figure 2.1). It caters to individuals seeking employment in various industries, including marketing, education, e-commerce, and accounting. The site provides tools for job seekers, such as resume templates and job browsing features, and offers services for employers to post job vacancies and manage applications.

PartTimePost offers a diverse range of job listings, including part-time, freelance, and remote job opportunities across various industries such as education, sales, and customer service. Job seekers can benefit from customizable search tools that allow them to filter jobs based on industry, location, and type, whether remote or on-site. The platform also provides a resume builder tool to help job seekers create or enhance their resumes, making it easier for them to apply for jobs. Employers can take advantage of the employer portal, where they can post jobs, manage applications, and choose from different pricing plans for job postings. For those looking for work-from-home opportunities, PartTimePost includes specific listings for remote jobs, making it a suitable platform for diverse applicants, including stay-at-home parents and freelancers. Additionally, the platform offers candidate support, providing tips for applying to jobs and professional growth resources to help job seekers succeed in their careers.

One of the main drawbacks of PartTimePost is that there is often high competition for remote jobs, particularly for popular freelance positions, making it more challenging to secure these roles. Additionally, the lack of a dedicated mobile app might be a disadvantage for users who prefer using app-based platforms.

2.3.2 Maukerja

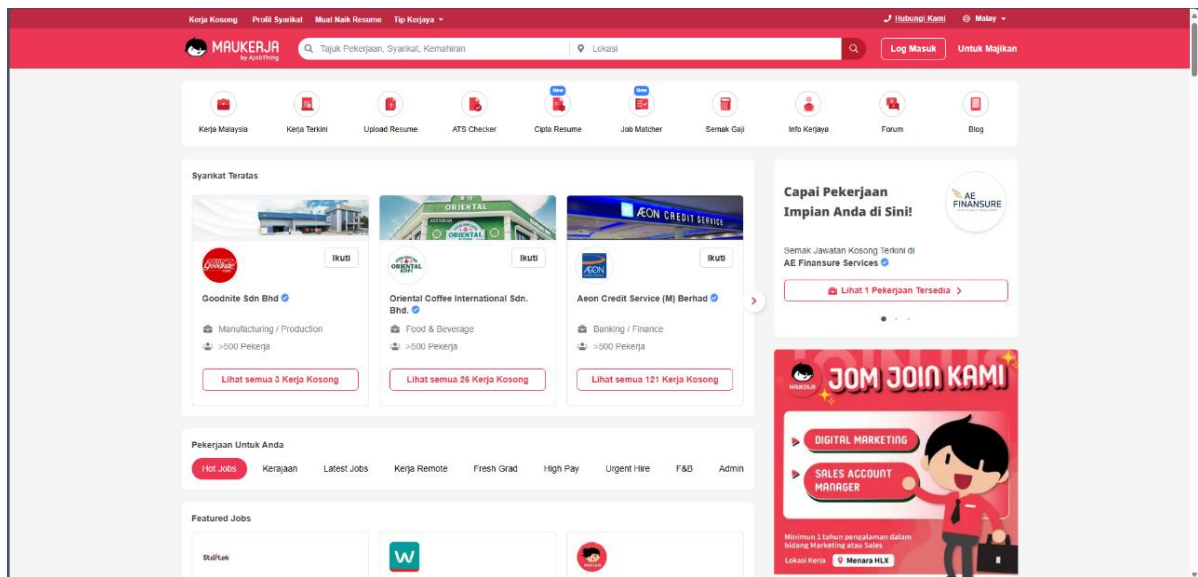


Figure 2.2: Maukerja dashboard

Maukerja is a Malaysian job portal aimed at helping job seekers find employment opportunities, including full-time, part-time, and freelance roles. The platform is tailored for Malaysian professionals, focusing on jobs in a variety of industries and for different skill levels (see Figure 2.2). It is popular among fresh graduates, students, and those seeking local job opportunities.

Maukerja offers a variety of job listings, including part-time, full-time, contract, and freelance opportunities. The platform spans various industries such as IT, marketing, retail, and administration, with a primary focus on jobs within Malaysia, catering specifically to the local workforce. Designed for Malaysians, the platform provides job descriptions in both Bahasa Malaysia and English, making it accessible to a broad audience. Most companies listing jobs are local, although some international employers may also post opportunities. The application process on Maukerja is straightforward and user-friendly. Users can create a profile, upload their resume, and apply for jobs directly through the platform. Employers can review applications and contact candidates through the portal, facilitating smooth communication. Ricebowl.my includes useful search filters that allow job seekers to refine their search by location, job type, and salary range. Specific filters for freelance or gig-based work are also available, helping users find exactly what they're looking for. The platform features a clean, intuitive website design that makes job searching straightforward and efficient. It is also optimized for mobile browsing, ensuring users can access opportunities conveniently from their smartphones.

One of the drawbacks of Maukerja is that its freelance roles are somewhat limited compared to international freelancing platforms.

2.3.3 Freelance Job Posting through Social Media platform (WhatsApp/Telegram's group chat)

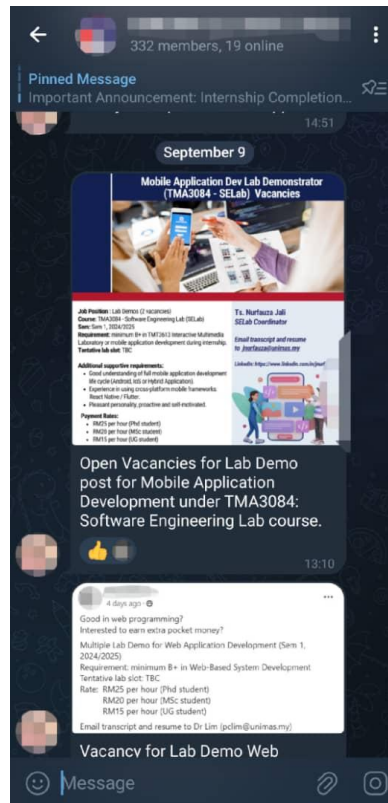


Figure 2.3: Posting freelance job in Telegram group chat

Freelancing through social media platforms like WhatsApp and Telegram (see Figure 2.3) can be appealing due to the convenience and accessibility they offer. This platform offers direct, real-time communication with students, allowing lecturers to quickly share freelancing opportunities with a large group. This is especially effective when immediate action is required. These platforms are widely used and accessible, making it easy for students to join the group and receive updates about freelancing jobs. Many students may already be familiar with these apps, reducing the need for additional tools or learning curves. Using WhatsApp or Telegram to share job posts is cost-effective for both the lecturer and students. There are no fees involved in creating and managing a group, and it doesn't require any special technical setup.

Although using this method gives a lot of benefit, there are some negative aspects that need to be concern of. One of it is with a large group of students, the constant flow of messages can become overwhelming. Important freelancing opportunities may get buried under other messages, making it harder for students to keep track of relevant posts. Additionally, in a group

chat with a large number of students, miscommunication can easily occur. Messages may be misunderstood, or important details might be missed due to the fast-paced nature of group discussions. Unlike dedicated job platforms or university portals, WhatsApp and Telegram do not offer the ability to track applications or maintain a professional archive of job opportunities. This can lead to missed opportunities for students who might not be able to find past job postings.

2.4 Comparison of Features between Existing Systems

Table 2.1: Feature comparison between existing systems and proposed systems.

Criteria	PartTimePost (A)	Maukerja (B)	Freelance Job Posting through Social Media platform (C)	UNIMAS JobConnect (D)
Available in UNIMAS	X	X	✓	✓
User Profiles	✓	✓	X	✓
Search and Filter	✓	✓	X	✓
Messaging System	✓	✓	✓	✓
Rating and Reviews	✓	✓	X	✓
Event Calendar	X	X	X	✓
Mobile Compatibility	X	✓	✓	✓
Resume Builder	✓	X	X	✓

Table 2.1 provides an in-depth comparison of the features of current systems (PartTimePost, MauKerja, and freelance job postings on social media platforms) with the proposed UNIMAS JobConnect system. In this comparison, system A will represent PartTimePost, system B represent Maukerja, system C represent freelance job posting through social media platform and system D represent UNIMAS JobConnect. Each criterion is explained in detail, highlighting its significance:

i. Available in UNIMAS

The availability of this platform within UNIMAS is a game changer for the university's community. It means students and staff have a localized solution tailored specifically to their needs. This fosters a unique ecosystem where students can seamlessly connect with potential employers, including lecturers and various departments within UNIMAS. Such a setup not only

promotes job opportunities and internships but also enhances academic collaboration, paving the way for a more integrated and supportive learning environment. The close-knit nature of this system encourages stronger networks and easier access to university resources, ultimately benefiting everyone involved. These features are only available in Systems C and D.

ii. User Profiles

The creation of detailed user profiles allows students to showcase their personal information, academic background, skills, and qualifications in a structured and professional manner. This feature is essential for students as it presents them in the best possible light to potential employers. For recruiters, these profiles streamline the hiring process by providing a clear and comprehensive view of each candidate's capabilities and achievements. Well-crafted profiles can highlight extracurricular activities, certifications, and other relevant experiences, making it easier for employers to match candidates with suitable job openings. It is available in Systems A, B, and D.

iii. Search and Filter

The search and filter functionalities are critical for making the platform user-friendly and efficient. These tools enable users to quickly find the most relevant job postings or candidates by setting specific criteria such as faculty. Users do not have to scroll down all the way just to look for the job. With this features, user can saving time and ensuring that users can easily access the information they need. This feature is available in Systems A, B, and D.

iv. Messaging System

A robust messaging system is vital for effective communication between employers and students. This feature allows for direct interaction, which is essential for discussing job details, expectations, and negotiations. Having a dedicated communication channel within the platform ensures that all correspondence is organized and easily accessible. Students can ask questions, seek clarifications, and receive feedback in real-time, while employers can promptly respond to inquiries and arrange interviews. This transparency and immediacy help build trust and foster positive relationships between both parties, ultimately leading to more successful hiring outcomes. All systems include a messaging system feature.

v. Rating and Reviews

Ratings and reviews are integral for maintaining credibility and transparency within the platform. They allow users to see past feedback on job postings or candidates, helping them

make informed decisions. For instance, students can read reviews from previous interns or employees to gauge the working environment and employer reliability. Similarly, employers can view ratings and testimonials to understand a candidate's performance and professionalism. This system not only builds trust but also encourages higher standards, as both parties are motivated to maintain positive ratings and reviews. This feature is only present in Systems A, B and D.

vi. Event Calendar

An event calendar is a vital tool for organization and time management. It allows users to keep track of important dates such as job fairs, interviews, application deadlines, and workshops. By having all these events in one place, users can plan their schedules more effectively and avoid missing crucial opportunities. The calendar can also send reminders and notifications, ensuring that students and employers are always aware of upcoming events. This feature promotes a proactive approach to job searching and career development, enabling users to stay on top of their commitments. This feature is only available in proposed system.

vii. Mobile Compatibility

Mobile compatibility ensures accessibility on the go, which is essential for modern users who heavily rely on smartphones for job applications. By sending alerts about new job postings, messages, upcoming events, and deadlines, the platform ensures that users are always up to date. This feature helps improve responsiveness, as users can promptly take action on important updates. Notifications can be customized based on user preferences, ensuring that they receive relevant information without feeling overwhelmed. Effective notification systems can enhance user experience by making the platform more interactive and responsive to their needs. This feature is supported by Systems B, C, and D.

viii. Resume Builder

A resume builder is a valuable tool, particularly for students and recent graduates who may not have extensive work experience. This feature guides users through the process of creating professional and polished resumes, offering templates and tips to highlight their skills and achievements effectively. By simplifying the resume creation process, the platform helps users present themselves in the best possible light to potential employers. A well-crafted resume can make a significant difference in job applications, giving users the confidence and tools, they need to stand out in a competitive job market. This system is present in Systems A and D.

2.5 A Direction of Proposed Solution

One big problem with platforms like PartTimePost and Maukerja is they do not offer jobs specifically for UNIMAS students, making it hard to find freelance job within UNIMAS. In contrast, freelance job posting through social media platform offer localization solution but are limited by absence of features such as user profile, payment integration, resume builder, and many more.

To solve these issues, the UNIMAS JobConnect app is being developed for the UNIMAS community. This app will ensure job listings are specific to UNIMAS, meeting the needs of its users. Key feature that does not have in PartTimePost and Maukerja such as payment integration and event calendar are incorporated to enhance functionality. These features are meant to bridge the gap between social media job posts and existing platforms, providing a solid solution for students looking for freelance work and campus organizations needing reliable and talented students.

2.6 Summary

This chapter focuses on reviewing existing systems related to freelance job postings, with the goal of analysing how these platforms address the needs of university students, specifically at UNIMAS. The chapter discuss three existing platform that offer similar services to the proposed UNIMAS JobConnect system. A comparison was made between these systems and the proposed solution. The chapter concludes by emphasizing the advantages of the proposed UNIMAS JobConnect platform in addressing the unique needs of UNIMAS students for freelance job opportunities.

CHAPTER 3: REQUIREMENT ANALYSIS AND DESIGN

3.1 Introduction

Chapter 3 outlines the methodology employed for the development of the proposed system, emphasizing the essential tasks and procedures integral to the project. An iterative approach has been adopted to effectively meet the system requirements. This chapter aims to give a complete understanding of what the project needs and what the system can do. By addressing the problem identified in Chapter 1, the goal is to clearly explain what the system is capable of and how it will meet the specific requirements and needs.

3.2 Methodology

Waterfall methodology is one of the most popular methodologies used when developing mobile application. This methodology is a linear and sequential approach to software development and project management. It consists of distinct phases that must be completed in order, making it one of the earliest models in the Software Development Life Cycle (SDLC). This linear sequential approach involves distinct phases: requirements analysis, design, implementation, testing, and maintenance (Alda et al., 2023). The waterfall approach ensures systematic development and aligns user preferences with the final product (Muhimmah & Milano, 2024).

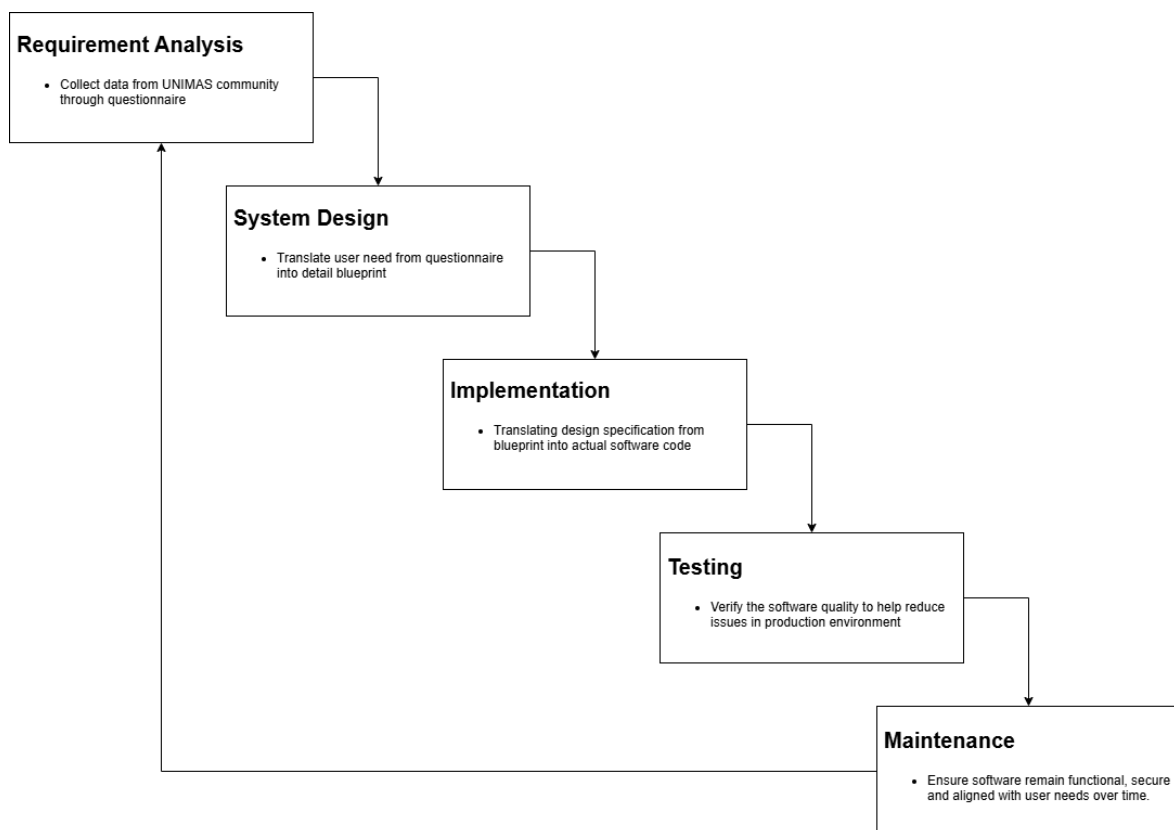


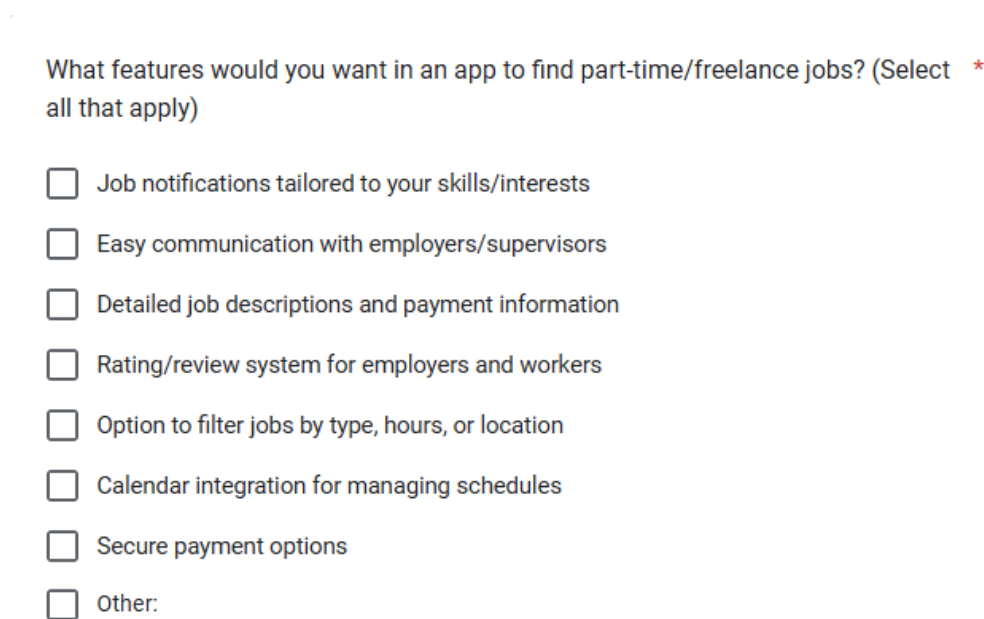
Figure 3.1: Waterfall Model

3.2.1 Requirement Analysis

Requirement analysis is a critical process in software development that involves defining and managing user expectations for a new or modified software product. This phase is essential for ensuring that the final product aligns with business objectives. During this phase, the data collected from a targeted group will be used in requirement analysis to develop a mobile application that is relevant and efficient for the targeted users to utilize. The specified group for the data collection of the system would be students who want to search for part-time job or the employer that wish to provide part-time job within the UNIMAS community. This phase also covers important processes like functional requirement, non-functional requirement, software requirement and the use case.

3.2.1.1 Questionnaire

A questionnaire is a research instrument consisting of a structured set of questions or prompts designed to collect information from respondents. It is commonly used in various fields such as market research, social sciences, and health studies to gather both qualitative and quantitative data.



What features would you want in an app to find part-time/freelance jobs? (Select * all that apply)

- ☐ Job notifications tailored to your skills/interests
- ☐ Easy communication with employers/supervisors
- ☐ Detailed job descriptions and payment information
- ☐ Rating/review system for employers and workers
- ☐ Option to filter jobs by type, hours, or location
- ☐ Calendar integration for managing schedules
- ☐ Secure payment options
- ☐ Other: _____

Figure 3.2: Question of desire feature for UNIMAS JobConnect

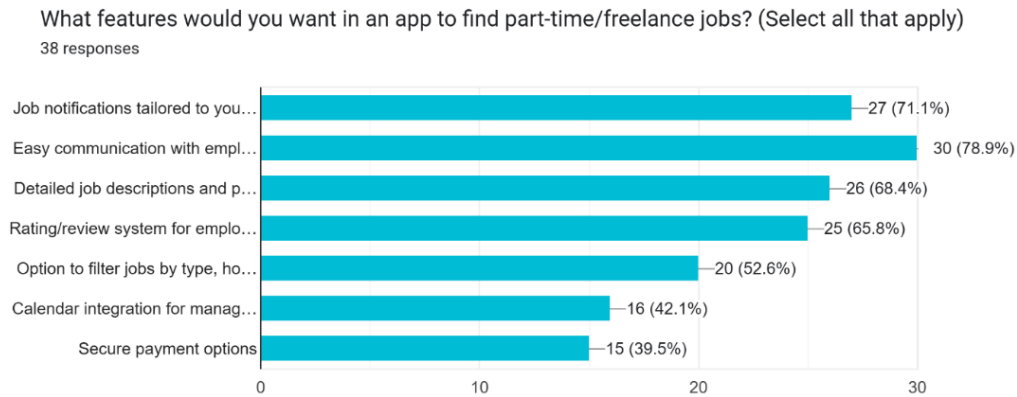


Figure 3.3: Result of desire feature for UNIMAS JobConnect

Figure 3.2 shows the survey questions. These questions are essential for identifying which features should be included in the app later. The survey results presented in Figure 3.3 highlight user preferences for features in UNIMAS JobConnect. Among the 38 respondents, easy communication with employers emerged as the most desired feature, with a high preference rate of 78.9%. This indicates the importance of seamless interaction between students and employers during the hiring process. Closely following is the demand for job notifications tailored to user preferences, preferred by 71.1% of respondents, showcasing the need for personalized job updates. Detailed job descriptions and postings were also highly valued, with 68.4% of participants selecting this option. Similarly, a rating/review system for employers and jobs garnered significant interest (65.8%), underscoring the desire for transparency and informed decision-making. Approximately 52.6% of respondents want the ability to filter jobs by type, hourly rate, or skill set, suggesting that customizable search criteria are critical for usability. On the other hand, features like calendar integration for managing interviews and job schedules and secure payment options had slightly lower preferences, with 42.1% and 39.5%, respectively. While these features are less popular, they remain important to a substantial portion of users who prioritize schedule management and secure transactions. Overall, the survey results emphasize that users seek an app with robust communication capabilities, tailored notifications, detailed job postings, and transparency while valuing additional functionalities like calendar and payment integration for a more comprehensive experience.

3.2.1.2 Functional Requirements

Functional requirement is a specification that defines what a system or its components must do. It describes the specific behaviours, functions, and capabilities that the software must exhibit in response to inputs, detailing how the system should operate to meet user needs and

business objectives. For UNIMAS JobConnect, the functional requirements grouped by feature:

3.2.1.2.1 User Management

Users can register by selecting a role, either as a student or an employer, and can log in and log out of the platform seamlessly. The system includes robust password recovery and reset functionality to always ensure secure access. Additionally, users can update their profiles with a range of personal information, allowing them to maintain up-to-date and relevant profiles for optimal engagement and interaction on the platform.

3.2.1.2.2 Job Listing

Employers can utilize the platform to post job listings, providing essential details such as the title, description, location, and application deadline. Additionally, they have the flexibility to edit or remove posted jobs as needed. The system also includes comprehensive job status management features, enabling employers to mark job postings with statuses like “Active,” “Inactive,” or “Completed,” ensuring clear communication and efficient tracking of job applications and progress. This holistic approach to job postings and applications fosters a seamless and organized experience for both employers and students.

3.2.1.2.3 Job Application

Students can actively submit applications for job postings through the platform, making it easy to apply for positions. Employers have the capability to meticulously review and manage these applications, with options to accept, reject, or shortlist candidates based on their qualifications and fit for the role. For transparency and peace of mind, students can track the status of their applications in real-time, ensuring they are informed about where they stand in the hiring process.

3.2.1.2.4 Resume Builder

The platform empowers students to take charge of their career journey by allowing them to create, edit, and save resumes directly within the system. To cater to diverse preferences and needs, it offers multiple resume templates for customization, ensuring that each student can craft a professional and personalized document. Additionally, students can easily export their resumes to PDF format, facilitating seamless sharing and submission.

3.2.1.2.5 Scheduling and Calendar Integration

Employers can easily schedule interviews for applicants who have been shortlisted, streamlining the hiring process. Both students and employers receive timely reminders for these

scheduled interviews, ensuring that no one misses an important meeting. The platform features a calendar view that provides a comprehensive overview of upcoming interviews helping users stay organized and manage their time effectively.

3.2.1.2.7 Rating and Review System

The platform features a rating and review system that allows students and employers to provide feedback on each other after the completion of a job. This feedback helps create a transparent and trustworthy environment by offering insights into the experiences of previous engagements. Average ratings are prominently displayed in the profiles of both students and employers, giving future collaborators a better understanding of their reliability, professionalism, and performance. This mutual review system promotes accountability and encourages a positive and productive community for all users.

3.2.1.3 Non-Functional Requirements

For UNIMAS JobConnect application, several non-functional requirements are critical to ensure the system operates efficiently, securely, and effectively. Maintainability is crucial, with the system designed in a modular way to facilitate easy updates and maintenance, supported by comprehensive technical documentation and extensive logging and monitoring to quickly identify and resolve issues. Portability requirements include compatibility with all major operating systems like and Android and a responsive design to work seamlessly on smartphones.

Usability is crucial for the success of the UNIMAS JobConnect. The user interface should be intuitive, ensuring it is easy to navigate for both tech-savvy users and those who are less familiar with technology. This includes clear navigation, straightforward forms, and a clean layout. Providing comprehensive help guides and FAQs will further assist users in understanding how to use the platform effectively, enhancing their overall experience and satisfaction with the site. These non-functional requirements collectively ensure the UNIMAS JobConnect application is efficient, user-friendly, and provides a positive experience for all users.

3.2.1.4 Software Requirements

There are several software requirements that needed in order to develop UNIMAS JobConnect:

Table 3.1: Software requirement for UNIMAS JobConnect

Software	Description
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Android Studio	Powerful and versatile IDE that provides all the necessary tools for Android app development.
Figma	Web-based design tool that is widely used for user interface (UI) and user experience (UX) design. It allows designers to create, prototype, and collaborate on designs in real-time
draw.io	Web-based diagramming tool that allows users to create a wide variety of diagrams and flowcharts. It is widely used for visualizing ideas, processes, and systems in a clear and organized manner
Flutter	Open-source UI software development kit (SDK) created by Google for building natively compiled applications for mobile, web, and desktop from a single codebase.
GitHub	Web-based platform used primarily for version control and collaborative software development.
Firebase Cloud Messaging	Allows you to send notifications and messages to users across platforms (iOS, Android, and web) for engagement and updates.
Dart	Dart is free and open source Approachable Develop with a consistent, concise, and strongly typed programming language that offers modern features like null safety and pattern matching.

3.2.1.5 Use Case Diagram

Use case diagrams provide a top-level view of system functionality, making it easier to understand how users will interact with the system without delving into technical details (see Figure 3.4). They help in identifying and clarifying functional requirements by visually representing user interactions, which can reduce ambiguity in understanding what the system should do. By outlining how users will interact with various functionalities, these diagrams assist in guiding the design and development process.



Figure 3.4: Use Case Diagram for UNIMAS JobConnect

Table 3.2: Use Case Description for Register Account

Use Case Name	Register Account	
Actor	Primary	Student, Employer
	Secondary	Admin
Description	This process involves a new user (either a student or an employer) register account on the UNIMAS JobConnect app	
Preconditions	1. The user has access to the internet 2. The user has valid email address	
Postconditions	1. The user account is created and stored in the database	

	2. The user account can log in to the system using account credential
Main Flows	1. Navigate to Register Page • Users select “new user” option on homepage 2. System Display Registration Form • System presents the user with registration form 3. User Enter Registration Information • Users fill the required information fields, such as: I. Full name II. User Type (Student or Employer) III. UNIMAS ID (Student ID or Staff ID) IV. Role V. Email VI. Password 4. User Submit the Registration Form • The user submits the completed registration form 5. System Validate Input • the system validates information: I. check if email address is valid II. check if email address is already registered III. ensure password meets security criteria 6. System Create User Account • if validation passed, the system creates new user account based on information provided by the user 7. System Send Confirmation Email • system send link to provided email to active the account 8. User Confirm Email • users click the link that was sent to provided email at confirmation page 9. System Activate User Account • system activates the user account after the code entered matched with code that was sent to user email 10. System Display Success Message

	system display successful message and prompt user to log in
Alternative Flows	A1: User Enter Invalid Email Format - system detect invalid email format input by the user and prompt user to re-enter a valid email. A2: Password Do Not Match - system detect input at confirmation password field do not match with the input at password field A3: Email Already Registered - system detect email has been registered before and prompt user to login or reset the password A4: User Do Not Confirm Email - if the user does not enter the code given at their email for a period of time, the code will expired and the user need to resend the code to email again
Exceptions	E1: System Error During Registration The system display error code and error message. The error will be logged for further investigation

Table 3.3: Use Case Description for Search for Job

Use Case Name	Search for Job	
Actor	Primary	Student
	Secondary	Employer (via job posting details)
Description	Allows students to search and filter part-time job opportunities.	
Preconditions	- The student has an active user account and is logged in. - Jobs have been posted in the system by employers.	
Postconditions	The student views the details of a relevant job and has the option to apply.	
Main Flows	- The student logs into their account. - The student accesses the “Job Search” feature on the dashboard. - The system displays a search bar and filters (filter by faculty). - The system retrieves and displays relevant job listings.	

	5. The student clicks on a listing to view details (job description, employer info).
Alternative Flows	A1: Filter or Sort Jobs - The user applies filters or sorting options to narrow search results. A2: Search Using Keywords - The user inputs a specific keyword (e.g., “graphic design”).
Exceptions	E1: No Job Found - The system cannot find any jobs that match the user’s search criteria. E2: Network or Server Error - The system encounters connectivity issues during the search. E3: Session expired - The user’s session expires while they are searching. E4: Database Unavailable - The system’s job database is temporarily unavailable.

Table 3.4: Use Case Description for Apply for Job

Use Case Name	Apply for Job	
Actor	Primary	Student
	Secondary	Employer, System
Description	Enables students to submit applications for posted jobs.	
Preconditions	1. The student has an active account and logged in. 2. The student has a complete profile (e.g., skills, resume uploaded).	
Postconditions	The job application is submitted and recorded in the system.	
Main Flows	1. The student views a job listing. 2. The student selects “Apply Now.” 3. The student submits the application. 4. The system notifies the employer of a new application.	

Alternative Flows	A1: Direct Message to Employer The job listing includes an option to message the employer directly.
Exceptions	E2: Invalid or Expired Job Posting - The user applies to a job that is no longer available. E3: Network or Server Error During Submission - An error occurs while submitting the application. E4: Job Application Already Submitted - The user tries to apply for a job they've already applied to.

Table 3.5: Use Case Description for Post a Job

Use Case Name	Post a Job	
Actor	Primary	Employer
	Secondary	Admin
Description	Allows campus organizations and departments to post part-time jobs or freelance projects.	
Preconditions	Employer has an active user account and is logged in.	
Postconditions	The job is successfully listed in the system and visible to students.	
Main Flows	- The employer logs into their account. - The employer navigates to “Post a Job” on their dashboard. - The app presents a form for job details: - Title, description, required skills, deadline, etc. - The employer fills out the form and submits it. - Students can now view and apply for the job.	
Alternative Flows	A1: Save Job Posting as Draft The employer opts to save the job post without publishing it.	
Exceptions	E1: Incomplete Job Posting Details The employer attempts to submit the post with missing required fields. E2: File Attachment Issues	

	- The employer uploads an invalid or unsupported attachment (e.g., incorrect format for job description). E3: Network or Server Error - A network issue occurs during submission.
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Table 3.6: Use Case Description for Manage Application

Use Case Name	Manage Application	
Actor	Primary	Employer
	Secondary	Student, Admin
Description	Enables employers to view, shortlist, and communicate with candidates who applied for their job postings.	
Preconditions	Applications have been received for the employer's job postings.	
Postconditions	- The application is updated with the employer's decision. - Shortlisted candidates can progress to further communication or interviews.	
Main Flows	- The employer logs into their account. - The employer selects the job posting for which they want to manage applications. - The system displays a list of received applications. - The employer clicks on an application to view: - Student profile details, resume, and message. - The employer can: Shortlist a student for further communication. Send a message to clarify questions. Reject an application, notifying the student. Accept an application, notifying the student.	
Alternative Flows	A1: Filter Applications by Status - The employer chooses to filter applications by status (e.g., "Pending," "Reviewed," "Shortlisted"). A2: Communicate with the applicant - The employer decides to message a candidate regarding their application.	

	A3: Shortlist Candidate for Final Stage The employer decides to advance a candidate to the next step.
Exceptions	E1: System Error Loading Applications - A system or network error prevents the applications list from loading. E2: Deleted Application - The employer attempts to view an application that was deleted or withdrawn by the candidate.

Table 3.7: Use Case Description for Update Profile

Use Case Name	Update Profile	
Actor	Primary	Employer, Student
Description	Allows users to update or edit their profile information to keep it current and relevant.	
Preconditions	The user must be logged in.	
Postconditions	The user profile reflects the updated information.	
Main Flows	- The user navigates to their profile page. - The user selects the “Edit Profile” option. - The app displays editable fields for the profile: For Students: skills, education, experience, certificate, cocurricular activities. For Employers: Organization name, description, contact info. - The user modifies the desired fields and clicks “Save.” - The system validates the changes and updates the user’s profile.	
Alternative Flows	A1: Update Specific Profile Sections The user updates only one section of their profile, such as contact information or skills.	
Exceptions	E1: Invalid Input The user provides invalid or incomplete input during profile updates (e.g., an email address in an incorrect format). E2: Fail File Upload	

	- The user tries to upload an unsupported or oversized file for their profile picture or other document. E3: Server or Network Error - A server or network error prevents the system from saving the updated profile. E4: Mandatory Field Left Blank - The user skips a required field (e.g., name, contact email).
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Table 3.8: Use Case Description for View Messages

Use Case Name	View Messages
Actor	Primary Student, Employer
Description	Enables users to receive updates about message send by others
Preconditions	Other user need to send message to receiver
Postconditions	Users remain updated with relevant actions and information.
Main Flows	- The user logs into their account. - The app display message from sender or receiver - The user clicks on a notification to view details or take relevant actions.
Alternative Flows	A1: Delete Message - The user decides to delete one or more notifications. A2: Expand Notification Details - The user clicks on a notification to view more details or access a related action. A3: View Profile - User long press the message to see option to view profile
Exceptions	E1: No New Notifications - The user navigates to the notifications section, but there are no new or unread notifications. E2: Network Error - The system fails to load notifications due to a network issue or server error.

Table 3.9: Use Case Description for Rate and Review

Use Case Name	Rate and Review	
Actor	Primary	Student, Employer
Description	Allows students and employers to provide feedback and ratings for completed jobs/projects.	
Preconditions	A job must be marked as completed.	
Postconditions	Profiles have updated ratings, improving trust and transparency in the system.	
Main Flows	1. The system prompts both the student and employer to leave a rating/review after job completion. 2. The user selects a rating (e.g., 1-5 stars) and adds optional feedback. 3. The system submits and stores the rating/review. 4. The feedback is visible on the corresponding profile (student or employer).	
Alternative Flows	A1: Edit an Existing Review • The user decides to update their previous review or rating.	
Exceptions	E1: Invalid Rating Value • The user submits a rating outside the acceptable range (e.g., 6 stars on a 1–5 scale).	

Table 3.10: Use Case Description for View Calendar

Use Case Name	View Calendar	
Actor	Primary	Student, Employer
Description	Enables users to view upcoming events, including interviews, application deadlines, and other relevant notifications.	
Preconditions	1. The user must have an account and be logged in. 2. Events (e.g., interview schedules) must exist in the system.	
Postconditions	Users can stay organized and informed about their schedules.	
Main Flows	1. The user navigates to the “Calendar” feature. 2. The system displays events color-coded by category (e.g., interviews, start/end job date).	

	3. The user can click on an event to view details, such as time, location (virtual or physical), and related job/application.
Alternative Flows	A1: Switch Calendar Views - The user decides to switch between different calendar views (e.g., daily, weekly, monthly). A2: View Event Details - The user clicks on a specific event in the calendar.
Exceptions	E1: Calendar Data Not Loaded - The calendar fails to load events due to a technical issue or lack of internet connectivity. E2: Event Details Missing or Corrupted - The user clicks on an event, but the event details cannot be retrieved.

Table 3.11: Use Case Description for Login

Use Case Name	Login	
Actor	Primary	Student, Employer
Description	Allows users to access the app by providing valid credentials.	
Preconditions	The user must have a registered account.	
Postconditions	The user gains access to the app's features.	
Main Flows	- The user opens the app and navigates to the login screen. - The user enters their email/username and password. - The system validates the credentials: - If valid, the user is redirected to their respective dashboard. - If invalid, an error message is displayed. - The system maintains the user session securely.	
Exceptions	E1: Incorrect Username or Password - The user enters an incorrect username or password. E3: Network Error During Login - The user has not verified their email address. E4: Invalid Email Format	

	- The user enters an email in an invalid format (e.g., missing @ symbol). E5: Account Not Found - The entered email or username does not exist in the system. E6: Session Expiry - The user's login session has expired. E7: Maintenance Mode - The application is under maintenance and logins are temporarily disabled. E8: Server Error - There is a server-side issue while attempting to log in.
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Table 3.12: Use Case Description for Logout

Use Case Name	Logout	
Actor	Primary	Student, Employer
Description	Allows users to securely terminate their session and protect their account from unauthorized access.	
Preconditions	The user must be logged into the app.	
Postconditions	The session is ended, and the user cannot access the app without logging in again.	
Main Flows	- The user clicks the "Logout" option on their dashboard. - The system terminates the session and redirects the user to the login screen.	
Alternative Flows	A1: Logout with Unsuccessful Session Termination The user attempts to log out, but the session does not terminate immediately due to a network issue.	
Exceptions	E1: Network Error During Logout There's a network connectivity issue while trying to log the user out. E2: Logout from Restricted Area	

	- The user tries to log out while they are in a restricted area or while performing an ongoing process (e.g., payment or job application submission). E3: User Data Not Saved Before Logout - The user forgets to save changes or preferences before attempting to log out. E4: Invalid Session During Logout - The system detects an invalid or expired session when attempting to log out. E5: Timeout During Logout - The logout action times out due to slow server response.
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Table 3.13: Use Case Description for Manage Own Post

Use Case Name	Manage Job Posts
Actor	Primary Employer
Description	The employer can view, edit, deactivate, or delete job posts they have created to manage their job postings effectively.
Preconditions	- The employer must be logged in. - The employer must have at least one job post to manage.
Postconditions	Job post details are updated, deactivated, or deleted as requested.
Main Flows	- The employer logs in and accesses the “Manage Job Posts” section. - The system displays a list of the employer’s active and inactive job posts. - The employer selects a specific job post to manage. - The system provides the following options: - The employer updates details such as job title, description, and deadlines. - The employer changes the job post’s status to “Inactive,” hiding it from student searches. - The employer changes the job post’s status to “Completed,” indicate that the job has already complete.

	The employer permanently removes the job post. 5. The employer performs the desired action (e.g., edits, deactivates, or deletes). 6. The system confirms the action and updates the job post accordingly.
Alternative Flows	A1: Job Post Already Filled - If the job post is already filled (e.g., applications are closed), the system restricts editing specific fields like the job deadline. A2: No Job Post Available - If the employer has no job posts, the system displays a message: “No job posts available.”
Exceptions	E1: Job Post Not Found - If the employer selects a job post that doesn’t exist or was already deleted, the system shows an error message: “Job post not found.” E2: Network Issue - If there’s a network error during editing, deleting, or deactivating a job post, the system displays: “Action failed. Please try again later.”

Table 3.14: Use Case Description for Generate Resume

Use Case Name	Generate Resume	
Actor	Primary	Student
Description	Enables the student to generate resume to improve their chances of being selected for a job.	
Preconditions	- The student must have an active account and be logged into the app. - Basic profile information (e.g., name, contact details) must be completed.	
Postconditions	- A resume is generated and saved in the student’s profile. - The student can download the resume in PDF format.	

Main Flows	1. The student navigates to the “Resume Builder” feature in the app. 2. The resume will be based on the student profile which are: • Education Details • Work Experience • Skills • Activities • Certifications 3. The student reviews the generated resume. 4. The student saves the resume, which is linked to their profile, and optionally downloads it in PDF format.
Exceptions	E1: Network Issue • If there’s a network error during editing, deleting, or deactivating a job post, the system displays: “Action failed. Please try again later.”

Table 3.15: Use Case Description for Manage User

Use Case Name	Manage User	
Actor	Primary	Admin
Description	Ensure that the user database is accurate, valid, and devoid of malicious or inactive accounts.	
Preconditions	The admin must have appropriate privileges.	
Postconditions	• User accounts (Students or Employers) are created, updated, or deleted as needed. • Suspicious accounts are flagged or deactivated.	
Main Flows	1. The database displays a list of all users (Students and Employers) with details such as: • Name, Email, Account Type (Student/Employer), Status, and Date Created. 2. The admin selects an action from the following: • View User Profile: Admin can view details of a specific user, including job postings, applications, or ratings.	

	• Edit User Details: Admin updates user information (e.g., name, email, or account type). • Deactivate/Reactivate User Account: Admin changes the status of the account. • Delete User Account: Admin removes a user and all associated data.
Alternative Flows	None
Exceptions	None

5.2.1 System Design

System design serves as a bridge between the requirements gathered during the analysis phase and the actual implementation of the software. It aims to create a comprehensive plan that outlines how various elements of the system will work together to achieve desired functionality, performance, scalability, reliability, and maintainability. This process translates user needs and functional specifications into a detailed blueprint that guides the implementation phase. Some of the things that will discuss in this section will be system architecture, data flow diagram, sequence diagrams, entity relationship diagram and wireframes.

5.2.1.1 System Architecture

System architecture is a foundational aspect of software development that defines how various components interact within a system. It provides a structured approach to designing complex systems, ensuring that they meet user requirements while remaining adaptable to future changes. Effective system architecture not only guides development but also enhances communication among stakeholders and supports long-term sustainability.

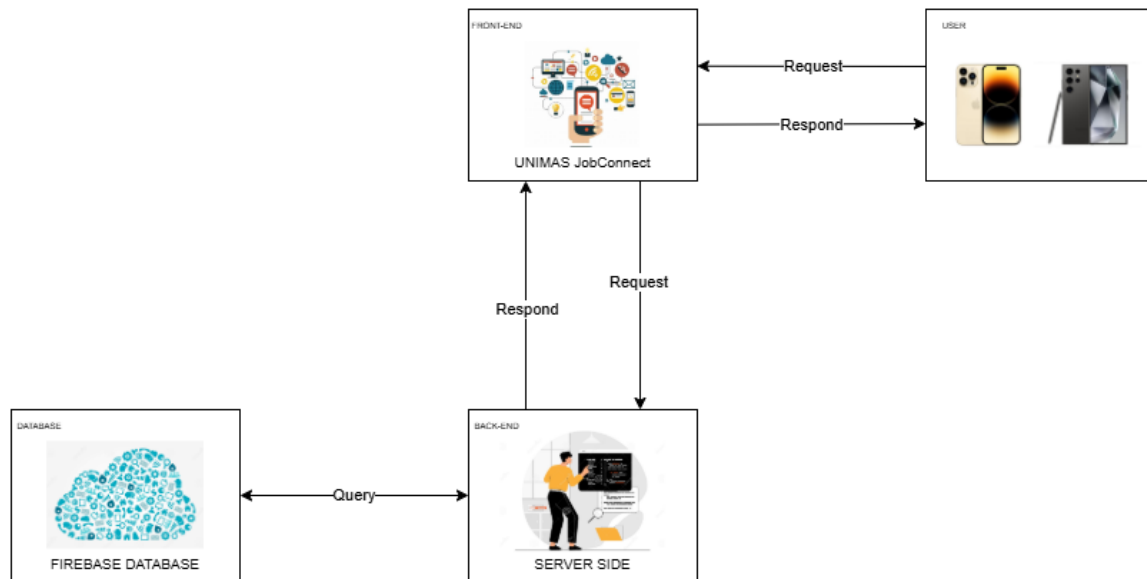


Figure 3.5: UNIMAS JobConnect System Architecture

Figure 3.5 depicts the system architecture of the proposed job, detailing the interactions between its key components. Users, consisting of students and employers, interact with the system through the front-end, which is built using Flutter. The front-end processes user requests and communicates with the back end, developed with Kotlin and Firebase. The back end handles these requests, performs necessary operations, and interacts with the Firebase database to retrieve or store data. Responses from the back end are then sent back through the front-end to the users, ensuring a seamless and efficient transaction process within the system.

5.2.1.2 Data Flow Diagram

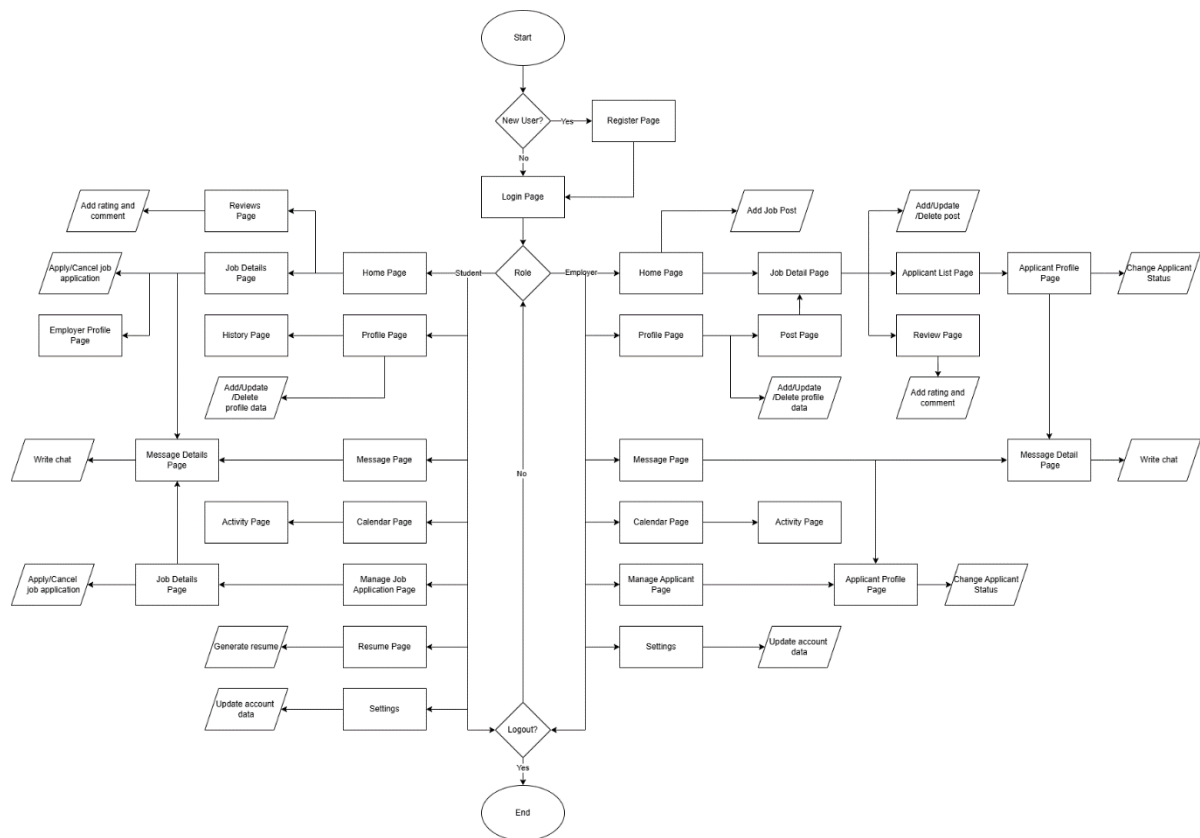


Figure 3.6: UNIMAS JobConnect Data Flow Diagram

Figure 3.6 illustrates flow process for the UNIMAS JobConnect, detailing the processes for admin, employer, and student. The diagram depicts how users interact with the system, starting from the main menu and covering various functionalities until the user logs out. The flow includes specific actions and decision points for both employer and student, ensuring a comprehensive overview of the user journey within the application. The details of the process are shown in the sequence diagram below:

Job Search Process

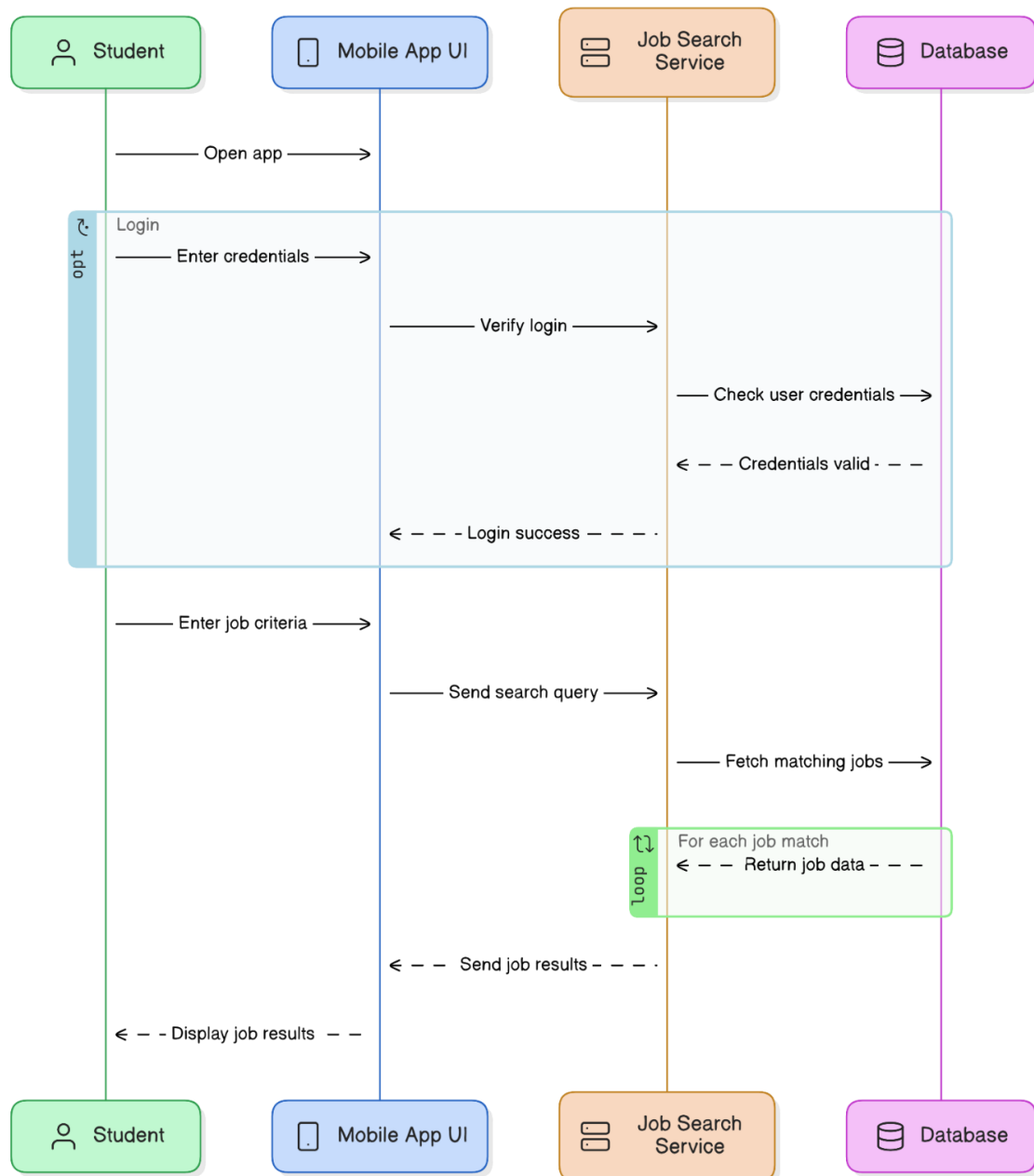


Figure 3.7: Sequence Diagram for Search Job

Job Application Process

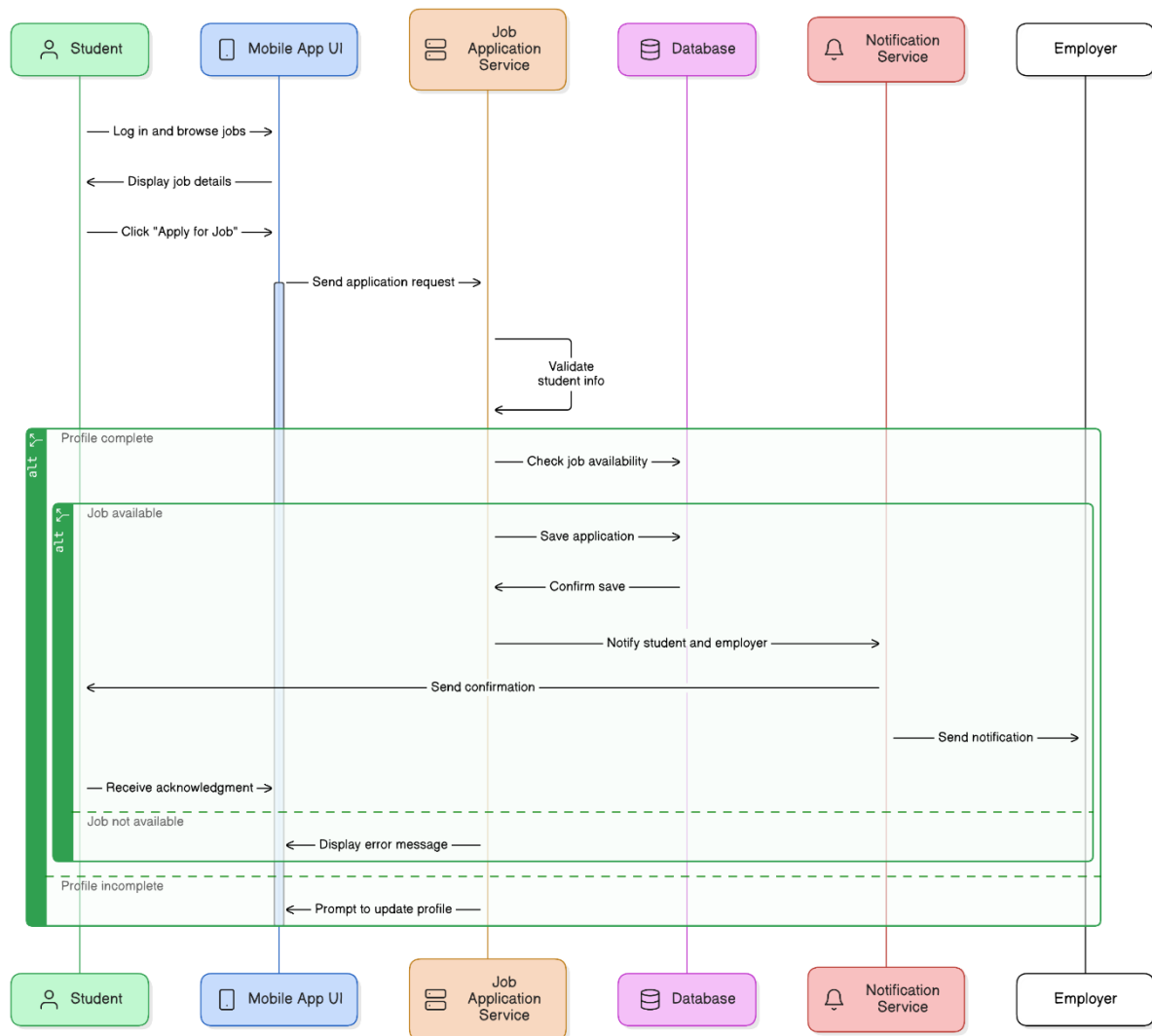


Figure 3.8: Sequence Diagram for Job Application

Post a Job Sequence

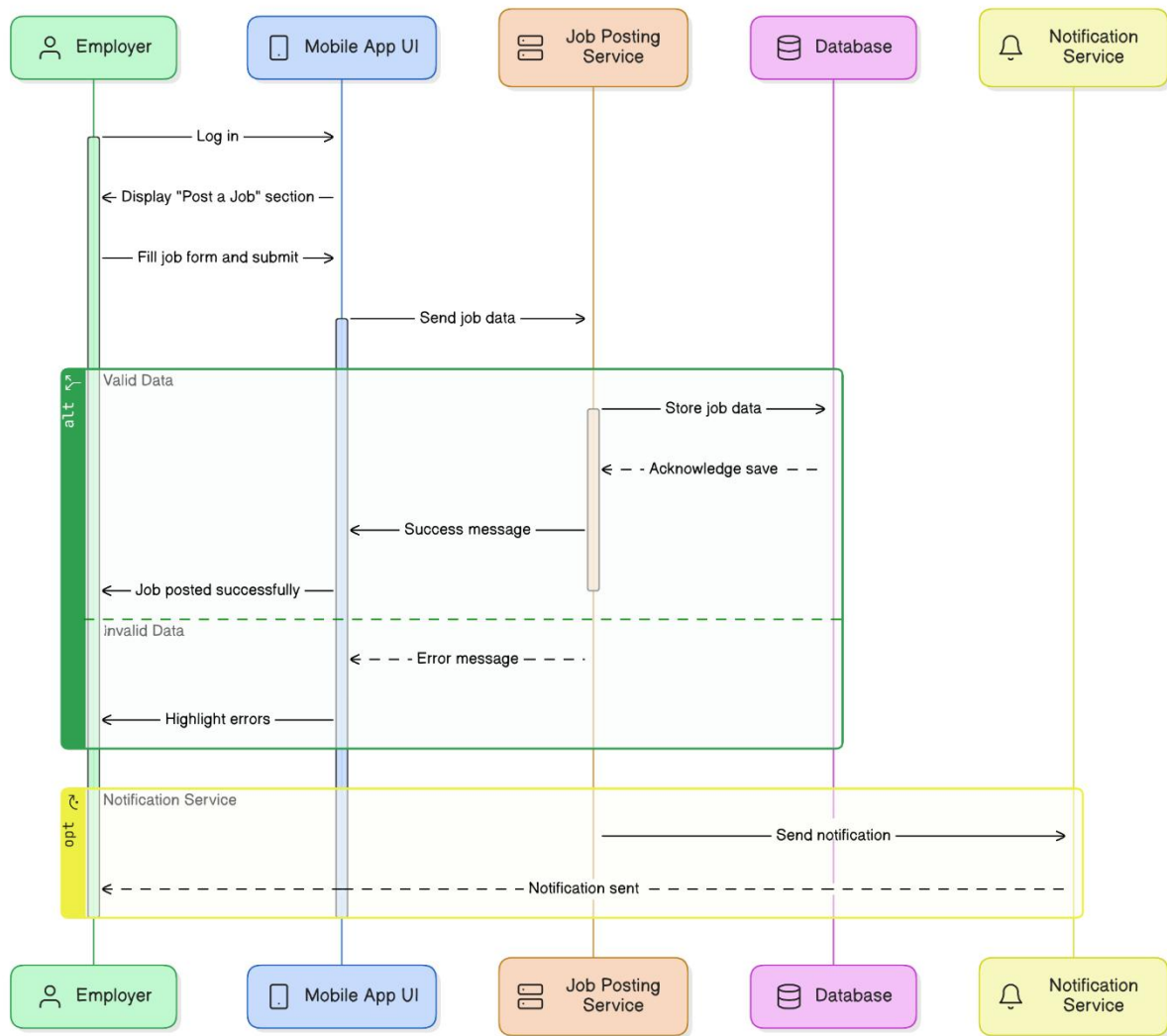


Figure 3.9: Sequence Diagram for Post Job

Manage Student Applications

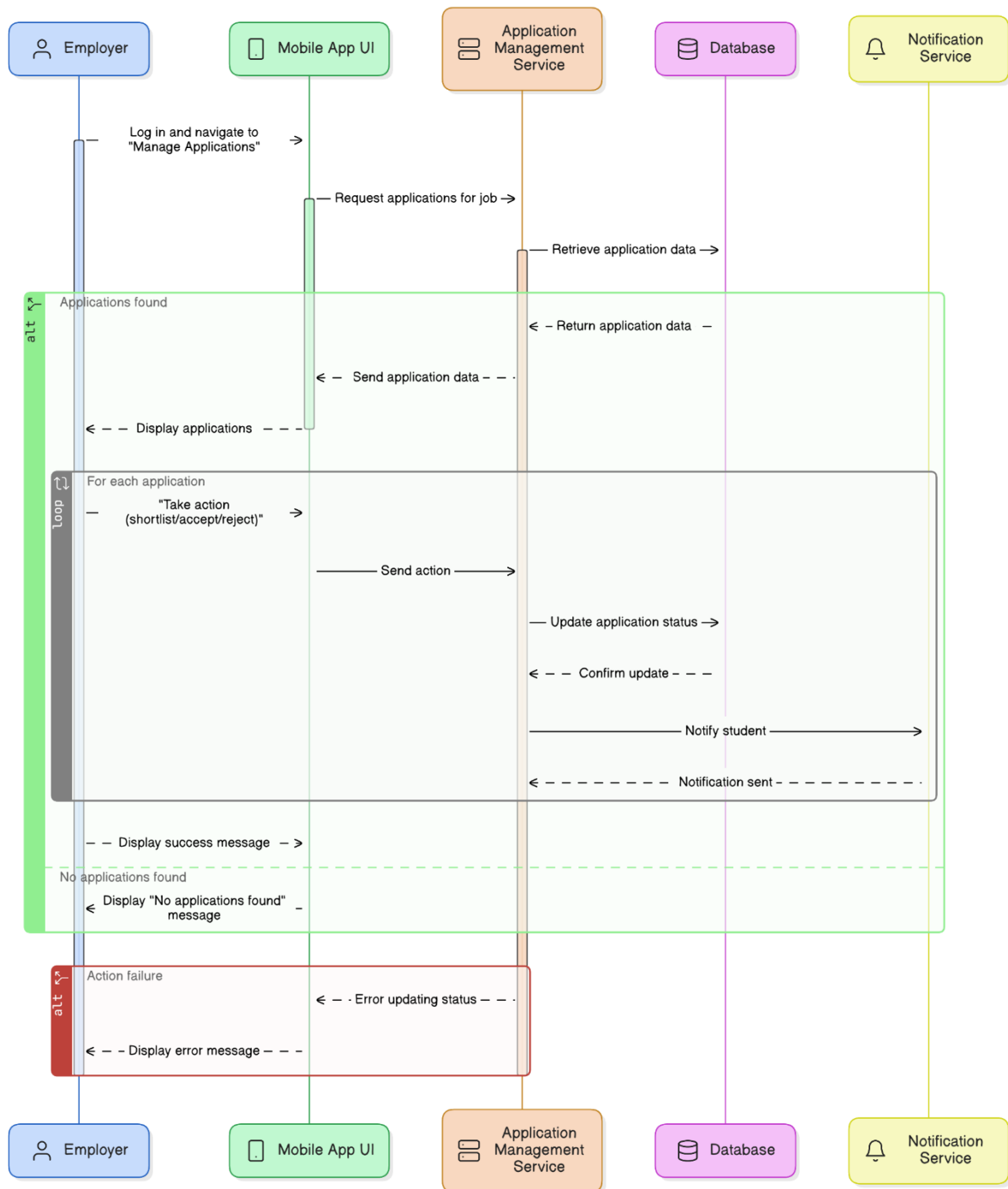


Figure 3.10: Sequence Diagram for Manage Student Application

Update Profile Sequence

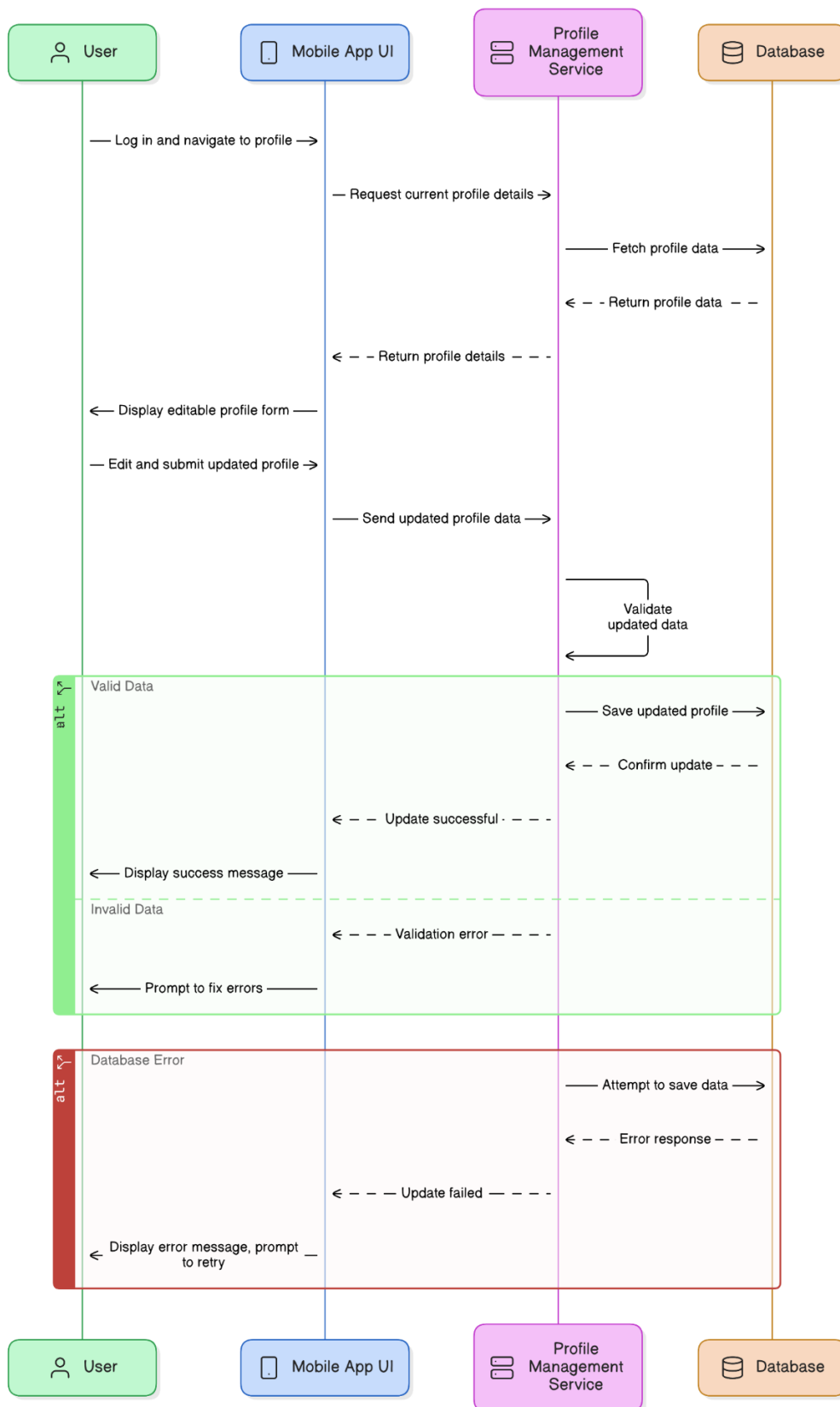


Figure 3.11: Sequence Diagram for Update Profile

View Messages Use Case

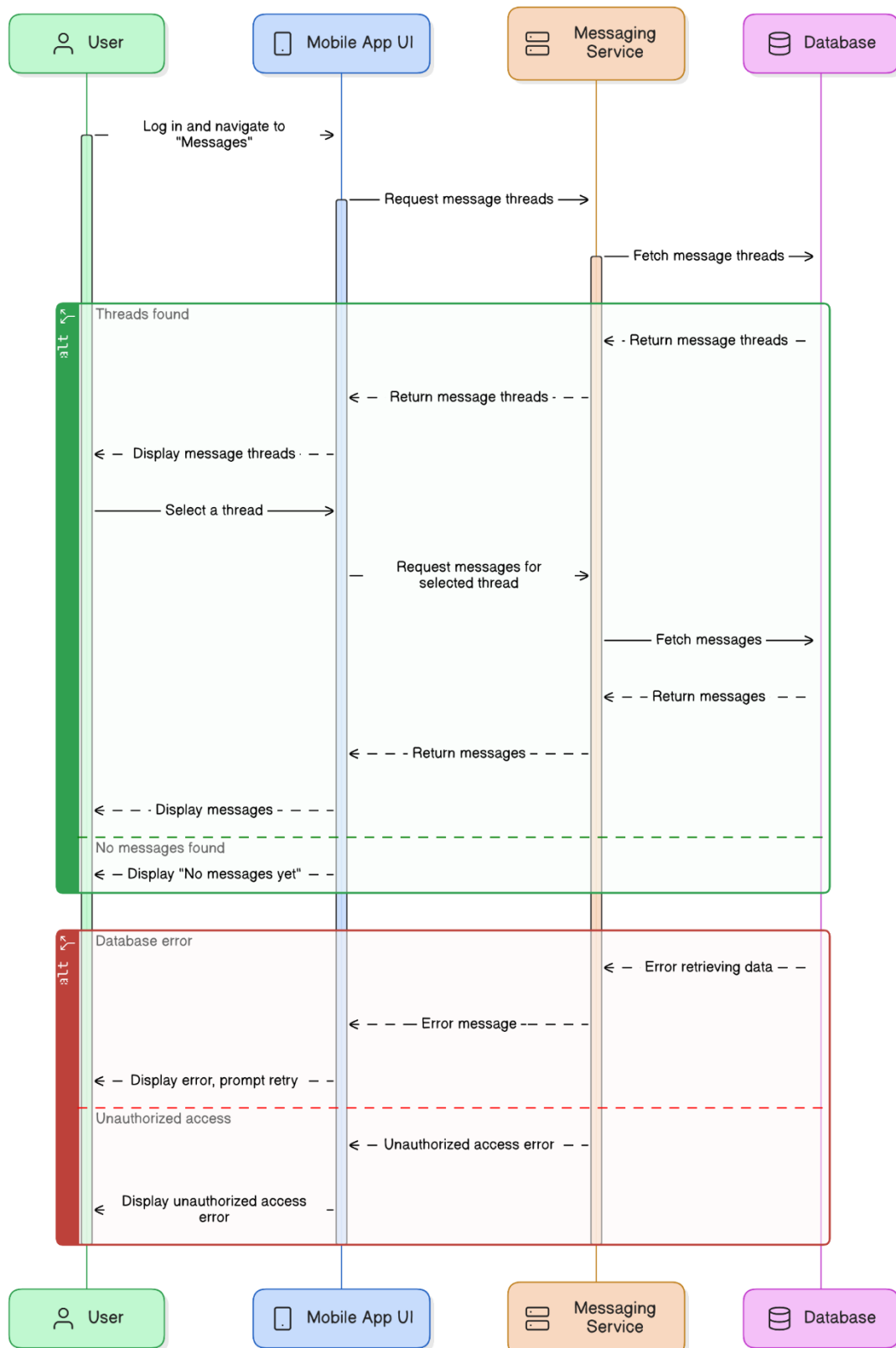


Figure 3.12: Sequence Diagram for Messages

Rate and Review Process

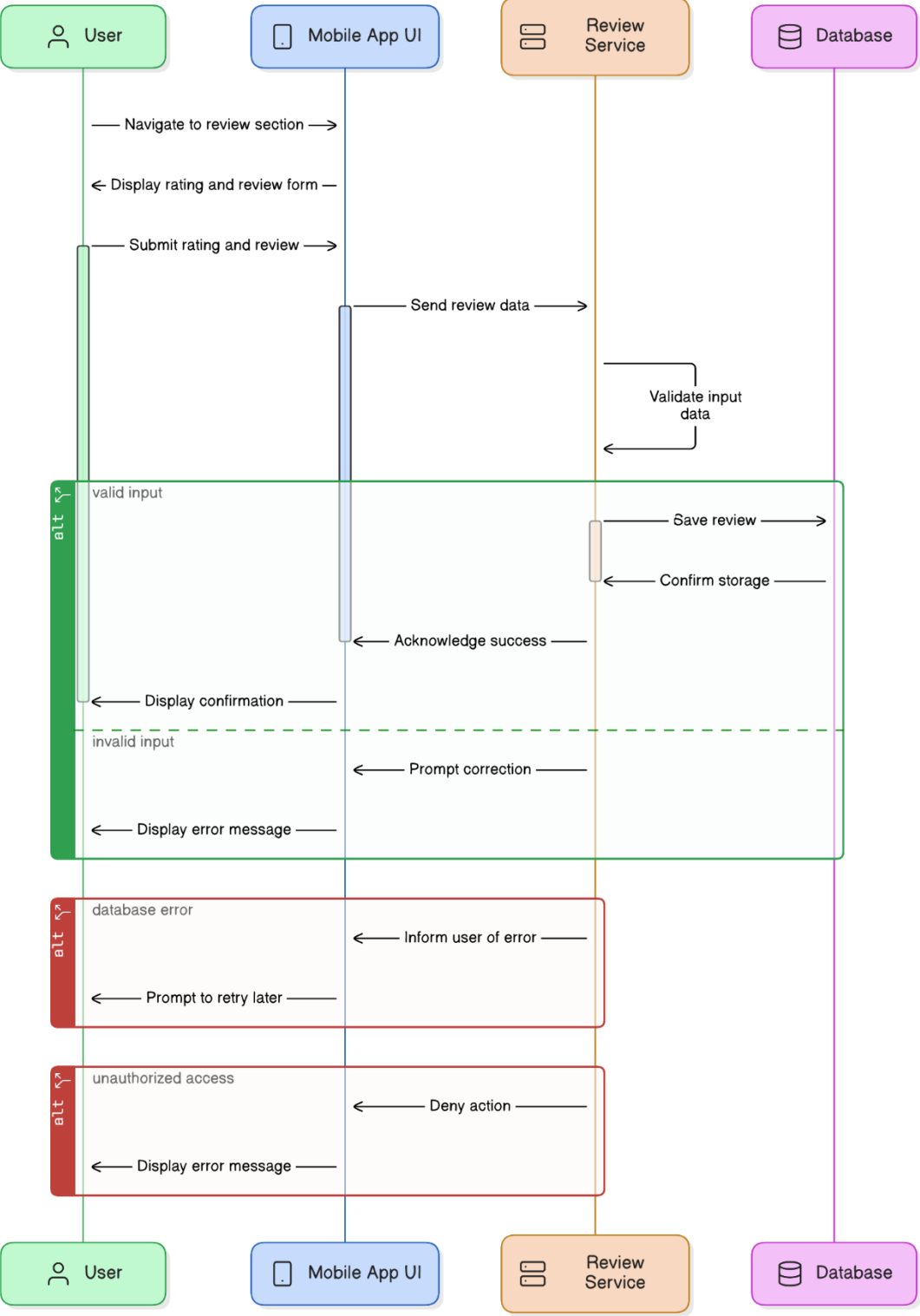


Figure 3.13: Sequence Diagram for Rate and Review

Manage Own Post

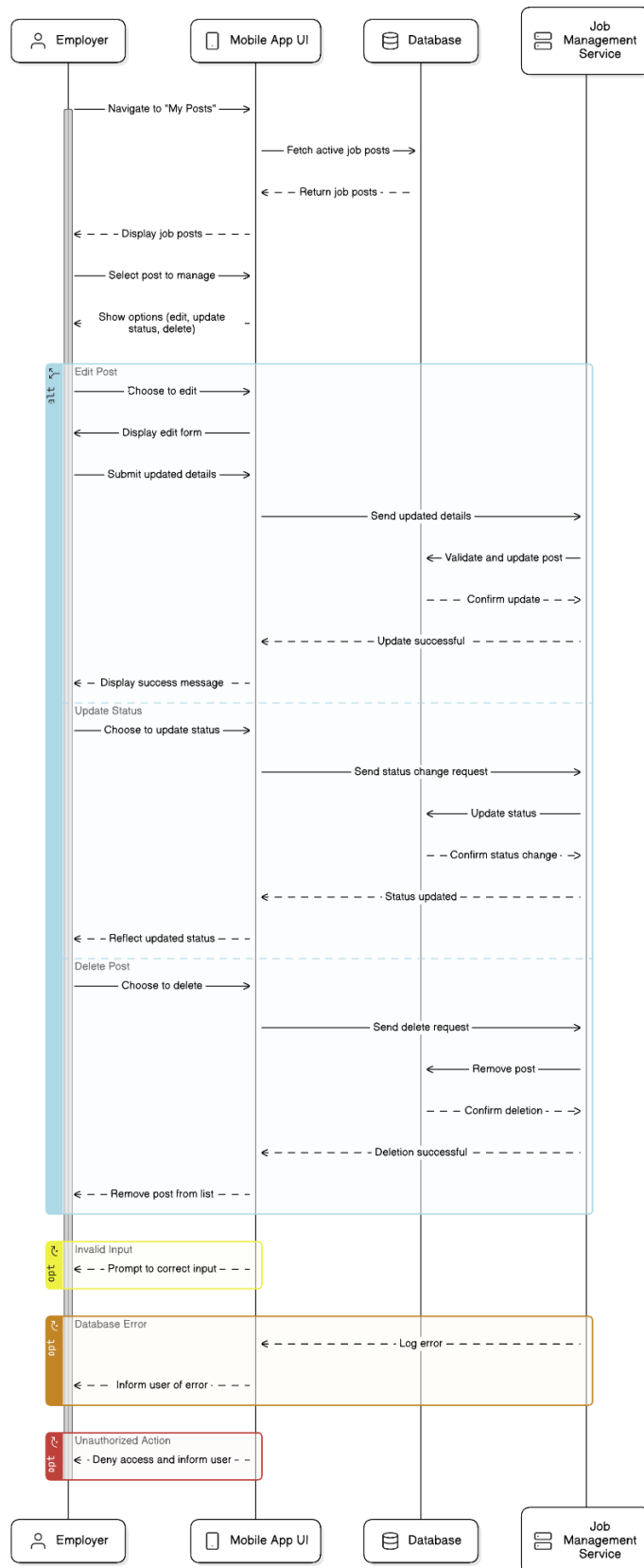


Figure 3.14: Sequence Diagram for Manage Post

Manage Jobs Applied

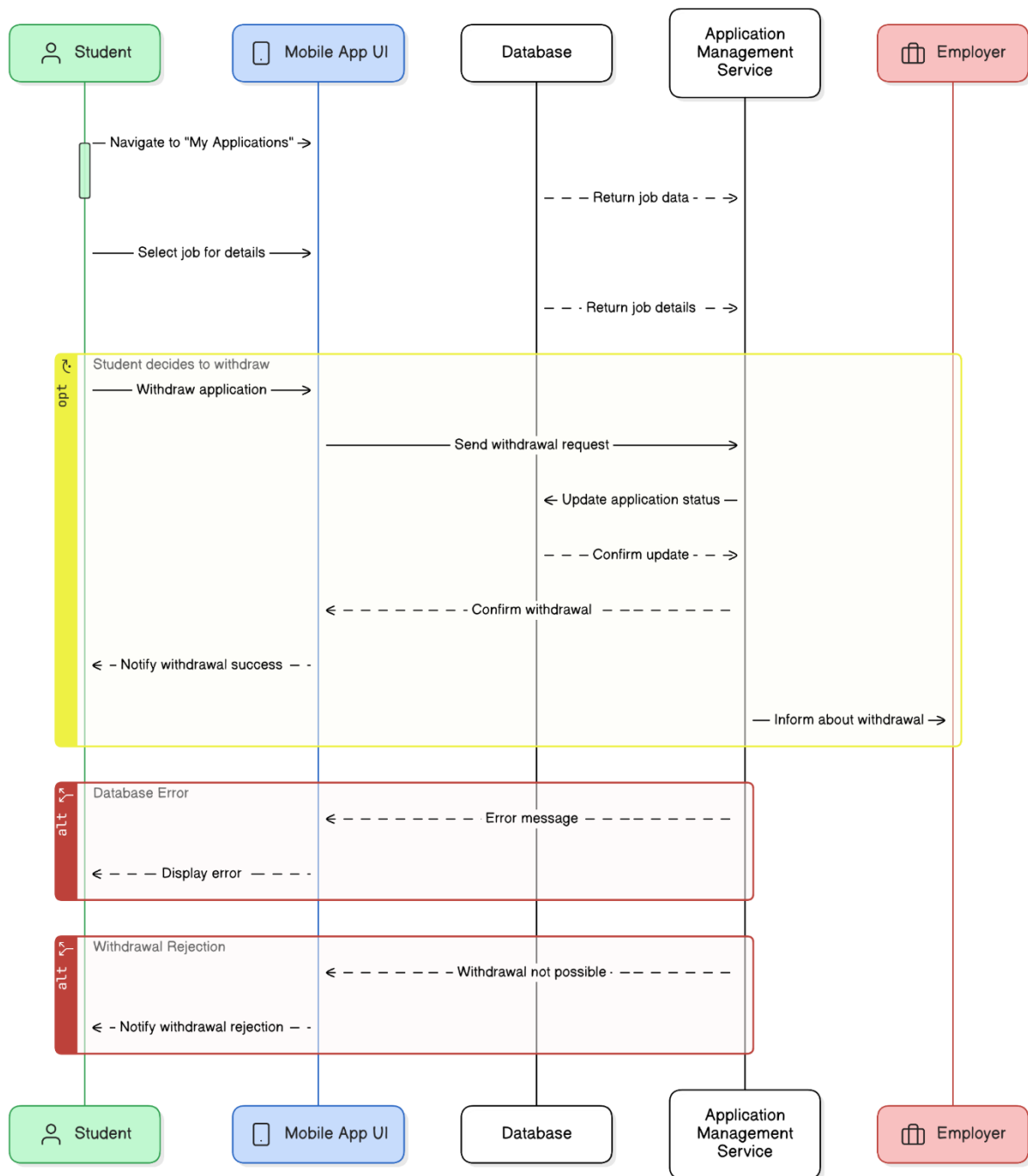


Figure 3.15: Sequence Diagram for Manage Job Applied

User Registration Process

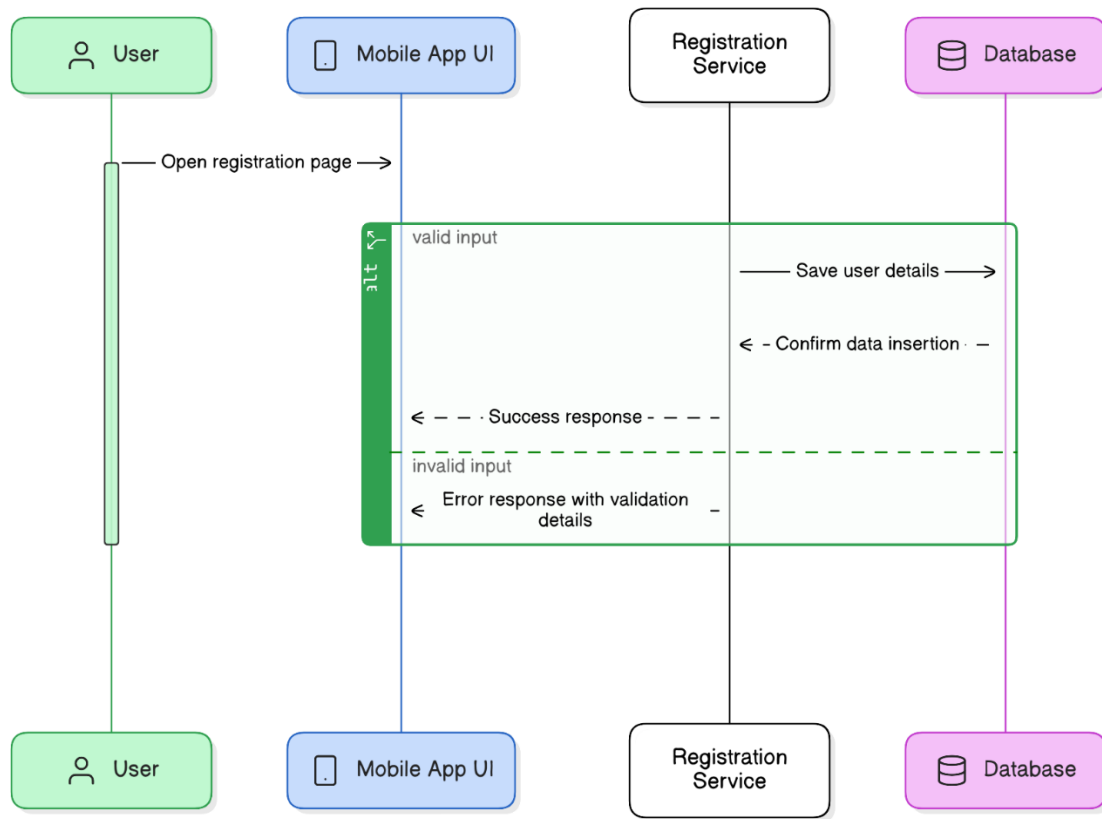


Figure 3.16: Sequence Diagram for User Registration

Calendar Management Sequence Diagram

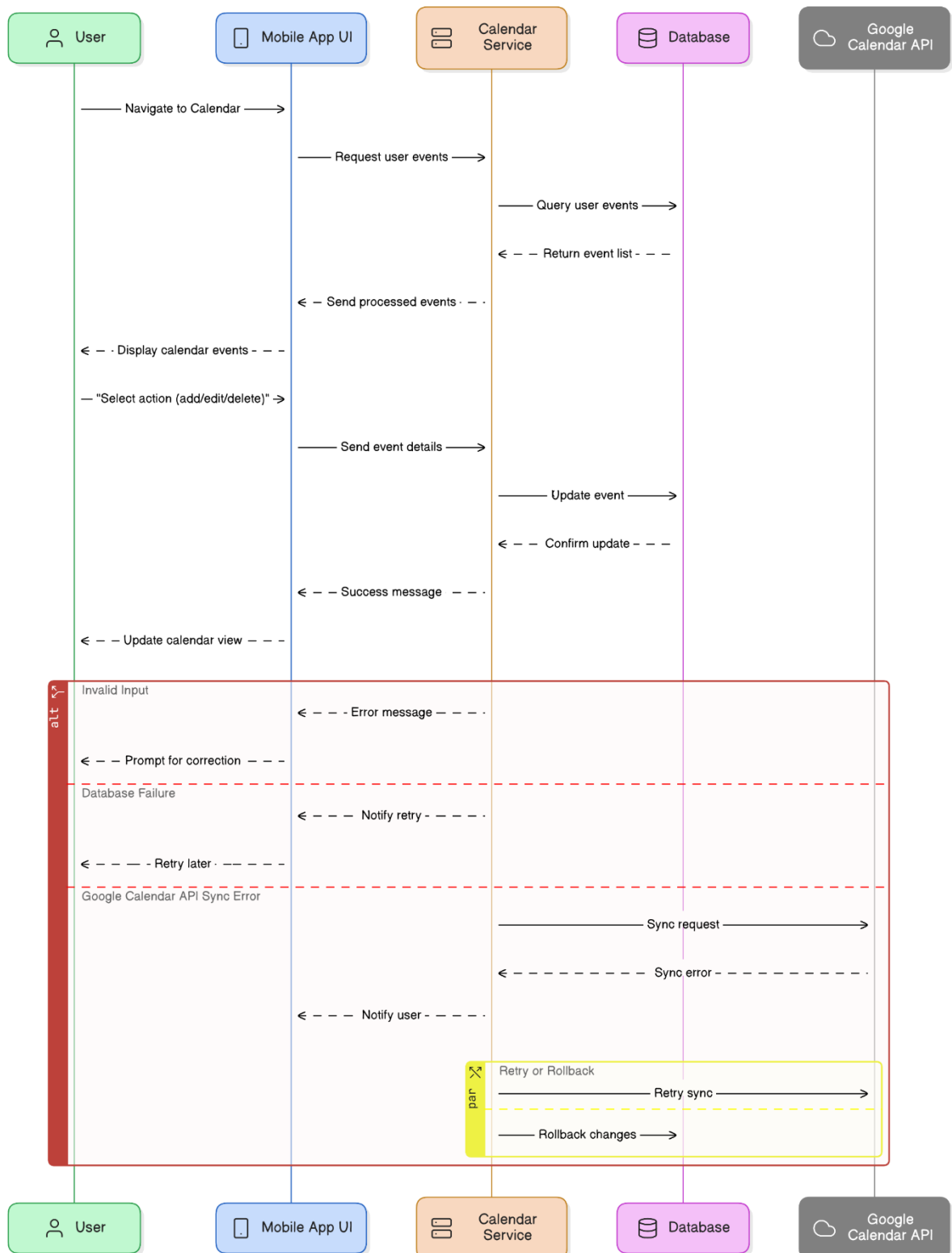


Figure 3.17: Sequence Diagram for Calendar

Resume Builder Sequence Diagram

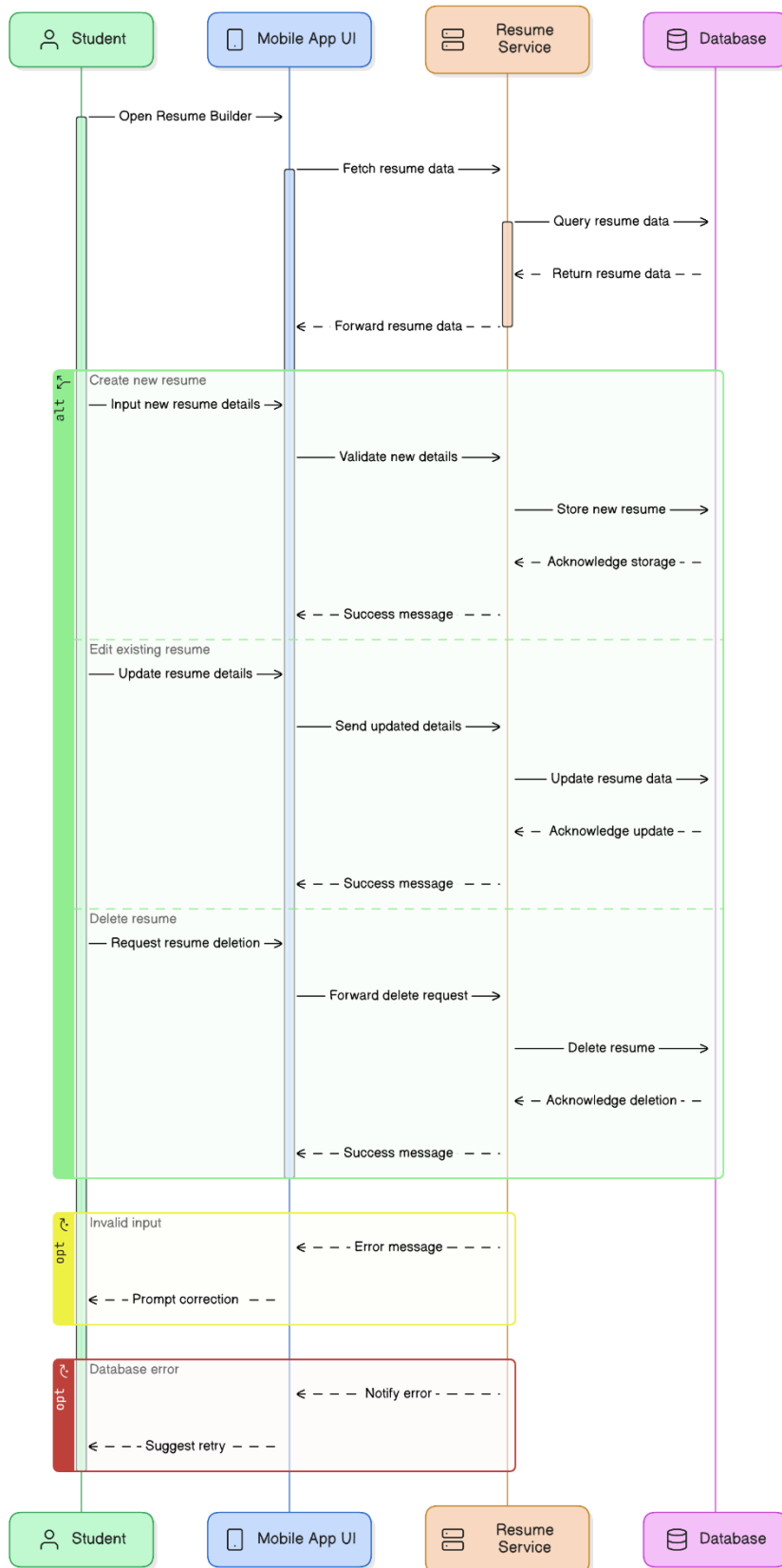


Figure 3.18: Sequence Diagram for Resume Builder

5.2.1.3 Entity Relationship Diagram

An Entity Relationship Diagram (ERD) is a visual representation that illustrates the relationships between entities within a system. It is a crucial tool in database design and systems analysis, helping to define the structure of data and the relationships among various data elements. Figure 3.19 below shows the ERD of UNIMAS JobConnect.

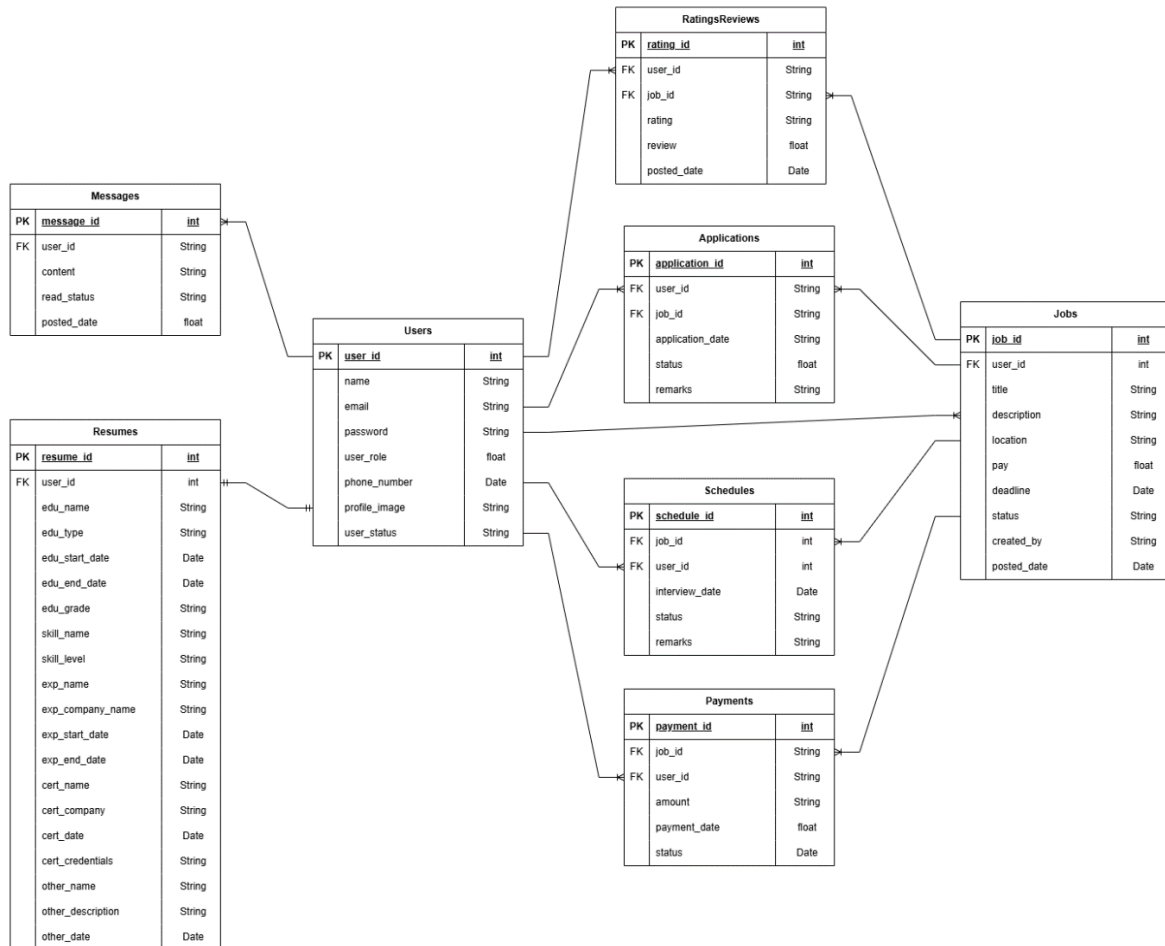


Figure 3.19: UNIMAS JobConnect ERD

5.2.1.4 Wireframe

Wireframes are visual guides that represent the skeletal framework of a digital interface, such as a website or an app. Wireframes serve as a blueprint for designers and developers to understand the user flow and ensure that all necessary components are included in the final design. In proposed system, several wireframes were included to illustrate how it works. These wireframes include the login, register, and both user dashboard (student, employee).

a) Login Page for UNIMAS JobConnect

The wireframe shows the login page for employers. At the top is the UNIMAS logo, followed by the text 'UNIMAS JobConnect' and 'Employer'. Below this are two input fields: 'UNIMAS ID' and 'Password'. A 'Login' button is positioned at the bottom center.

b) Registration page for UNIMAS JobConnect

The wireframe shows the registration page. It starts with the heading 'Create an account'. Below this is a 'User Role' dropdown menu with 'Student' selected. The form includes input fields for 'Username', 'UNIMAS ID', 'Email', 'Password', 'Confirm Password', and 'Phone Number'. A 'Login' button is located at the bottom center.

c) Student Dashboard for UNIMAS JobConnect

The wireframe shows the student dashboard. It features a top navigation bar with a search bar and a profile icon. Below the navigation bar are three tabs: 'All Job', 'Your Faculty', and 'You Might Like'. The main content area displays a list of job cards, each with a 'See Details' button. At the bottom, there is a large grey rectangular area.

d) Employer Dashboard for UNIMAS JobConnect

The wireframe shows the employer dashboard. It has a top navigation bar with a search bar and a profile icon. Below the navigation bar are two tabs: 'Active Posts' and 'Inactive Posts'. The main content area displays a list of job cards, each with a 'See Details' button. At the bottom, there is a large grey rectangular area with a blue circular button containing a white plus sign.

5.3 Summary

The chapter provides a detailed explanation of the proposed system's methodology, which will be developed using the waterfall model. This section covers the requirement analysis and system design, detailing the essential requirements for the system. This chapter also briefly describe implementation, testing and maintenance phase which will be cover in the next chapter. Furthermore, the chapter elucidates various diagrams, including system architecture, flowcharts, use case diagrams, wireframes, and sequence diagram.

CHAPTER 4: IMPLEMENTATION

5.4 Introduction

The whole implementation of UNIMAS JobConnect will be explained in this Chapter 4. This chapter will cover the system configuration used to develop the system. All the interfaces of this system also showed in this chapter using the suitable tools and programming languages that been chosen.

5.5 System Configuration

Software like Android Studio was used to develop the system. As for programming language, Dart programming language was chosen with Flutter as UI framework. To emulate and test the system, an android phone was used. Moreover, platform like Firebase was used to provide backed services to the system. Below shows the backed services used to develop the system:

5.5.1 Database

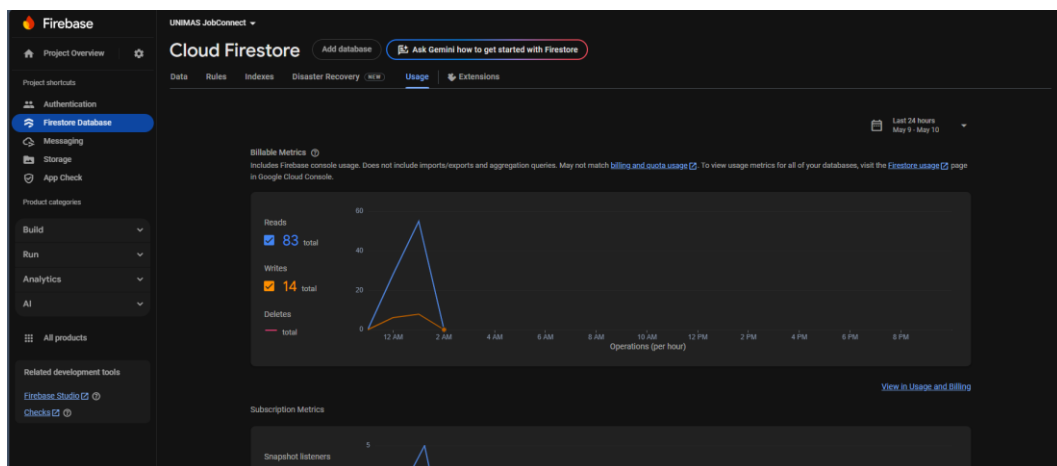


Figure 4.1 Firebase Cloud Firestore

Firebase Firestore Cloud is one of backed service that provided by the Firebase. It is a NoSQL cloud database which offer flexible data model which can store data in documents organized into collections. It also can sync data across device instantly and allow apps to read and write data even when offline. In UNIMAS JobConnect, Firestore was used to store data such as users' profile, messages, job posts, job application, ratings and reviews.

5.5.2 Authentication

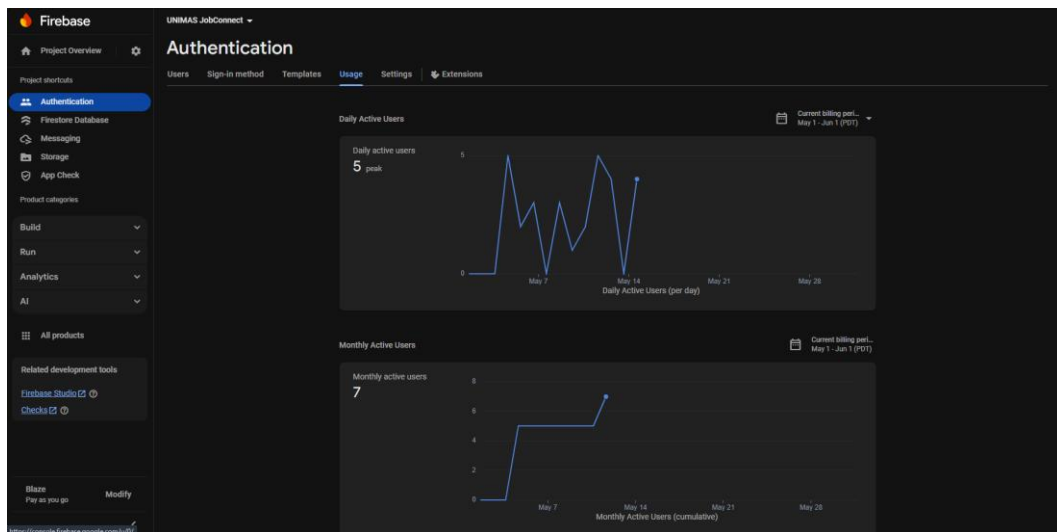


Figure 4.2: Firebase Authentication

Firebase Authentication is a service from Firebase that makes it easier to handle user authentication for apps. It supports various authentication methods, including email and password, phone number authentication, and third-party providers like Google, Facebook, and Twitter. It also provides SDKs for web, Android, and iOS, making authentication setup quick and easy. Firebase Authentication offers APIs for user sign-up, sign-in, password resets, and profile updates. UNIMAS JobConnect use Firebase Authenticator to verify user that register to the app.

5.5.3 Messaging

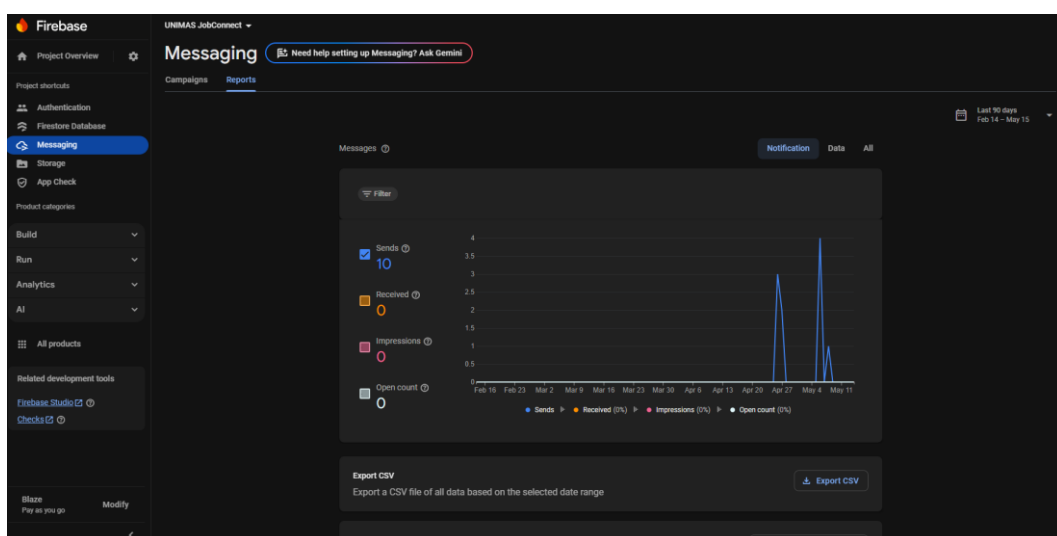


Figure 4.3: Firebase Cloud Messaging

Firestore Cloud Messaging (FCM) is a powerful service from Firebase that enables apps to send notifications and messages to users across multiple platforms, including Android, iOS, and web. It's widely used for real-time messaging, alerts, and push notifications.

5.5.4 Storage

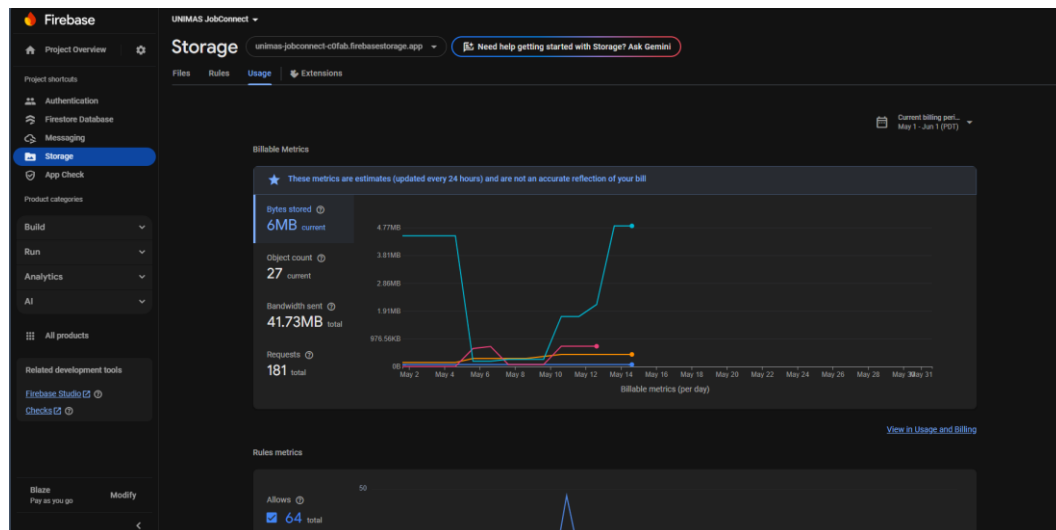


Figure 4.4: Firebase Storage

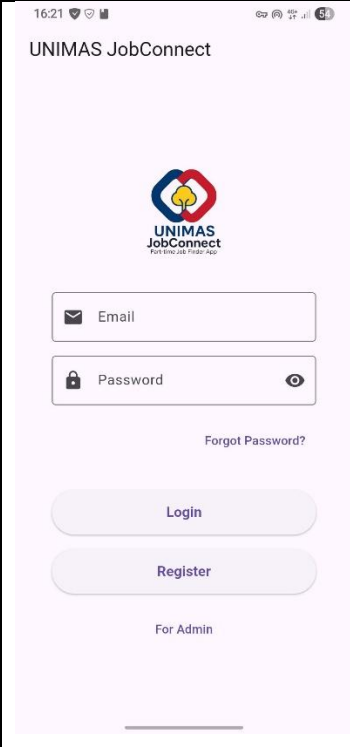
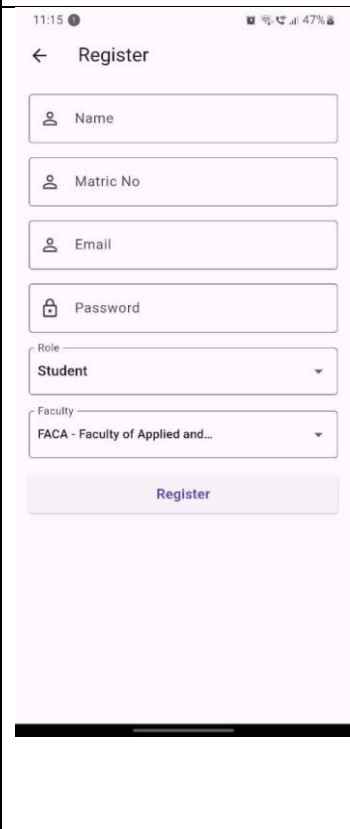
Firebase Storage is a cloud-based solution from Firebase that allows developers to store and serve user-generated content like images, videos, and documents securely and efficiently. It integrates seamlessly with other Firebase services, making it a popular choice for mobile and web applications. UNIMAS JobConnect utilized this tools by storing images such as profile picture, image sent at message or poster that uploaded at the job post.

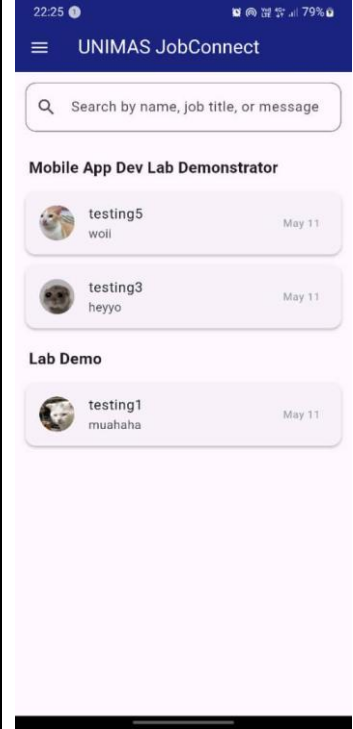
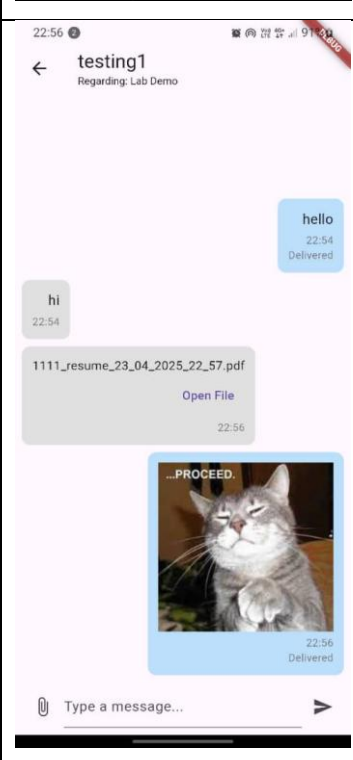
5.6 Implementation of the purposed system

The proposed system named UNIMAS JobConnect aims to enable campus organization to post part-time job opportunities and freelance project and also allow UNIMAS students to search, view, and apply for these opportunities through the app by helping students quickly find and apply for position that match their skills and interest.

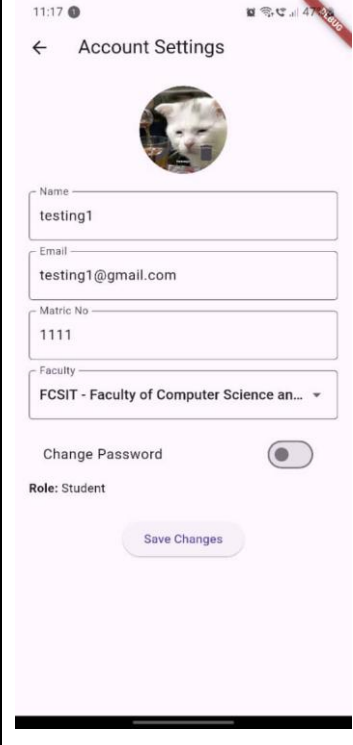
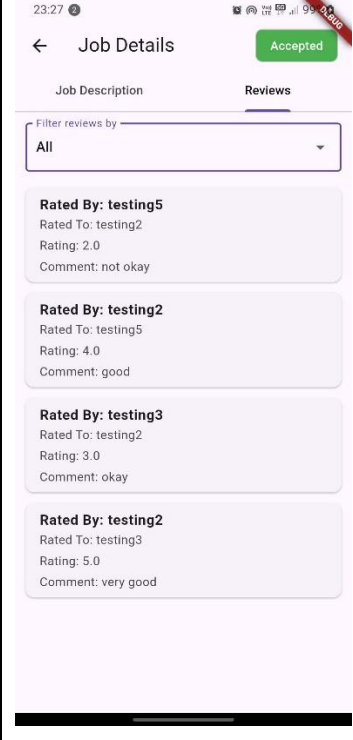
Table 4.1: Page for both student and employer

Page	Page name	Explanation
------	-----------	-------------

	Login Page	This login page serves both students and employers. It verifies whether the user's account exists in the database. If the account is unavailable or the email and password are entered incorrectly, an appropriate error message will be displayed. Once authentication is successful, the user will be redirected to their respective homepage—either the Student Homepage or the Employer Homepage—based on their role
	Register Page	This registration page is designed for both students and employers. To log in, users must first register an account. They are required to complete all necessary information before they can click the registration button. Additionally, users must use a UNIMAS email to proceed with registration. If any requirement is not met, an appropriate error message will be displayed. Upon clicking the registration button, a verification link will be sent to their email. Once their account is verified, they will be able to log in to the system.

	Message	This page displays incoming messages from student or employer. When user click one of the messages, it redirects user to conversation page. Since message was created based on job, the messages are group by job to make user understand what the message about. There is also a search bar which allow user to search by name, job title and message.
	Conversation	This page display conversation between sender and receiver once user click on one of the messages in message page. This page allow user to upload files like image and documents.

	Calendar	This page display calendar. This page also displays indicator for today date and any upcoming activity.
	Activity	This page displays any upcoming activity such as interview or when the student starts their freelance job once they get accepted by the employer.

	Account Settings	This account setting page help user to change their account name, email, matric number, faculty, password and their profile picture.
	Job review tab (Job Details page)	This tab display rating and comment made by both student and employer. There is filter which allow user to filter the comment and rating based on role (Student and Employer).

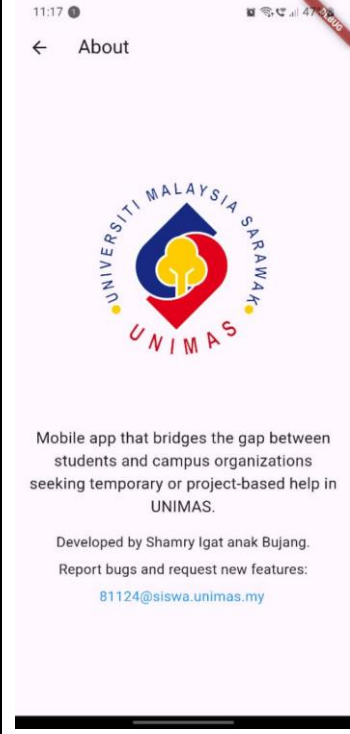
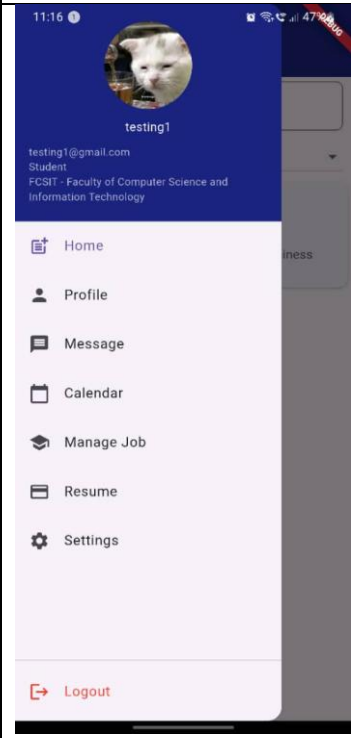
	About	This page briefly describes what this system does. This page also leaves the developer email to help user report any bugs and request new features
---	-------	--

Table 4.2: Page for student

Page	Page name	Explanation
	Student Homepage	This is the Student Homepage, accessible only to users with the student role. It displays available job listings that the student has not yet applied for. The page includes a filter that sorts jobs based on the faculty of the employer who posted them. Additionally, a search bar allows users to search for jobs by title, employer, faculty, and location. Once user click on the job, it will redirect user to job detail page

	Job description tab (Job Details page)	this is job detail page, there are two tabs in this page which are job description and review. The job description tab display information of the job that being offered. Student can apply the job through “Apply Job” button. There is also “Message” button which allow user to create a conversation based on this job. If the job applied by student accepted and the job is completed, there will be “Rate Employer” button which allow student to rate the employer for the job.
	Student Navigation Bar	This is navigation bar for student. It displays menu which allow student access page like homepage, profile, message, calendar, manage job, resume, settings. It also has logout button which allow user to logout and redirect user to login page.

	Student Profile Page	This is the Student Profile page, which displays information such as education, skills, experience, certifications, and co-curricular activities. The profile header shows the student's name, matric number, faculty, number of completed jobs, and rating. Additionally, a job history button allows users to view past jobs the student has completed. There is an add button on each tab which allows user to add data based on each tab
	History page	This page displays job that already been completed by the student.

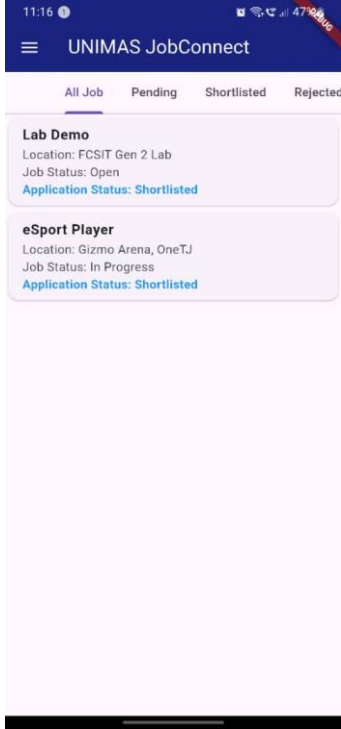
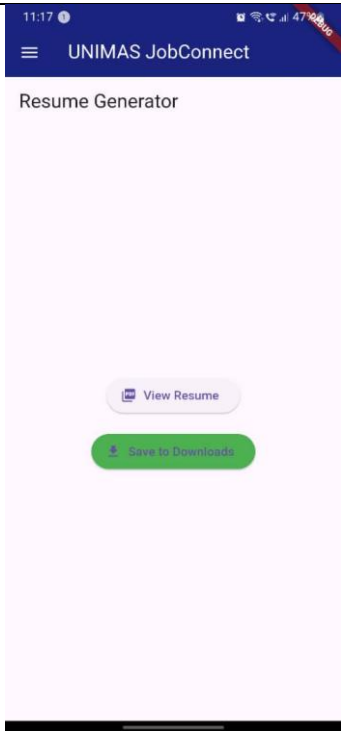
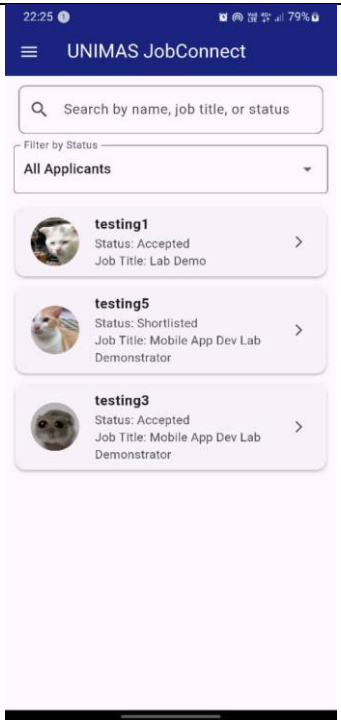
	Manage Job page	This allows student to see all job that they apply. There are few tabs such as pending, shortlisted, rejected, accepted and completed which filter out job based on the job application status.
	Resume	This page help student to generate their resume. The resume is based on the profile that the student set up in profile page. The generated resume will be saved on Downloads > resume > matric_no_resume_date_time.pdf (example: 81124_resume_23_04_2025_22_57.pdf)

Table 4.3: Page for employers

Page	Page name	Explanation
------	-----------	-------------

	Homepage	This page display all job that created by this user only. There are 3 tab which are active tab where it display posts can be seen and interacted by student. Inactive tab display post that closed for job application and also indicate that the job is being in progress. Completed tab display job that already done. There is button add at the bottom right to create new post
	Manage Applicant	This page display list of student that applied to all the job in active and inactive post. There are filter and search bar that help user search and filter out the applicant

	Profile	This page display information of the employer. The posts tab display all the job that posted by this employer. The edit about button allow employer to edit their profile's information
	Applicant Profile	This page display information of applicant that apply for the job which allow employer to carefully choose which candidate is best for the job they post. The button on the left at the header allow employer to change the status of student that apply the job to pending, shortlisted, rejected, accepted. The button on the right allow employer to send message to the student regarding the job.

5.7 Summary

This chapter explain the overall implementation and development process of UNIMAS JobConnect. The configuration are described in detail to ensure the documentation is accurate and fits the purpose of the proposed mobile application. The system is explained according to its functionality based on the role of the user. The walkthrough is done step by step for better understanding.

CHAPTER 5: TESTING

5.8 Introduction

This chapter focuses on testing the UNIMAS JobConnect app, which represents a crucial phase in the System Development Life Cycle (SDLC). It ensures that the functional requirements and objectives of the app are met by conducting both functional and non-functional testing. All tests are carried out on a real Android device to simulate actual user conditions. Detailed test cases are documented to verify that every app function operates correctly before its public release.

5.9 Functional Testing

Functional testing provides the feedback, confirmation, and motivation that a quality assurance team needs to develop a successful software product. It is typically conducted before usability testing to ensure valid feedback from testers using the application.

5.9.1 Test Case

A test case is a set of conditions or variables that a tester evaluates to ensure the system functions correctly and meets user requirements, producing the most suitable output. Developing test cases during the testing phase is crucial for validating functionality and design in the prototype before its public release.

Table 5.1: Test case for Registration Page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	User registration				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Register	User not registered	Fill in student/ employer name, matric no, email, password, role, faculty. Then click on “Register” button to register. A link will be sent to the email for verification. Click on the	User successfully registered	Pass

			link to finish the registration.		
		User not registered	Enter matric no or email that already registered.	User fail to register	Pass

Table 5.2: Test case for Login Page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Login Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Login	User not yet registered	Enter unregistered email and password. Then, click Login button.	User failed to login	Pass
		User already registered	Enter registered email and password. Then click login button.	User successfully login	Pass

Table 5.3: Test case for Student Home Page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Student Home Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the	Student successfully	Pass

			drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	navigated to each page	
2.	Logout	User already registered	Click on drawer icon and click Logout button.	User successfully logout from the app	Pass
3.	Search	User already registered; job already available	Click on search button and type job's name, faculty or employer name	Display the job based on what the thing that the user search (job's name, faculty or employer name)	Pass
4.	Filter	User already registered; job already available	Click on filter button and choose faculty to be filtered	Display only the faculty that the user chooses at filter	Pass
5.	View post	User already registered; job already available	Click on job post	Display detail of the job post	Pass
6.	Apply job	User already registered; job already available	Click on Apply button. On confirmation dialog, Student click Apply button	Student should be able to apply the job	Pass
7.	View message	User already registered; job already available; User	Click on Message button	Student will be navigated to message page where the	Pass

		is inside Job Detail Page after clicking the job post		message will be displayed based on the job post.	
8.	View employer profile	User already registered; job already available; User is inside Job Detail Page after clicking the job post	Click on Employer name	Student will be navigated to employer profile where it displays details of the employer	Pass
9.	Cancel job application	User already registered; job already available; Job application already applied	Click Cancel Application button. Click Yes on confirmation dialog	Job Application successfully cancelled	Pass

Table 5.4: Test case for Student Profile page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Student Profile Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar,	Student successfully navigated to each pages	Pass

			Manage Job, Resume, Settings).		
2.	Add profile data	User already registered	Click add button. Fill in the form. Click on Save button.	Profile data added successfully	Pass
3.	View profile data	User already registered; profile data available	Swipe on each tab (Education, Skills, Experience, Certificate, Co-cu activities)	Student can see each of the profile data	Pass
4.	Edit profile data	User already registered; profile data available	Click on 3 dot button. Click Edit on the option to navigated to edit page. Update field on the form. Click Save button	Profile data edited successfully	Pass
5.	Delete profile data	User already registered; profile data available	Click on 3 dot button. Click Delete on the option.	Profile data deleted successfully	Pass
6.	View job history	User already registered; job already completed	Click on Job History button	Display past job that already done by the user	Pass

Table 5.5: Test case for Message Page

Project Name	UNIMAS JobConnect	Designed By	Shamry Igat anak Bujang
Module	All		
Test title	Message Page		

No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	Successfully navigated to each pages	Pass
2.	Soft delete conversation thread	User already registered; Conversation thread already created	Long press message overview. Click Delete Conversation	Conversation thread successfully soft-deleted	Pass
3.	View profile	User already registered; Conversation thread already created	Long press message overview. Click View Profile	Redirect user to Student Profile	Pass
4.	View message detail	User already registered; Conversation thread already created	Click on message overview	Display conversation thread between student and employer	Pass
5.	Send message	User already registered	Type text on text input	Successfully send text	Pass
		User already registered	Click paper clip icon at bottom left. Click on Document option. Click any document	Successfully send document	Pass

		User already registered	Click paper clip icon at bottom left. Click on Image option. Click any image from gallery	Successfully send image	Pass
6.	Soft delete message	User already registered; User already send message	Long press their own message. Click Delete on confirmation dialog	Successfully delete own message	Pass
7.	View document	User already registered; Document send by user; Document received by user	Click Open File on Document message	Successfully view the document	Pass
8.	View Image in full screen	User already registered; Image send by user; Image received by user	Click on the Image	Manage to view the image in full screen	Pass

Table 5.6: Test Case for Student Calendar Page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Student Calendar Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on	Student successfully	Pass

			each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	navigated to each pages	
2.	View Calendar	User already registered; User already receive interview invitation	View calendar tab	Student manage to see indicator at interview's date	Pass
		User already registered; Job application already accepted	View calendar tab	Student manage to see indicator at start job and end job date	Pass
3.	View Activity	User already registered; User already receive interview invitation	Swipe to Activity tab	Student manage to see interview's overview	Pass
4.		User already registered; User job application accepted	Swipe to Activity tab	Student manage to see application job with accepted status overview	Pass

Table 5.7: Test Case for Student Manage Job Page

Project Name	UNIMAS JobConnect	Designed By	Shamry Igat anak Bujang
Module	All		

Test title	Student Manage Job Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	Student successfully navigated to each pages	Pass
		User already registered; User already sending their job application; Job application status is on Pending, Shortlisted, Rejected, Accepted or Completed	Swipe on each tab	Job application (either on Pending, Shortlisted, Rejected, Accepted or Completed) is being display on each tab respectively	Pass
2.	View application	User already registered; User already sending their job application; Job application status is on Pending,	Click on the job application	Student can see the job application details	Pass

		Shortlisted, Rejected, Accepted or Completed			
3.	Cancel job application	User already registered; job already available; Job application already applied; User is inside Job Detail Page after clicking the job application	Click Cancel Application button. Click Yes on confirmation dialog	Job Application successfully cancelled	Pass
4.	View message	User already registered; job already available; User is inside Job Detail Page after clicking the job application	Click on Message button	Student will be navigated to message page where the message will be displayed based on the job post.	Pass
5.	View employer profile	User already registered; job already available; User is inside Job Detail Page after clicking the job application	Click on Employer name	Student will be navigated to employer profile where it displays details of the employer	Pass

Table 5.8: Test Case for Resume page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Student Resume Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	Student successfully navigated to each pages	Pass
2.	View resume	User already registered; User already fill in profile data	Click on View Resume Button	Student successfully view their resume based on their profile	Pass
3.	Download resume	User already registered; User already fill in profile data	Click on Save to Downloads	Student successfully download their resume	Pass

Table 5.9: Test Case for Setting Page

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				

Test title	Student Resume Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	User successfully navigated to each pages	Pass
2.	View account setting	User already registered	Click on Account to navigate to Account Setting page	User name, email, matric no, role. and faculty are displayed in the page	Pass
3.	Edit account setting	User already registered; User inside Account Setting Page	Edit the name, email, matric no, faculty and password	Successfully edit name, email, matric no, password and faculty	Pass
4.	Upload profile image	User already registered; User inside Account Setting Page	Click the pencil button on profile frame. Choose image on gallery. Customize (Resize, crop, rotate) the image. Click tick button on top right	Successfully upload the profile image	Pass

	Cancel upload profile image	User already registered; User inside Account Setting Page	Click the pencil button on profile frame. Click cross button on the top left	Failed to upload profile image	Pass
5.	Delete profile image	User already registered; User inside Account Setting Page; User already have profile image	Click on the bin on profile frame	Successfully delete the profile image	Pass
6.	View About Page	User already registered	Click on About to navigate to About Page	Successfully navigate to about page	Pass

Table 5.10: Test Case for Employer home page

Project Name	UNIMAS JobConnect			Designed By	Shamry Iगत anak Bujang
Module	All				
Test title	Employer Home Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Applicant, Settings).	User successfully navigated to each pages	Pass

		User already registered; Job already created by user	Swipe to each tab (Active, Inactive, Completed)	Active, Inactive and Complete Job is being display on respective tabs	Pass
2.	Create Job post	User already registered	Click on add button at the bottom right. Fill in the form (job title, job tags, job location, job duration, about job, image[optional], interview date and time[optional], interview type[optional], interview location[optional]). Click submit Job Post button	User successfully create job post	Pass
3.	View job post details	User already registered; Job already created by the user	Click on the job post overview	Successfully display job post details (Image [optional], Description, Tags, About, Duration, Interview Details [optional])	Pass

4.	Edit job post	User already registered; Job already created by the user; User at Job Details tab	Click on 3 dot menu at the top right. Click Edit Post option. Edit the form accordingly. Click Update button	Successfully updated the job post	Pass
5.	Delete job post	User already registered; Job already created by the user; User at Job Details tab	Click on 3 dot menu at the top right. Click Delete Post option.	Successfully delete the job post	Pass
6.	Mark job post as Inactive	User already registered; Job already created by the user; User at Job Details tab; Job post is active	Click Mark as Inactive. Click Mark as Inactive on confirmation dialog	Successfully change the job status as inactive	Pass
7.	Mark job post as Active	User already registered; Job already created by the user; User at Job Details tab; Job status inactive	Click Mark as Active. Click Mark as Active on confirmation dialog	Successfully change the job status as active	Pass
8.	Mark job post as Completed	User already registered; Job already created by the user; User at	Click Job Completed. Click Job Completed on confirmation dialog	Successfully change the job status as completed	Pass

		Job Details tab; Job status inactive			
9.	View applicant	User already registered; Job already created by the user; User at Applicant tab; Job applied by student	Click on applicant at the applicant list (Accepted Applicant, Other Applicant)	Successfully display applicant profile	Pass
10.	Change applicant status	User already registered; Job already created by the user; User at Applicant Profile page; Job applied by student	Click on the button (Pending, Shortlisted, Accepted, Rejected) at the profile header. Click Ok on the confirmation dialog	Successfully change the applicant status	Pass
11.	Message applicant	User already registered; Job already created by the user; User at Applicant Profile page; Job applied by student	Click on Message button	Employer will be navigated to message page where the message will be displayed based on the job post.	Pass
12.	Review applicant	User already registered; Job already created by the	Click on Rate button at applicant list. Give rate and comment	Successfully review applicant	Pass

		user; User at Applicants tab; Job applied by student; Job status completed	(optional). Click Submit rating button		
13.	View Review	User already registered; Job already created by the user; User at Reviews tab; Job applied by student; Job status completed; Applicant already reviewed		Rate and Comment made by Employer and Student displayed successfully	Pass

Table 5.11: Test case for Employer Profile

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Employer Profile Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the	Student successfully	Pass

			drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	navigated to each pages	
2.	Add profile data	User already registered	Click Edit about. Fill in the form. Click on Save button.	Profile data added successfully	Pass
3.	View profile data	User already registered; profile data available	Swipe on each tab (About, Posts)	Successfully display profile data	Pass
4.	Edit profile data	User already registered; profile data available	Click on Edit about. Click Edit on the option to navigated to edit page. Update field on the form. Click Save button	Profile data edited successfully	Pass
5.	View post details	User already registered; User already post job; User at Posts tab	Click on job post at the post list	Successfully display the job post details	Pass

Table 5.12: Test case for Calendar page

Project Name	UNIMAS JobConnect	Designed By	Shamry Igat anak Bujang
Module	All		
Test title	Employer Calendar Page		

No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	Successfully navigated to each pages	Pass
2.	View Calendar	User already registered; User set applicant status Shortlisted; User at Calendar tab	View calendar tab	Manage to see indicator at interview's date	Pass
		User already registered; User set applicant status Accepted; User at Calendar tab	View calendar tab	Manage to see indicator at start job and end job date	Pass
3.	View Applicant Profile	User already registered; User set applicant status Shortlisted; User at Activity tab	Click on applicant with Accepted title	Display Applicant Profile	Pass
4.		User already registered; User set applicant status Accepted;	Click on applicant with Interview title	Display Applicant Profile	Pass

		User at Activity tab			
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Table 5.13: Test case for employer manage applicant

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Employer Manage Applicant Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Navigation	User already registered	Click on drawer icon and click on each option on the drawer (Home, Profile, Message, Calendar, Manage Job, Resume, Settings).	Successfully navigated to each pages	Pass
	Filter Applicant	User already registered; Job status is not completed (Active or Inactive); Student applied for job post by the user	Click on filter. Choose option the filter (All Applicant, Pending, Shortlisted, Rejected, Accepted)	Applicant (either on All Applicant, Pending, Shortlisted, Rejected or Accepted) is being display on each filter respectively	Pass

2.	View Applicant Profile	User already registered; Job status is not completed (Active or Inactive); Student applied for job post by the user	Click on the applicant at applicant list	Successfully display applicant profile	Pass
3.	Change applicant status	User already registered; Job status is not completed (Active or Inactive); Student applied for job post by the user; User at Applicant Profile	Click on the button (Pending, Shortlisted, Accepted, Rejected) at the profile header. Click Ok on the confirmation dialog	Successfully change the applicant status	Pass
4.	View message	User already registered; Job status is not completed (Active or Inactive); Student applied for job post by the user; User at Applicant Profile	Click on Message button	Navigated to message page where the message will be displayed based on the job post.	Pass

5.3 Non-functioning Testing

Non-functional testing is equally important as functional testing. While functional testing evaluates the system's capabilities and operations, non-functional testing focuses more on the system's readiness, including performance, security, scalability, and reliability. It ensures the

system can handle expected loads, maintain stability under varying conditions, and provide a seamless user experience.

5.3.1 User Testing

User testing plays a crucial role in the development of UNIMAS JobConnect, ensuring that the product meets real user needs and functions effectively. To conduct user testing, a survey was administered using a Google Forms questionnaire designed to gather feedback on users' experiences after testing the mobile app. The survey results will be analysed and further explained. The sample questionnaire and responses can be found in the Appendix.

The questionnaire was distributed through social media platforms such as WhatsApp and Telegram. There were two versions of the survey: one for users in the student role and another for those in the employer role. Each version contained distinct questions tailored to their respective experiences, as both Students and Employers interact with different interfaces and functionalities within the app. A total of 43 respondents participated in the survey, with 34 identifying as Students and 9 as Employers. All participants used the Android platform, as the app's development was limited to Android devices. The questionnaire followed a Likert scale format, where 1 represented "strongly disagree", and 5 indicated "strongly agree" in response to each statement.

5.3.1.1 Student version

21 student respondents tested the UNIMAS JobConnect application. They navigated some of the pages and functionalities on the student side of the system. Some of the most critical pages that they tested include the home page, profile page, messaging page, calendar page, manage applicant page, and settings page. The results of the survey after testing the pages and functionalities of the system are given below:

5.3.1.1.1 Usability testing

The app is easy to navigate

21 responses

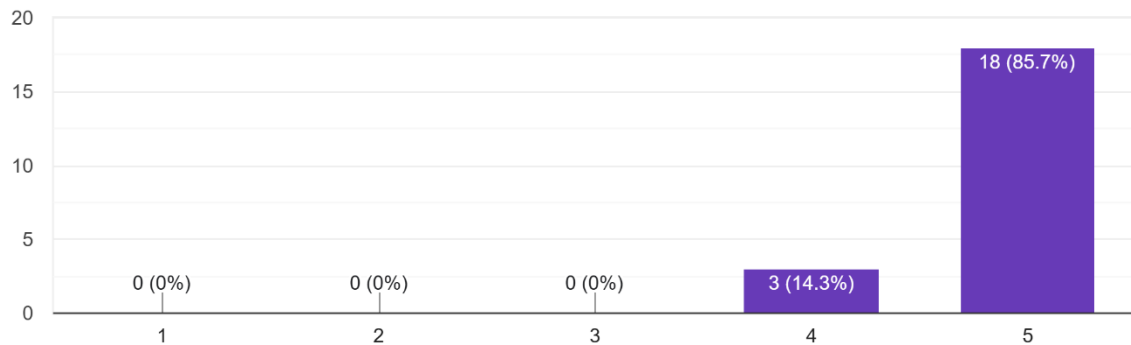


Figure 5.1: Students' feedback on "The app is easy to navigate"

The results of the usability test, represented in Figure 5.1 indicate very positive user experience with navigating the application. 85.7%, or 18 out of 21 participants, selected 5, indicating strong agreement that the interface is easy to use. Another 14.3% (3 users) had it as a 4, indicating very small areas for improvement but overall a perfectly working experience. Notably, no ratings were provided in the lower scores (1–3), which highlights the fact that there are no significant navigation issues. These results indicate that usability of the app is well promoted in design but feedback on the user's response who never provided a perfect rating could give some small things to fine-tune.

The user interface was visually appealing and consistent

21 responses

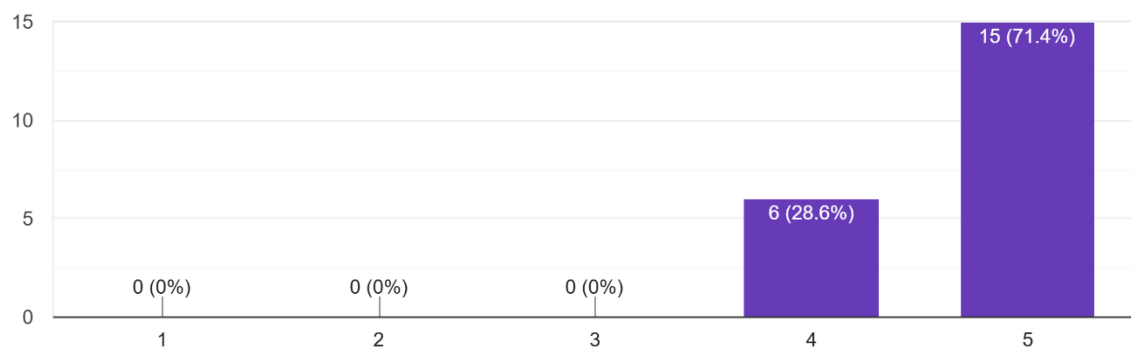


Figure 5.2: Students' feedback on "The user interface was visually appealing and consistent"

Figure 5.2 shows overwhelming positive sentiment on the statement "The user interface was visually appealing and consistent". None of 21 gave a negative rating or 1, 2, and 3 neutral zero votes were counted. Conversely, 6 participants (28.6%) offered a grade of 4, while an overwhelming majority of 15 participants (71.4%) offered the highest possible grade of 5. This division indicates high user contentment with the look and consistency of the interface and is suggesting that it exceeded or at least met expectations in readability, design harmony, and total user experience.

The layout, button, label and icons were clear and understandable

21 responses

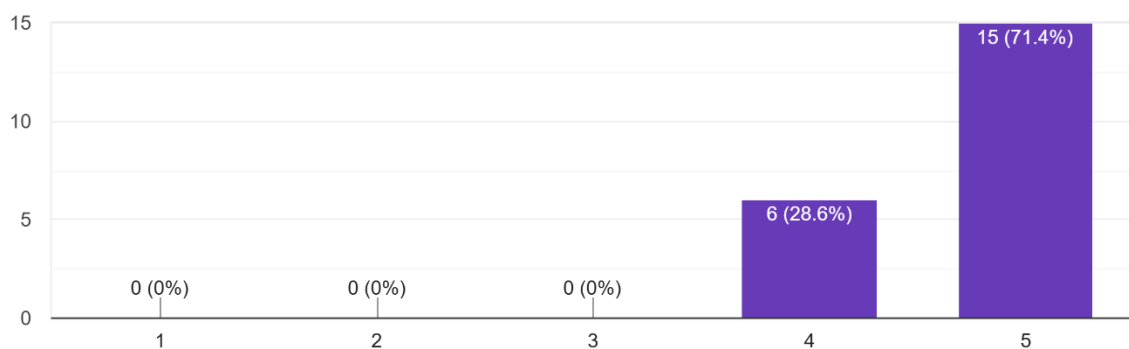


Figure 5.3: Students' feedback on "The layout, button, label and icons were clear and understandable"

The Figure 5.3 shows very strong ratings for how clear the understanding of the icons, labels, buttons, and layout of a user interface is. 21 users rated their experience as 71.4% 5—the top rating—and the other 28.6% as 4. Importantly, no ratings of less than 3 were given, showing that there was a very high degree of consensus amongst users about how easy and intuitive the interface was to use. This would entail not only being able to make good design choices, but also ensuring that these are user-friendly and likely lead to a frustration-free and smooth experience. The same rate may be the result of careful usability testing or adherence to effective levels of design standards.

I did not experience any confusion or difficulty while using the app
21 responses

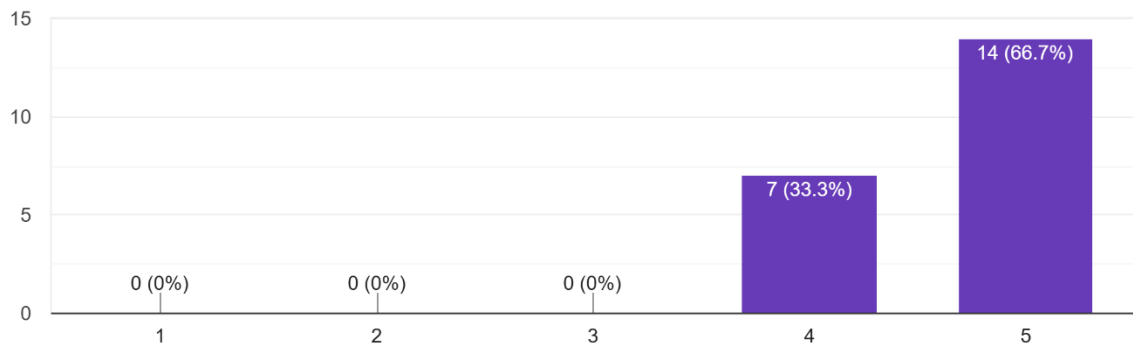


Figure 5.4: Students' feedback on "I did not experience any confusion or difficulty while using the app"

Figure 5.4 illustrates user comments regarding their experience with an app, with emphasis on simplicity and clarity. None of the participants of 21 reported low satisfaction—returns of ratings of 1, 2, and 3 were zero. Instead, 33.3% of users had given their experience a rating of 4, and a big 66.7% gave the highest rating of 5. The 100% positive feedback rate is a good sign that the app is very user-friendly, its users encountering minimal confusion when using the app. The figures rather point to strong UX design and an easy interface that validates users' expectations.

5.3.1.1.2 Performance Testing

The app launched quickly when loaded
21 responses

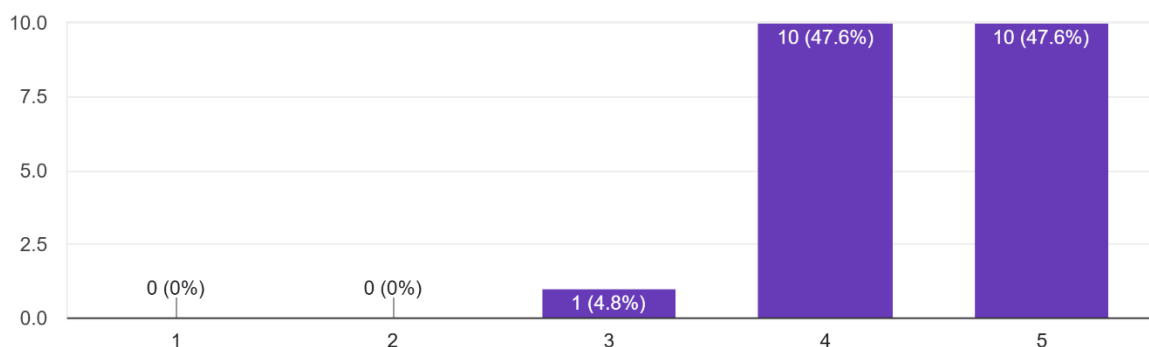


Figure 5.5: Students' feedback on "The app launched quickly when loaded"

Figure 5.5 titled "The app launched quickly when loaded" assesses satisfaction on a scale of 21 reviews, ranging from 1 (strongly disagree) to 5 (strongly agree). Notice that nobody rated at

1 or 2, illustrating a strong baseline of agreement. There was a tiny minority (4.8%) who gave the launch speed a rating of 3 (average), but the vast majority had a good experience—47.6% went with 4, and 47.6% went with a perfect 5. This virtual tie in high scores informs us that while the app is not always able to give a perfect experience to every person, it is humming along nicely for almost everybody. Overall, the measures are very high for user satisfaction with responsiveness of the app and for low start-up friction.

There was no noticeable delay while searching, chatting, uploading image/document and loading profile

21 responses

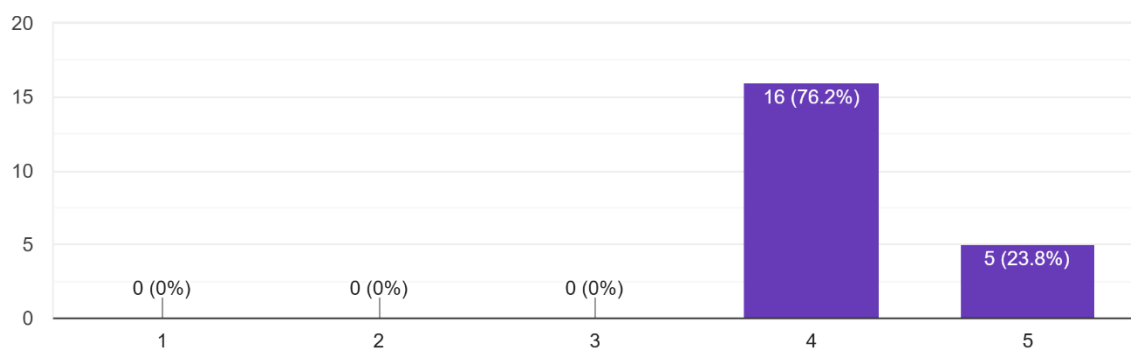


Figure 5.6: Students' feedback on "There was no noticeable delay while searching, chatting, uploading image/document and loading profile"

Figure 5.6 shows user reaction to system response, i.e., delay in performing activities such as searching, chatting, file uploading, and loading a profile. The findings are highly promising: 76.2% of the participants utilized rating 4, indicating high agreement of no perceivable delay, and the remaining 23.8% utilized the highest rating of 5, indicating high agreement. Notably, category 1 to 3 all received zero ratings, which indicate that no users experienced significant issues or neutral attitudes. The absence of the lower ratings also indicates that the system had met or surpassed the user expectation in terms of performance and responsiveness. Generally, the graph shows an extremely high level of user consensus that the application functions well without frustration or slowness in the key tasks.

The app remained responsive when switching between features

21 responses

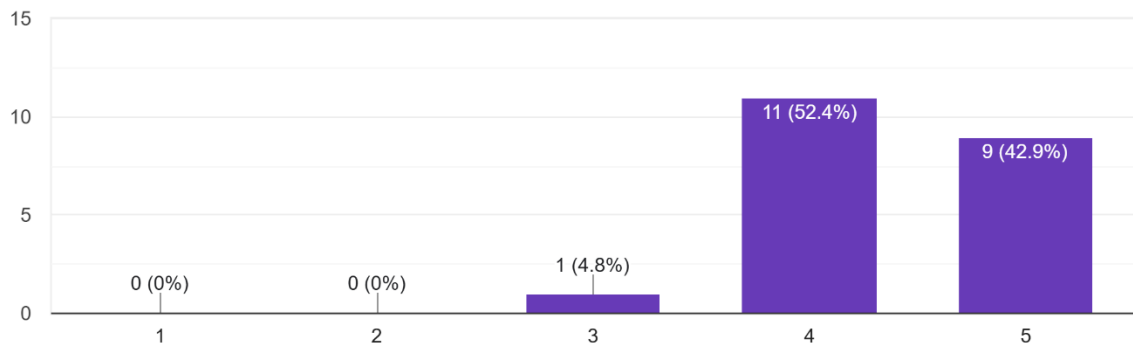


Figure 5.7: Students' feedback on "The app remained responsive when switching between features"

Figure 5.7 indicates user perception of the responsiveness of the application in switching between features based on 21 responses. The figures reflect heavily in the positive opinion: 52.4% gave a 4, and another 42.9% gave it a 5. Only one (4.8%) gave it a neutral mark of 3, and there were no discontents at levels 1 or 2. The divide here shows that nearly all of the users would have found the app smooth and fluid when switching from feature to feature, a sign of a perfectly optimized interface. Absence of negative ratings also increases user trust in the performance and stability of the app. Overall findings are that there is high match between user experience and expectation, which is good for continued usage and satisfaction.

I did not encounter any freezing or crashing while using the app

21 responses

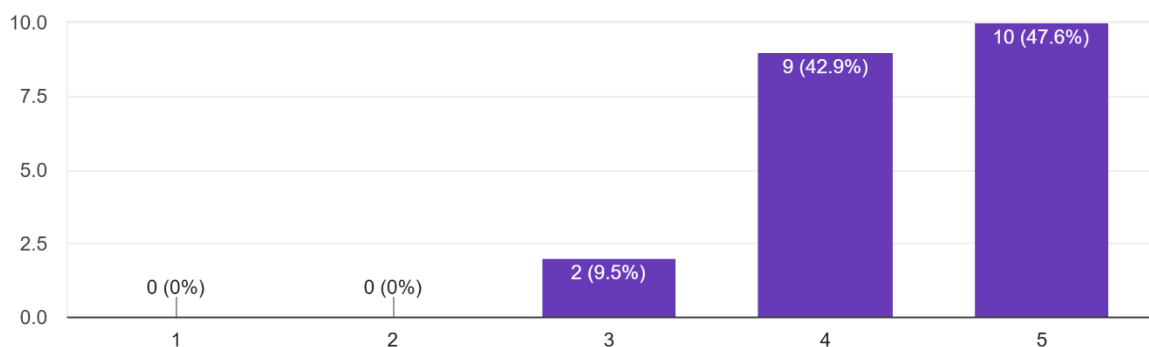


Figure 5.8: Students' feedback on "I did not encounter any freezing or crashing while using the app"

Figure 5.8 shows feedback whether the user ever did experience freezing or crashing within the app. 21 users answered that nearly all had a good experience: 47.6% strongly agreed (rating

5) and 42.9% agreed (rating 4) that they never did experience any freezing or crashing. A merger 9.5% answered with a neutral score of 3, and none gave a dissatisfied score (score of 1 or 2). Such overwhelming positive response suggests that the app guarantees stable and efficient performance, which gives the users confidence.

The search and filter function responded accurately and quickly

21 responses

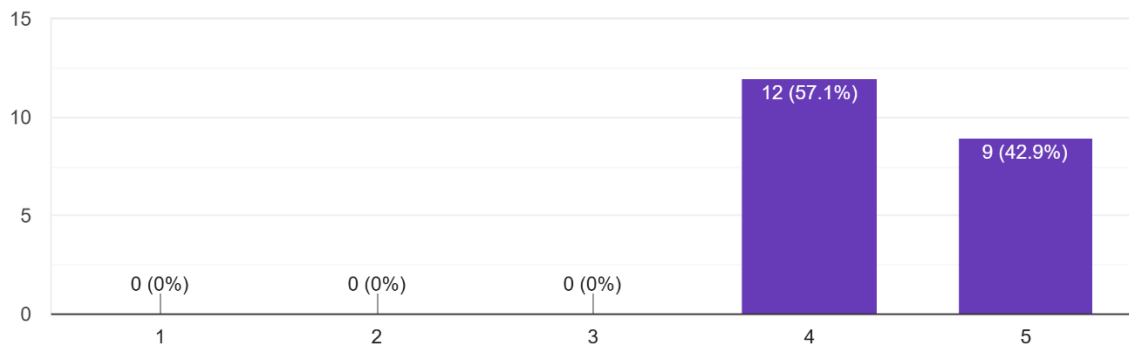


Figure 5.9: Students' feedback on "The search and filter function responded accurately and quickly"

Figure 5.9 shows user satisfaction with the search and filter function of the app, i.e., response time and accuracy. All 21 users gave positive ratings, reflecting close to unanimous agreement on the function's performance. Most of them—57.1%—rated it 4, suggesting the function was responsive and accurate but with possibly limited room for improvement. The remaining 42.9% marked it with the highest 5, representing an ideal user experience in accordance with their personal expectations. Importantly, no 1, 2, or 3 ratings were recorded, which means that all the participants did not have real problems or neutral attitudes. This general absence of dissatisfaction is reflective of a predictable and consistent user experience with the search and filtering function, further cementing its status as one of the app's strongest points in usability.

5.3.1.1.3 Reliability Testing

The registration and login process working as expected

21 responses

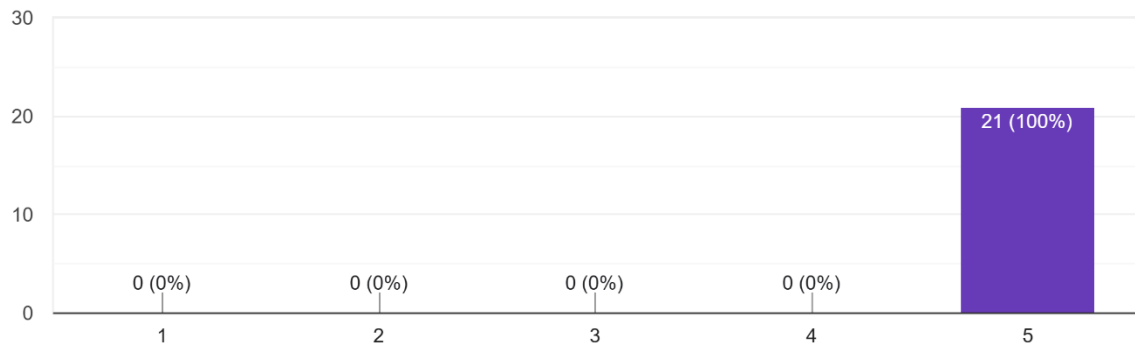


Figure 5.10: Students' feedback on "The Registration and login process working as expected"

Figure 5.10 indicates the user satisfaction with login and registration process based on 21 user marks. What is significant to mention here is that 100% of the users provided a perfect score of 5, indicating a complete agreement that the function is performing as intended. There were no ratings on the low range of 1 through 4, and this is typical of the absence of frustration, confusion, or technical constraint in account access. This one-pointed purpose turns the onboarding process into a seamless, user-friendly, and reliable one for all the survey respondents.

Student/Employer profile in this app helps student/employer understand the background of the student/employer

21 responses

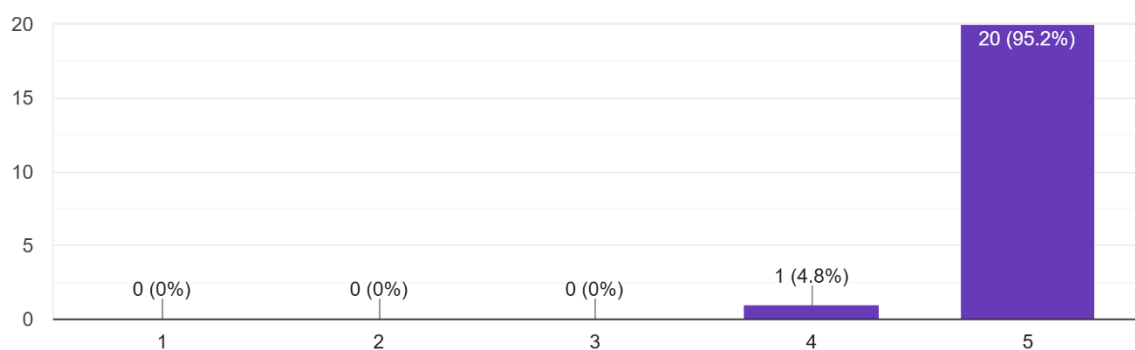


Figure 5.11: Students' feedback on "Student/Employer profile in this app helps student/employer understand the background of the student/employer"

Figure 5.11 illustrates students' perceptions of the profile feature of the app, i.e., how it enables one to understand employers' and students' backgrounds. The criticism is constructive and near-consensus: 95.2% of the participants (20 out of 21) assigned agreement at the top rating value of 5, signifying strong agreement that the profiles are helpful and informative. The remaining 4.8% gave it 4, which is also an expression of unwavering support. There were no negative or neutral feedbacks, affirming the same user experience with consistency. This degree of consistency in evaluations is an expression that the profile feature is serving as a strong transparency tool that enhances mutual understanding and possibly improved decision-making in employer-student relationships.

The filtering and searching features are useful in this app
21 responses

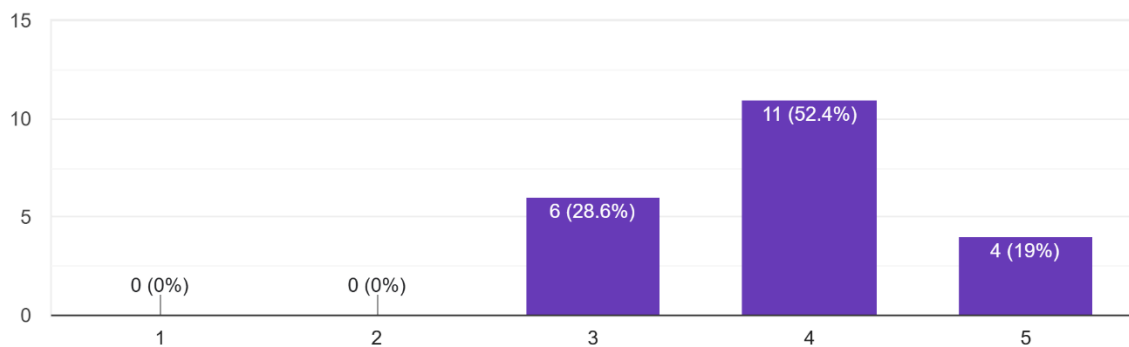


Figure 5.12: Students' feedback on "The filtering and searching features are useful in this app"

Figure 5.12 summarizes user opinion regarding the effectiveness of the app's search and filter functionality. Although overall opinion tilts positively, opinions are only marginally less uniform than elsewhere in the app. A full 52.4% of respondents rated the feature a 4, indicating satisfaction on a large scale with its functioning. Another 19% gave it the highest rating of 5, indicating a problem-free experience. But a notable 28.6% ticked it 3 on a well-balanced scale, which indicates while the tool is doing good, there can be a bit of room for improvement of precision, speed, or user interface, say some of the users. That there are no ratings of 1 or 2 suggests that the feature is not nearly as pleasing by default, but that the presence of middle-rated feedback suggests an impetus to customize to meet the needs of more users.

Student can communicate (send text, image, document) with the employer easily using messaging features

21 responses

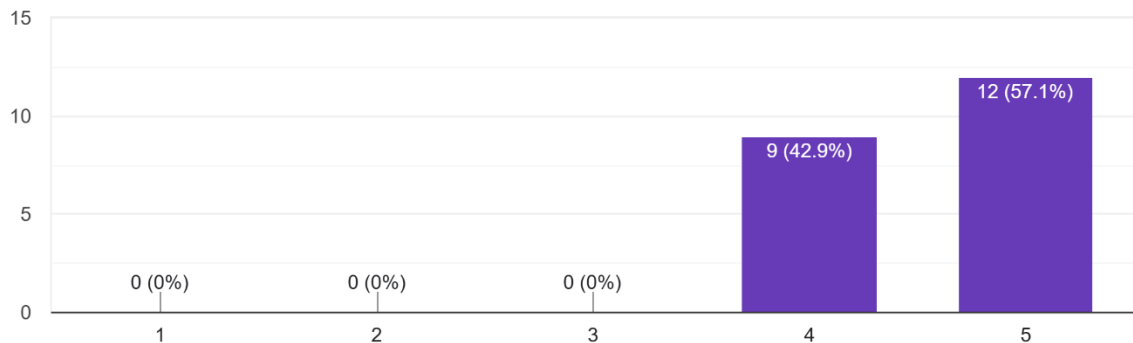


Figure 5.13: Students' feedback on "Student can communicate (send text, image, document) with the employer easily using messaging feature"

Figure 5.13 indicates user viewpoint regarding the messaging feature of the app, i.e., how convenient it is for students and employers to communicate via the feature. The result is overwhelmingly positive, with 57.1% of the respondents answering with the highest rating of 5, indicating unanimous consensus that the feature is useful. An additional 42.9% gave the rating of 4, indicating clear acceptance with perhaps little room for improvement. To everyone's surprise, never did a user leave a negative or neutral rating (1, 2, or 3) but showed all the users find the feature useful and effective. This level of concurrence reflects the messaging feature is properly integrated with no technical glitches for seamless interaction.

Managing job applied is easy when using this app

21 responses

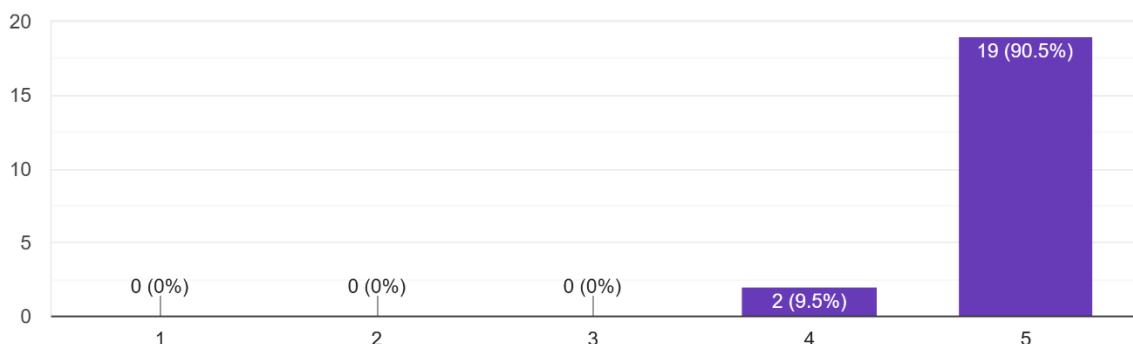


Figure 5.14: Students' feedback on "Managing job applied is easy when using this app"

Figure 5.14 is response feedback on finding ease in handling jobs applying through the app, on a 21-point response basis. The results convey extremely high satisfaction: 90.5% (19 participants) of users gave their experience 5 out of 5, meaning strong agreement that the app facilitates ease in handling jobs. The remaining 9.5% (2 participants) received 4, meaning clear agreement. Interestingly, there were no options in rankings 1 to 3, and this is a total absence of dissatisfaction or indifference. This consistency of positivity underscores that the app has an incredibly effective and intuitive experience in processing job applications.

Applying for job can be easily done when using this app

21 responses

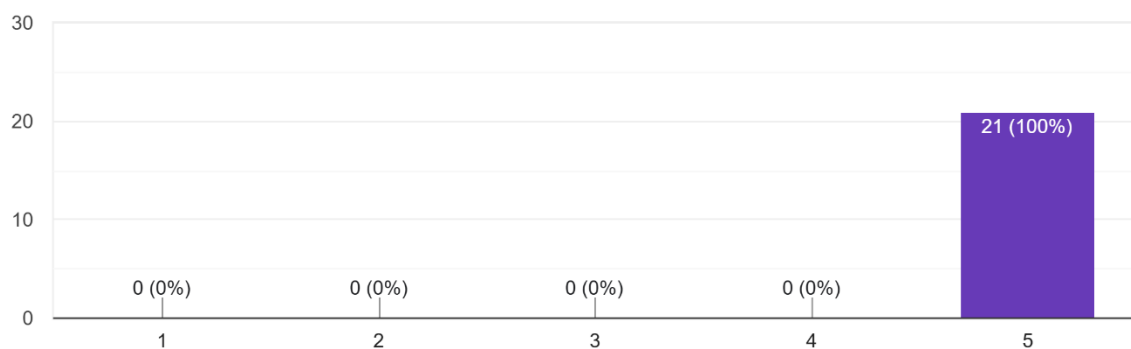


Figure 5.15: Students' feedback on "Applying for job can be easily done when using this app"

Figure 5.15 illustrates consumer reaction to how simple it is to apply for a job using the app, as per 21 responses. The findings are one and the same and positive: 21 of them rated the process highly at 5, indicating that they all very much agreed that it is easy to apply and use through the app and easy to use. This 100% compliance not only indicates high usability and natural interface but also towards the app perfectly meeting an essential user need. The fact that there is not a single rating below this indicates a well-served user process, from search through submission, heavy-weight pain point-free.

Calendar makes user easy to see any event (Interview, job start/end)

21 responses

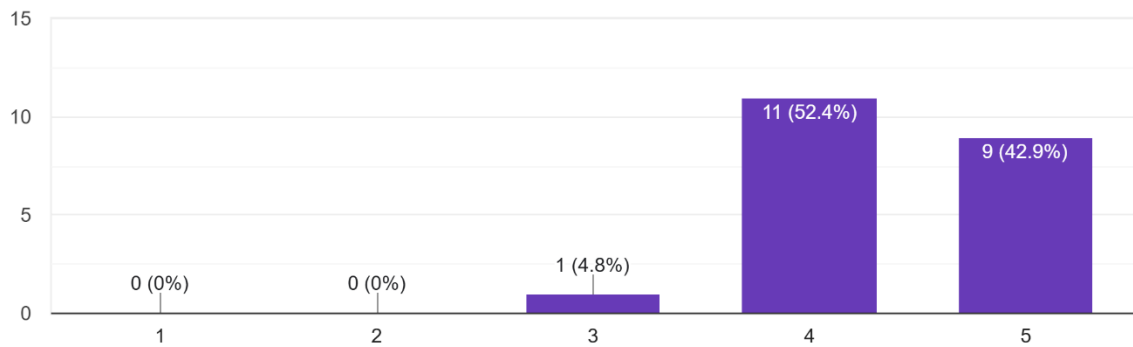


Figure 5.16: Students' feedback on "Calendar makes user easy to see any event (Interview, job start/end)"

Figure 5.16 shows user response to the app calendar feature, i.e., its effectiveness in helping users present key events such as interview and job start/end dates. Of 21 replies, by far the majority of users were extremely satisfied: 52.4% gave the calendars 4, and 42.9% gave it 5, the highest. Only a single user (4.8%) provided a neutral rating of 3, and no one responded with any negative experience (1 or 2). These figures suggest that the calendar is a commonly accepted and valuable tool in the app that manages to assist users in marking important milestones. The near-universal positive feeling mirrors that the calendar enhances clarity and organization, supporting the overall user experience. The single neutral response might suggest potential for subtle tweaking of the interface or features to further refine the tool for everyone.

The resume generator is useful features for student

21 responses

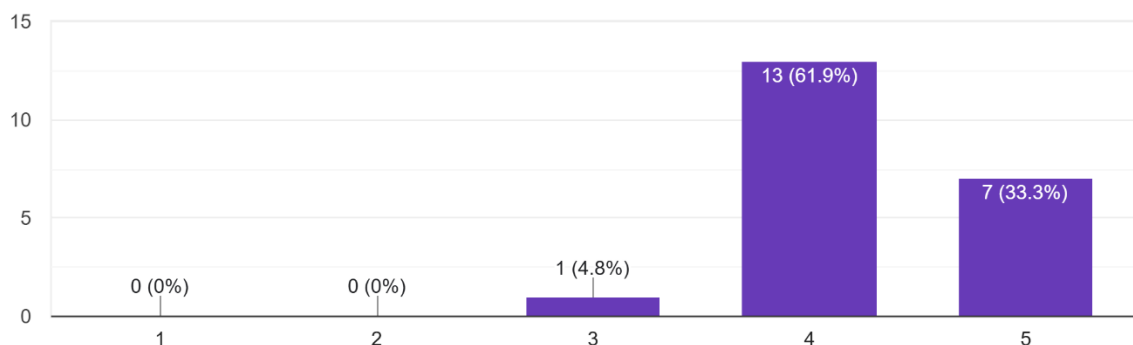


Figure 5.17: Students' feedback on "The resume generator is useful feature for student"

Figure 5.17 indicates student opinion of the usefulness of the app's resume builder feature, from 21 surveys administered to the question. Overall opinion is highly favorable: 61.9% of the students gave the feature a 4, meaning some satisfaction but not perfect, and 33.3% gave it a 5, stating that they found it extremely helpful. A single student (4.8%) gave a mid-point rating of 3, but the interesting aspect here is that no grades of 1 or 2 were given, i.e., no dislike or disapproval. The pattern that arises here is that the resume builder is perceived by students on all sides as a positive aspect, which contributes to employability preparedness by making an otherwise uninspiring exercise less dull.

5.3.1.2 Employer Version

11 users, who plays role as employer, tested the UNIMAS JobConnect app. They went through various pages and functionalities on the employer side of the system. Some of the most significant pages they tested included the home page, profile page, messaging page, calendar page, manage applicant page, and settings page. Below are the results of the survey after they tested the pages and functionalities of the system:

5.3.1.2.1 Usability Testing

The app is easy to navigate
11 responses

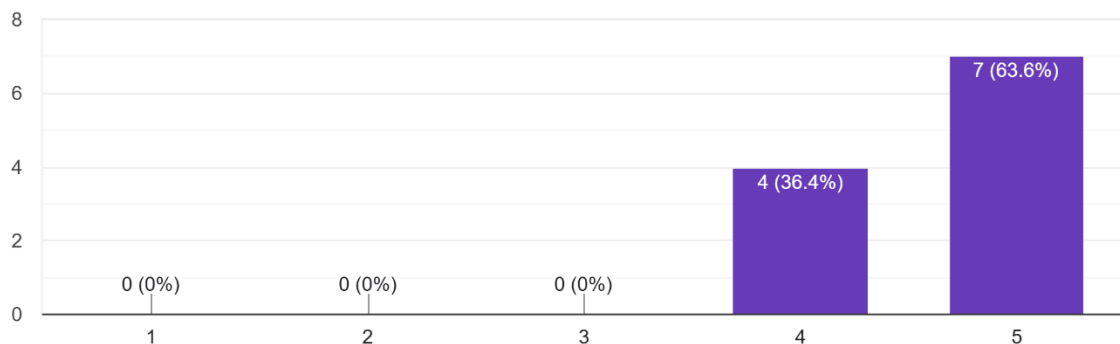


Figure 5.18: Employers' feedback on "The app is easy to navigate"

Figure 5.18 shows employer ratings of ease of use of the application, based on 11 surveys. Responses are highly positive: 63.6% of the voters gave a rating of 5 for the application, high level of agreement that the application is easy to use, and the rest of 36.4% gave a rating of 4 with clear satisfaction. There were no ratings lower than 4, reflecting a very good user experience. And therefore, the lack of negative or neutral feedback suggests intuitive design and well-designed interface making it simple to get things done. It is a sign of high-quality usability design choices that prioritize user simplicity and accessibility.

The user interface was visually appealing and consistent

11 responses

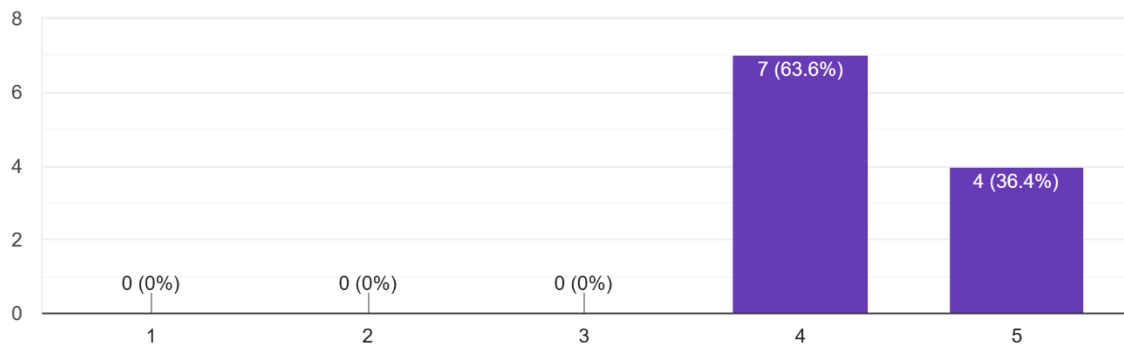


Figure 5.19: Employers' feedback on "The user interface was visually appealing and consistent"

Figure 5.19 indicates employer sentiment regarding the visual attractiveness and harmony of the app, based on 11 responses. The sentiment is largely positive: 63.6% of the users awarded the interface a 4, indicating total approval with minimal room for improvement, while the other 36.4% awarded it a 5, indicating total satisfaction. Significantly, no 1 or 2 or 3 ratings were provided to represent the absence of negative or neutral opinion. This symmetrical high-rating trend suggests that employer enjoy the visual output of the app as being pleasant and uniform across its features. The uniformity of positive responses guarantees that visual appeal is not merely for the sake of functionality but is contributing to the overall user experience, potentially leading to trust and usability.

The layout, button, label and icons were clear and understandable

11 responses

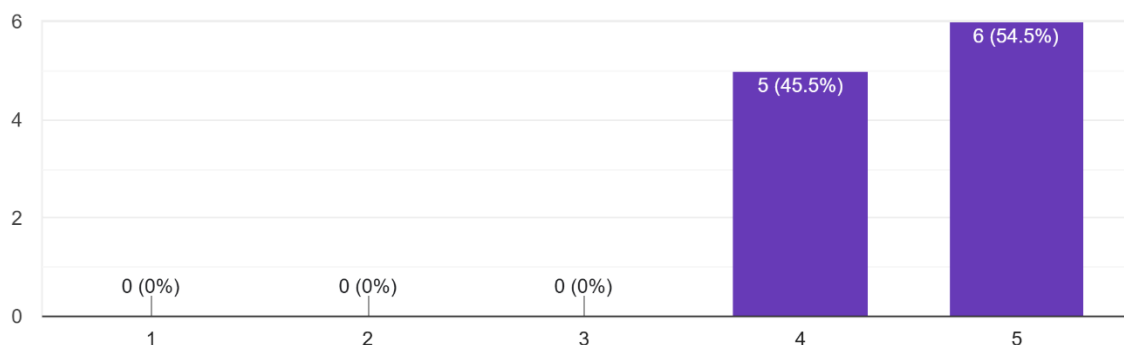


Figure 5.20: Employers' feedback on "The layout, button, label and icons were clear and understandable"

Figure 5.20 shows employer impressions regarding clarity and understandability of the app's layout, buttons, labels, and icons, from 11 answers. All the participants had a positive impression: 54.5% rated their experience as a 5, i.e., being completely satisfied, and the other 45.5% rated it a 4, i.e., a strong agree but with little room for improvement. No ratings were given as 1, 2, or 3, meaning that no user was confused or dissatisfied with the interface elements. Such uniform positive feedback reflects that the visual and interactive nature of the app is intuitive as well as effectively implemented, resulting in blemish-free and accessible usage.

I did not experience any confusion or difficulty while using the app

11 responses

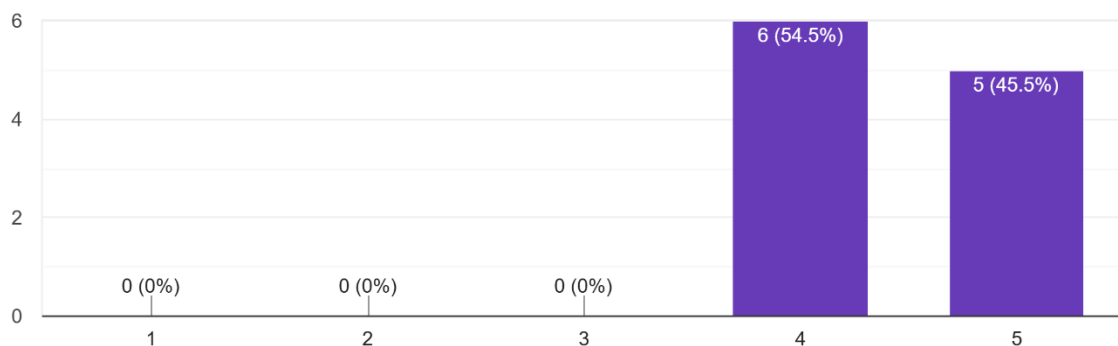


Figure 5.21: Employers' feedback on "I did not experience any confusion or difficulty while using the app"

Figure 5.21 illustrates the employer response on whether the app was confusing or problematic to use, based on 11 responses. The sentiment is overwhelmingly positive: 54.5% of the users rated their experience as 4, while the remaining 45.5% ranked it the best at 5. No respondent checked scores 1, 2, and 3, indicating no disagreement or neutrality. This lack of negative feedback shows that there is a high level of confidence in the usability and user interface design of the app. The feedback shows that users are finding the app intuitive and simple to use, with little need for external support or troubleshooting. Although not exactly more than half of them rated it a 4 instead of the highest, this still indicates a good, solid consistent user experience with little or no more room for development.

5.3.1.2.2 Performance Testing

The app launched quickly when loaded

11 responses

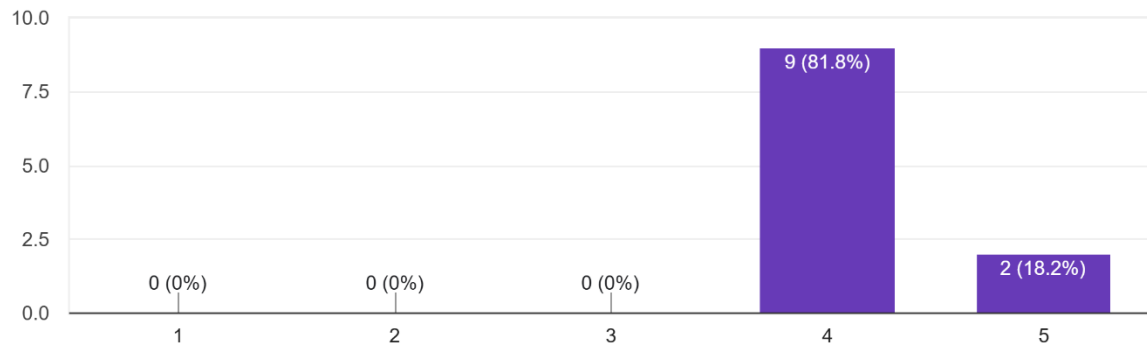


Figure 5.22: Employers' feedback on "The app launched quickly when loaded"

Figure 5.22 shows the responses of the employer regarding the launch speed of the app, based on 11 reviews. All data are positive: 81.8% of the users scored the app 4, which indicates that they experienced it as quick to launch, and the remaining 18.2% scored it 5, indicating that they strongly agreed. Most significantly, the absence of rating 1, 2, or 3 demonstrates that users were not left with anything other than a satisfactory app start-up experience. This shows a consistently effective launch experience of users. Trending of ratings toward the initial two rating points shows extremely high confidence in technical responsiveness of the app and allows for a consistent first impression—key to user engagement. In general, the feedback confirms that the app load pattern is at or above users' expectations.

There was no noticeable delay while searching, chatting, uploading image/document and loading profile

11 responses

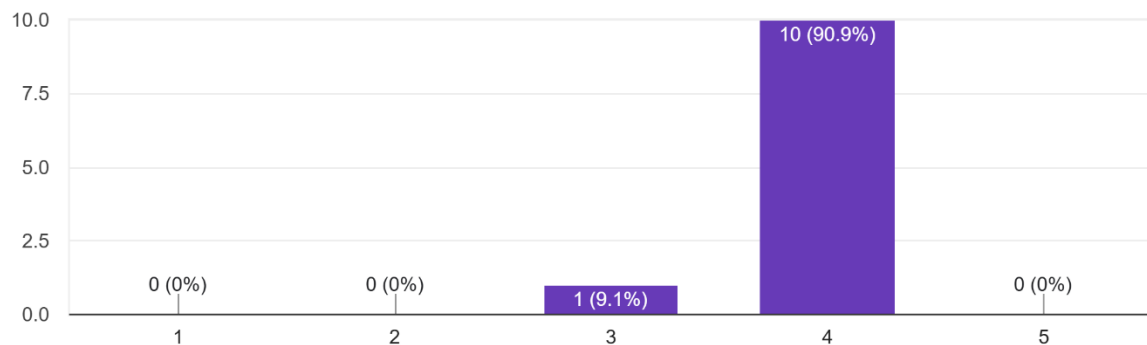


Figure 5.23: Employers' feedback on "There was no noticeable delay while searching, chatting, uploading image/document and loading profile"

Figure 5.23 shows the employer comments on system performance for major tasks like searching, chatting, uploading documents/images, and loading profiles, out of 11 responses. Fully 90.9% gave their experience a 4, meaning that they did not perceive any perceptible delays, without, though, thinking it is perfect. One (9.1%) chose the middle point rating of 3, which implies average satisfaction or tolerable delays. Notably, there were no participants who rated their experience as a 1, 2, or 5, implying no frustration and no complete praise. This range shows that the system delivers a good and smooth ride overall but still leaves some residual range to hone experiences from "good" to "excellent." The lack of ratings at the extremes attests to consistency across the board, creating a foundation of working solidity that could be perfected by incremental gains to become optimum-in-class user satisfaction.

The app remained responsive when switching between features

11 responses

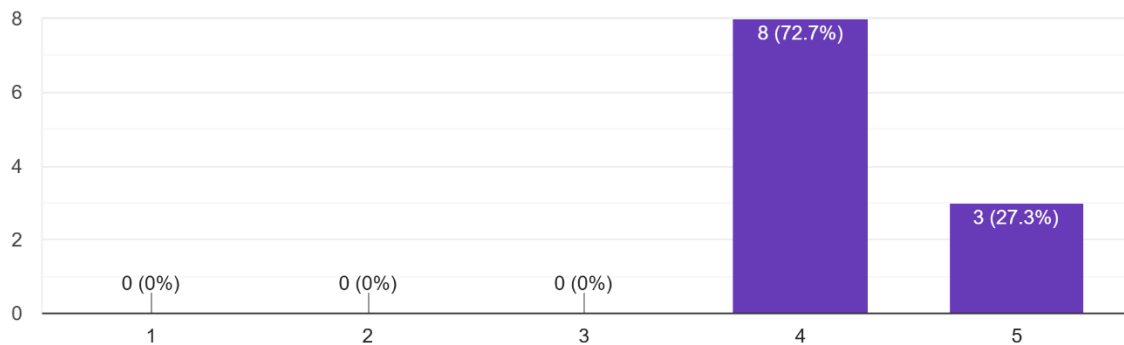


Figure 5.24: Employers' feedback on "The app remained responsive when switching between features"

Figure 5.24 shows employer experiences of the responsiveness of the app in switching from one feature to another, based on 11 responses. The feedback is all positive: 72.7% of the employer rated their experience as 4, indicating high satisfaction, with the remaining 27.3% rating it 5, or total approval. What is notable here is that there were no ratings below 4, which speaks of a uniformly smooth and responsive feature-switching experience. This spread highlights the reality that there is minimal or no lag time for users when navigating through different parts of the app. Such feedback confirms the app's real-time functionality and technical stability—features so essential to holding user attention and preventing frustration when multitasking.

The search and filter function responded accurately and quickly

11 responses

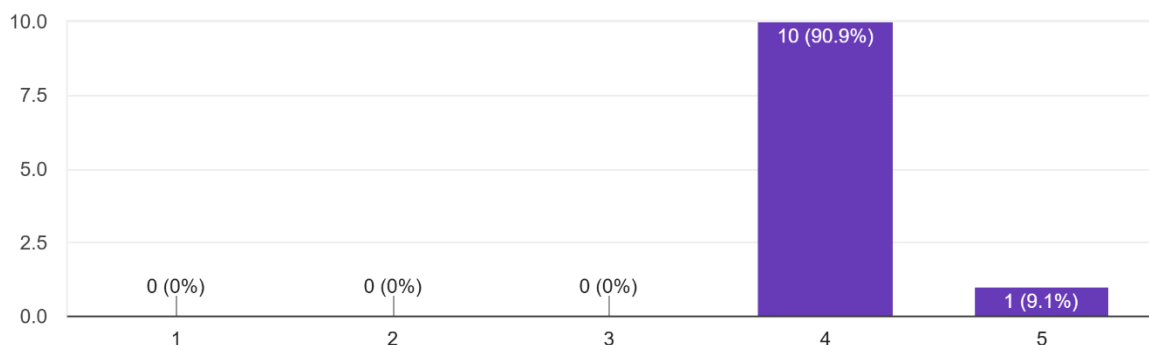


Figure 5.25: Employers' feedback on "The search and filter responded accurately and quickly"

Figure 5.25 illustrates employer sentiment regarding how responsive and effective the app's search and filter function is, from a sample size of 11. A total 90.9% of the users rated the feature 4, meaning very high satisfaction with little room for improvement. The remaining 9.1% awarded it a 5, indicating complete acceptance. Most notably, no 1s, 2s, or 3s, meaning users had no issues or indifference large enough to warrant a rating. This spread suggests a strong and good instrument well-tuned to user needs, although the absence of higher ratings except for one perfect mark suggests areas for improvement—maybe in speed, accuracy, or usability. Overall, the feature is popular and an enjoyable addition to the user-friendliness of the app, a solid foundation for search-based interaction.

I did not encounter any freezing or crashing while using the app
11 responses

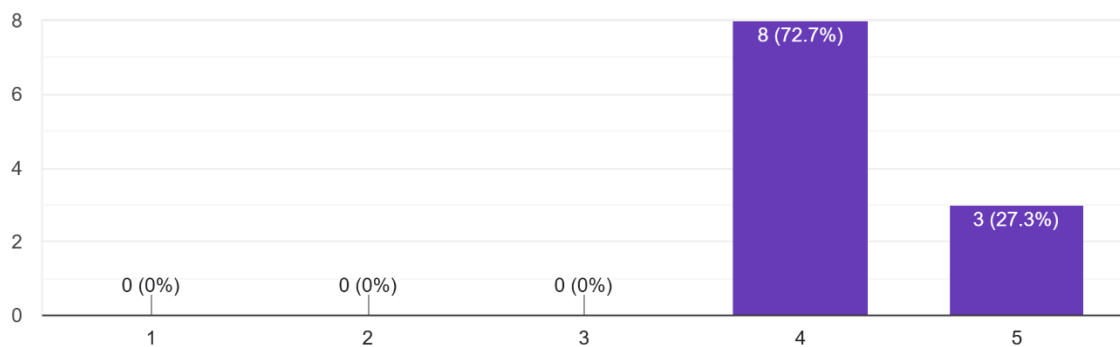


Figure 5.26: Employers' feedback on "I did not encounter any freezing or crashing while using the app"

Figure 5.26 represents employer opinion about the stability, or lack of it, of the software in the sense that it does not freeze or crash while in use based on 11 reviews. Overall, the perception is positive since 72.7% of the employer rated it as a 4 for their experience and 27.3% rated it as a 5. There were no low ratings (1, 2, or 3) found, which validates that there were no issues with instability or dissatisfaction. This consistent pattern shows that employer perceive that the app is always stable with a smooth experience without any technological glitches.

5.3.1.2.3 Reliability Testing

The registration and login process working as expected

11 responses

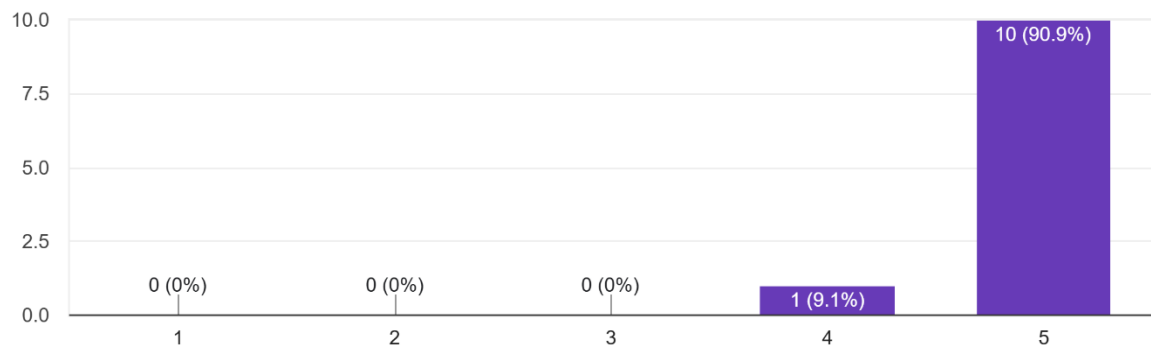


Figure 5.27: Employers' feedback on "The registration and login process working as expected"

Figure 5.27 shows employer satisfaction with registration and login process, based on 11 ratings. A thumping 90.9% of employer gave this feature a 5, expressing vehement consensus that the process is operating optimally and to expectations. The remaining 9.1% provided a rating of 4, suggesting that they also had an ideal experience but with potential minor room for improvement. Interestingly, no ratings of 1, 2, or 3 were present, indicating no frustration, confusion, or technical barrier on the path to onboarding. That uniformity in high ratings represents a stable, user-friendly design, which would be highly likely to cause direct-user confidence and retention.

Student/Employer profile in this app helps student/employer understand the background of the student/employer

11 responses

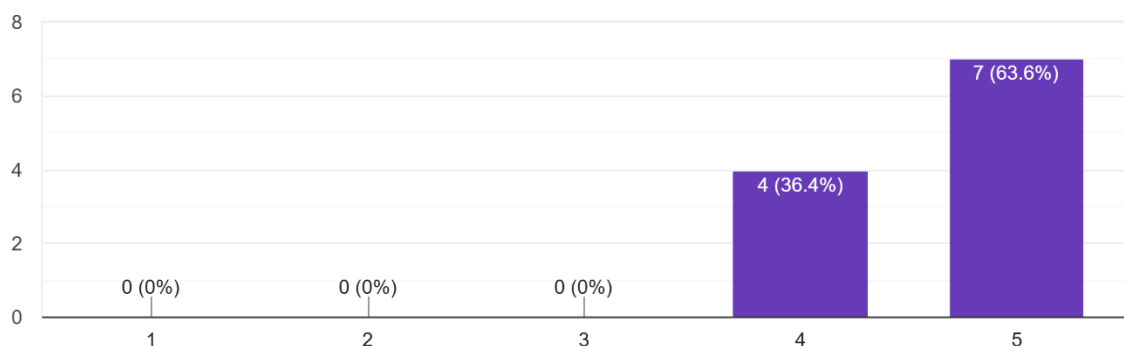


Figure 5.28: Employers' feedback on "Student/Employer profile in this app helps student/employer understand the background of the student/employer"

Figure 5.28 is employer feedback on the success of the student and employer profile feature of the app in fostering mutual understanding of each other's past, from 11 comments. The sentiment is entirely positive: 63.6% rated it the highest, with 5, indicating very high agreement that the feature gets its work done. The remaining 36.4% rated it a 4, indicating satisfaction with perhaps minor potential for improvement. Notably, no participant utilized ratings of 1, 2, or 3, suggesting that no users dissented or were neutral. This clear consensus supports that the profile feature fully facilitates openness and sound decision-making on the employer and student sides.

The filtering and searching features are useful in this app
11 responses

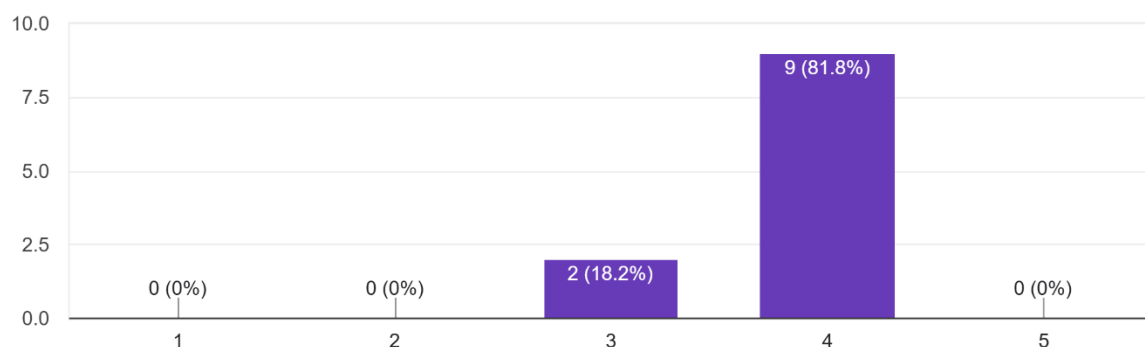


Figure 5.29: Employers' feedback on "The filtering and searching features are useful in this app"

Figure 5.29 displays employer sentiment regarding the quality of the app's filtering and search feature based on 11 reviews. An overwhelming majority of employer—81.8%—awarded the feature a 4, indicating extreme satisfaction with its effectiveness. Only 18.2% elected to rate it a 3, showing moderate support with room for improvement. Interestingly, no one respondent rated the feature a 1, 2, or 5, meaning no dissatisfaction and no full approval. That kind of trend suggests the underlying value of the search and filter function is definitely appreciated but maybe has not yet exceeded user expectations. The results show a usable and good tool, but definitely with room to be enhanced to enhance accuracy, efficiency, or user interface tweaks to offer a better and smoother experience.

Employer can communicate (send text, image, document) with the student easily using messaging features

11 responses

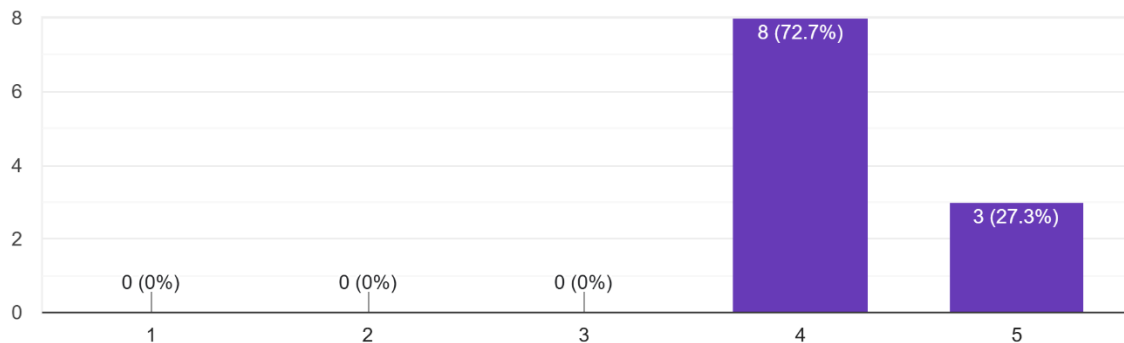


Figure 5.30: Employers' feedback on "Employer can communicate (send text, image, document) with student easily using messaging features"

Figure 5.30 indicates employer feedback on how convenient it was for employers to reach out to students through the messaging feature of the app, out of 11 feedbacks. 72.7% of them graded themselves a 4, which means that they found the messaging feature convenient and satisfactory but with room for improvement. The remaining 27.3% graded the maximum of 5, i.e., faultless satisfaction. To our surprise, there were no lower ratings on the lower scale (1, 2, or 3) for no dissatisfaction or usability problem. This ideal positive skew indicates that messaging facility—text, photo, and document share—is working to perfection and meeting the users' expectations.

Managing applicant is easy when using this app

11 responses

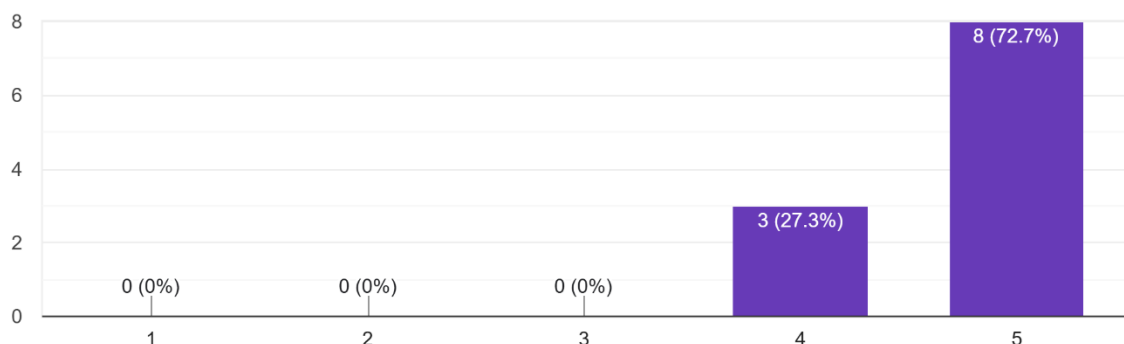


Figure 5.31: Employers' feedback on "Managing applicant is easy when using this app"

Figure 5.31 shows employer comments on how simple it is to handle applicants via the app, from 11 comments. The tone is extremely positive: 72.7% of employer awarded it the highest rating of 5 and stated in strong agreement that applicant management was simpler via the app. The remaining 27.3% awarded it a score of 4, which indicates unqualified satisfaction with only infinitesimal scope for enhancement. Interestingly, no answers were present in the lower end (1 to 3), which underscored the absence of confusion, frustration, or indifference. This consistent and positive pattern reveals that the applicant management feature of the app is efficient and easy to use, which meaningfully contributes to the platform's effectiveness overall.

Posting and managing (edit, delete) job can be easily done when using this app
11 responses

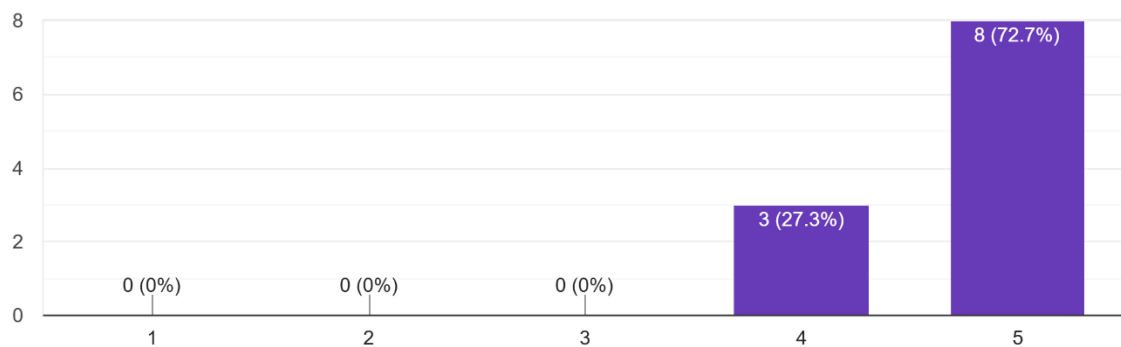


Figure 5.32: Employers' feedback on "Posting and managing (edit, delete) job can be easily done when using this app"

Figure 5.32 illustrates employer attitudes towards how convenient it is to post and manage job postings—edit and delete—via the app, from 11 comments. The attitude is predominantly positive: 72.7% of the employer gave the top score of 5, indicating complete satisfaction with this feature. The remaining 27.3% included a score of 4, indicating they found the feature handy, albeit perhaps with very small areas of improvement. Most importantly, no 1-3 ratings were provided, which means that no respondents reported having serious issues or confusion with the process. This clear agreement shows that the job management functionality is intuitive and solid, allowing employer to easily manage their posts without technical pushback.

Calendar makes user easy to see any event (Interview, job start/end)

11 responses

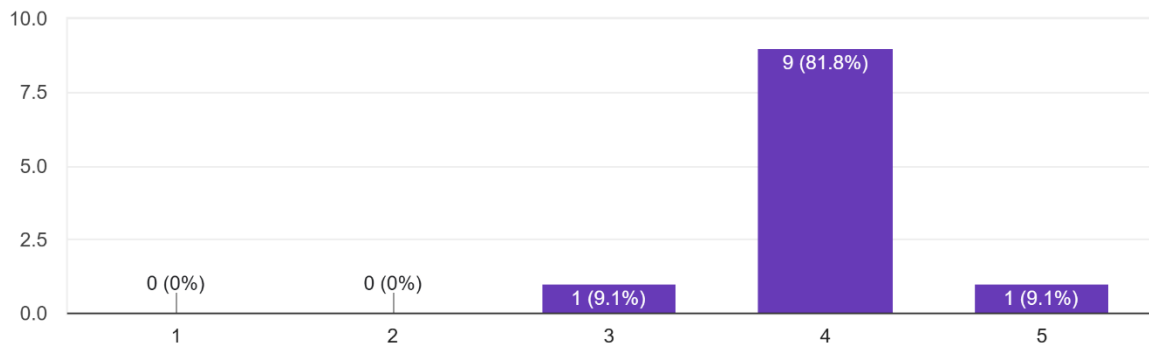


Figure 5.33: Employers' feedback on "Calendar makes user easy to see any event (Interview/ job start/end)"

Figure 5.33 represents user feedback for the question of how well the calendar function within the app enables employer to view significant events like the start or end of work and job interviews, based on 11 responses. A majority of the employers—81.8%—rated the feature 4, indicating high satisfaction and revealing that the calendar is clean, functional, and always behaves as intended by the user. One of the respondents (9.1%) marked the highest score of 5, which signifies complete satisfaction, while another (9.1%) rated a middle value of 3, which represents medium effectiveness or modest recommendations for change. There were no dissatisfied employers, as there were no scores below 3 provided. Overall, the comments suggest the calendar is well-liked and a helpful organizational tool, but there is a minority of employer that can be made happier by either greater visibility or more customization to bring the user experience to the next level.

5.3.1.3 Overall Rating

Rate this app

32 responses

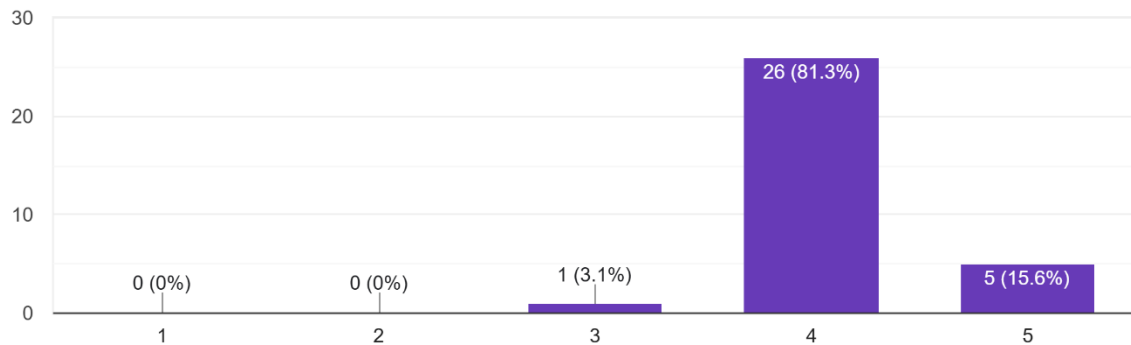


Figure 5.34: All users feedback on "Rate this app"

Figure 5.34 shows total user satisfaction of the app by employers and students on 32 responses. All the feedback is positive, out of which 81.3% provided a rating of 4, showing great satisfaction and an overall satisfying experience. Also, 15.6% of the total provided the app with the highest rating of 5, showing complete satisfaction with the performance of the app. Only one person (3.1%) marked it as 3 for slight neutrality or room for improvement. Surprisingly, nobody marked it negatively (1 or 2). This distribution signifies strong user trust in the two sets of users, with the implication that they always meet their most important objectives. Despite having little space left for improvement to introduce more users to an optimal score, the general opinion overwhelmingly favors the app's performance, usability, and worth.

5.4 Summary

This chapter clarifies the functional and non-functional testing that has been conducted on the UNIMAS JobConnect app. The functional testing focus on providing suitable input while verifying and comparing the output with actual result and expected result. On the other hand, non-functional testing is used to test overall readiness of the app by evaluating the usability on the potential student that might use the UNIMAS JobConnect in the near future. Both test are vital in making sure the UNIMAS JobConnect app is ready to be released on the market.

CHAPTER 6: CONCLUSION

6.1 Introduction

This chapter is used to wrap up the UNIMAS JobConnect project by detailing its aims and the accomplishments achieved through the successful creation of the mobile app. It also has a discussion of possible improvements to enhance the UNIMAS JobConnect app even further in the future.

6.2 Project Achievement

UNIMAS JobConnect app has been successfully developed to solve the problem faced, which are clearly stated in Chapter 1. Furthermore, the project objectives are also achieved as stated in table below.

Table 6.1: Objectives and Achievements

Objective	Achievement
To develop mobile application that enables UNIMAS campus organizations and departments to post part-time job opportunities and freelance projects.	The UNIMAS campus organizations and departments are now able to post part-time job and freelance project for the student in UNIMAS.
To develop mobile application which allows UNIMAS students to search, view, and apply for these opportunities through the app by helping students quickly find and apply for position that match their skills and interest.	Student now able to search, view, and apply for part-time job or freelance project easily thanks to UNIMAS JobConnect.

6.3 Limitation and Constraints

UNIMAS JobConnect successfully met all its objectives and user requirements during the development of the mobile application. However, several inevitable limitations emerged throughout the development process.

A significant limitation was that it was not possible to finish the app under the scheduled timeline because there was a learning curve in mobile application development. As this was the first endeavor to create a mobile app, lots of time was necessary to learn important things in technologies like Kotlin, Flutter, Firebase, and Android Studio. The extended learning period caused delays and resulted in a hurried development process wherein some of the intended features were skipped.

Furthermore, the app was created only for the Android operating system, which greatly limited use by users with other operating systems, like iOS. This narrowed the total user base and kept more users from being able to use the application. Increased support of different platforms in the future might increase access and enhance the user experience for more people.

Another limitation is that the admin will only rely on the Firebase console to manage all the data. The admin interface in the app is limited to only graph to see user registration by faculty and post by faculty only. Other functionality such as to manage user account, post and activities will need to be done in Firebase console.

6.4 Future Works

While UNIMAS JobConnect was created on the basis of survey responses from concerned respondents, there remains room for expansion and additional features. One improvement that would be significant is expanding the platform to iOS, which would enable more users to access the app. Another improvement would be adding more language options since UNIMAS accommodates both local and overseas students. Still, some features—calendar, filtering, and searching—need polishing. Although these attributes are operational, they fall short of meeting the expected task due to the rushed development pace. Additionally, enhancing the admin interface should be a priority. Administrators play a vital role in overseeing user activity and managing accounts. Currently, the admin panel only supports the display and download of two graphs. Future improvements could include expanding the range of visualizations, adding data tables that reflect database contents, and providing tools for managing user-generated content such as job posts and profile details, among other functions.

6.5 Summary

This chapter concludes the UNIMAS JobConnect project by examining its objective, limitation, and further improvement. It was not an easy process in developing but, fortunate enough, most of the end-users have found UNIMAS JobConnect to be effective and convenient in performing the intended purpose of the mobile app.

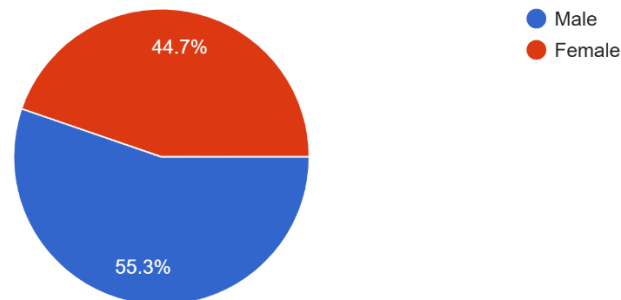
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APPENDIX A: QUESTIONNAIRE FOR FINAL YEAR PROJECT (FYP): UNIMAS JOBCONNECT: MOBILE APP FOR SEARCH PART-TIME JOB AND FREELANCE PROJECT POSTED BY CAMPUS ORGANIZATIONS AND DEPARTMENTS

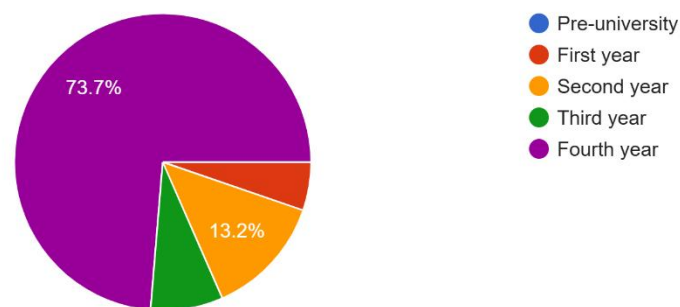
Gender

38 responses



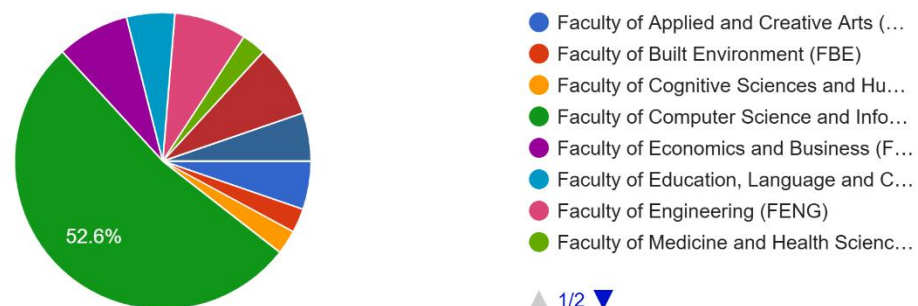
Current year of study

38 responses



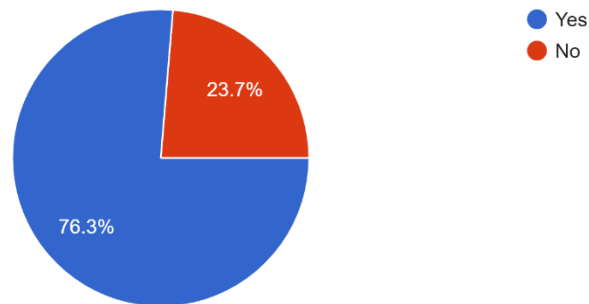
Faculty

38 responses



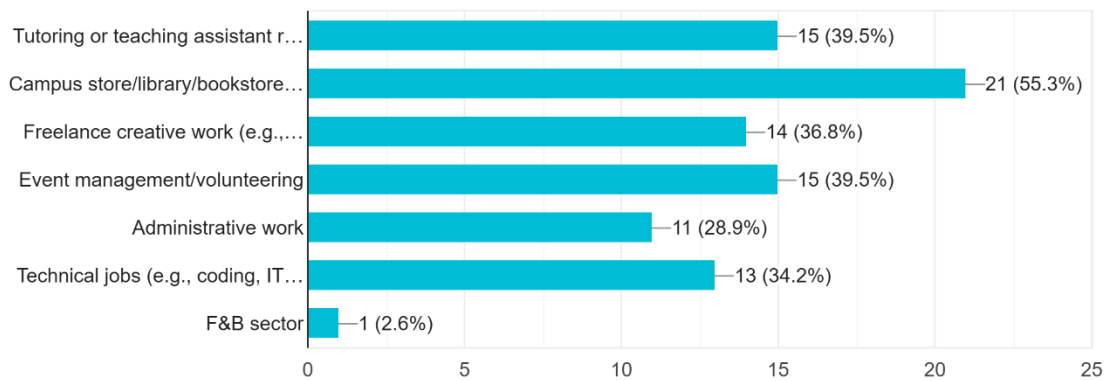
Have you looked for part-time or freelance work while studying?

38 responses



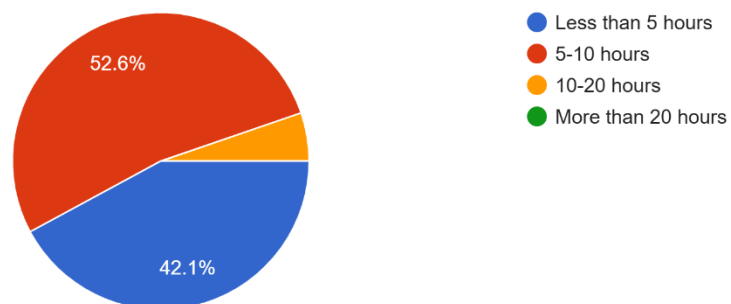
What type of jobs would you prefer on-campus? (Select all that apply)

38 responses



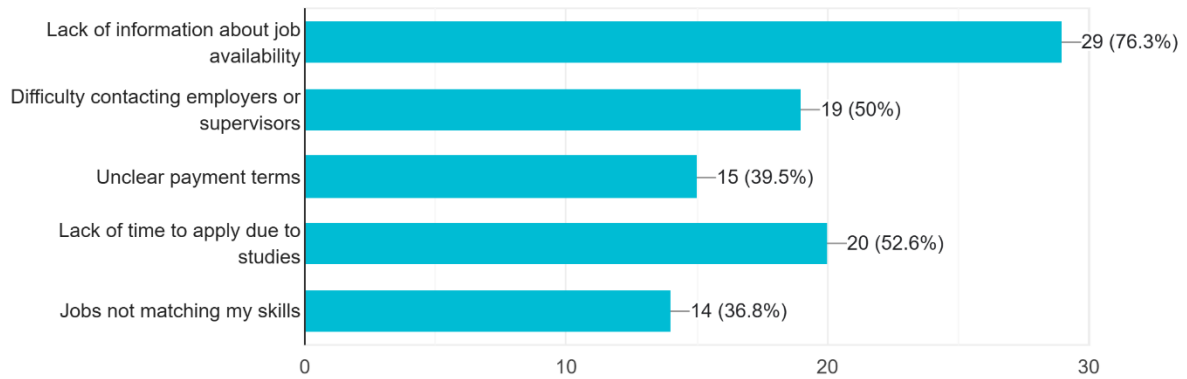
How many hours per week would you be willing to work?

38 responses



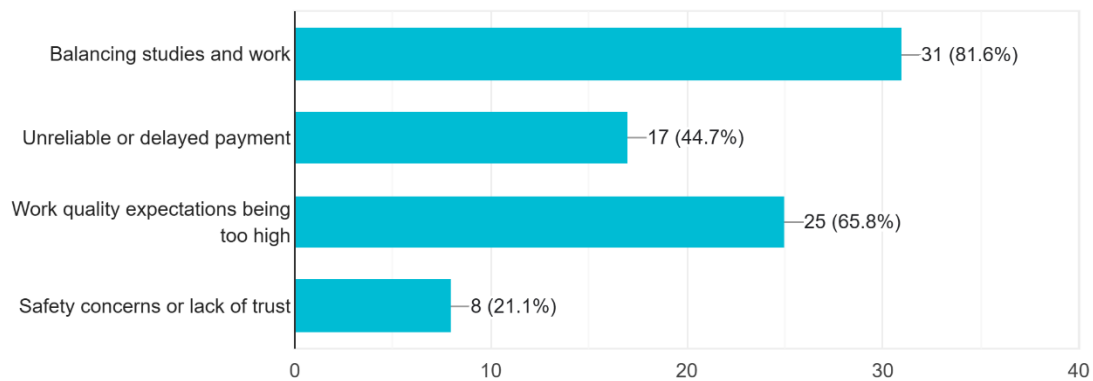
What difficulties have you faced, or would you expect in finding part-time or freelance jobs on-campus? (Select all that apply)

38 responses



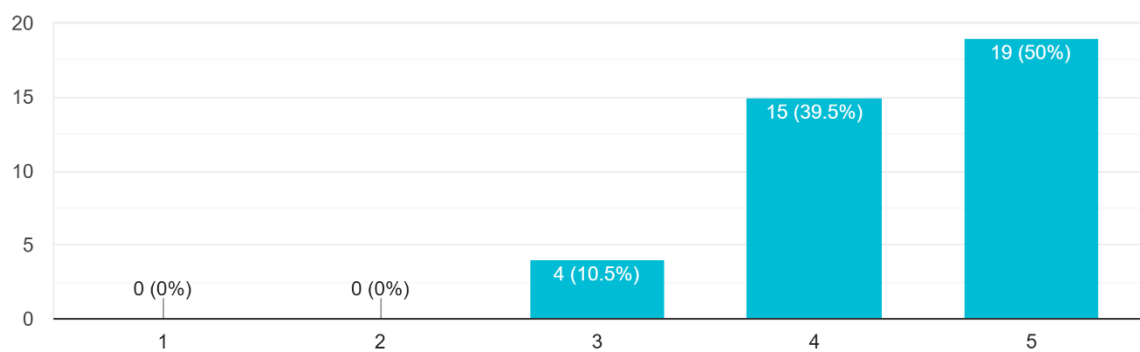
What are your biggest concerns about taking up part-time or freelance work? (Select all that apply)

38 responses



On a scale of 1 to 5, how interested would you be in using this app to find work?

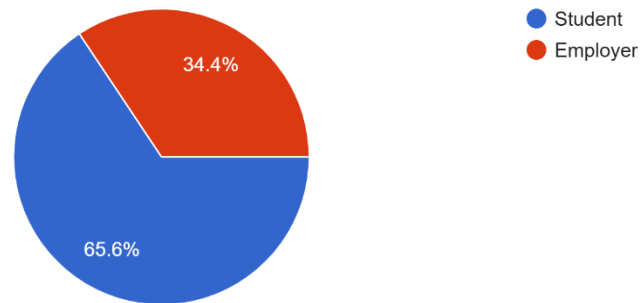
38 responses



APPENDIX B: UNIMAS JobConnect: MOBILE APP FOR SEARCH PART-TIME JOBS AND FREELANCE PROJECT POSTED BY CAMPUS ORGANIZATIONS AND DEPARTMENTS

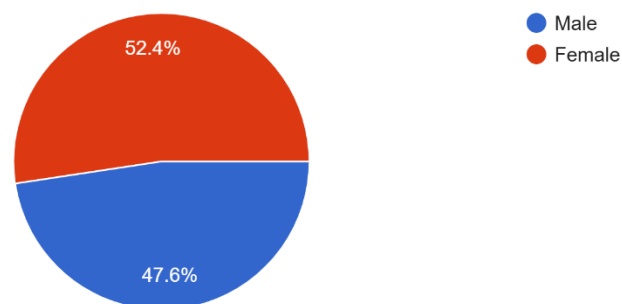
Role

32 responses



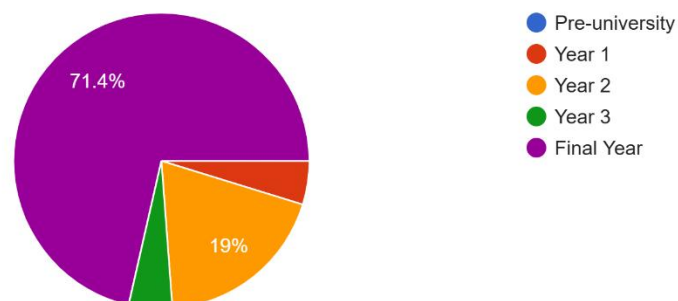
Gender

21 responses

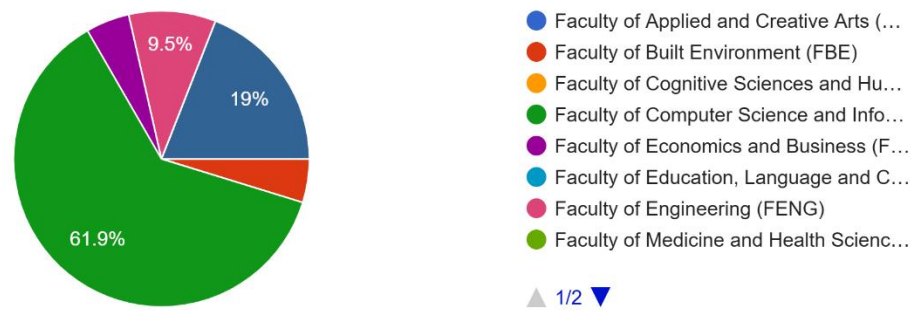


Current year of study

21 responses



Faculty
21 responses



UNIMAS JobConnect: MOBILE APP FOR SEARCH PART-TIME JOBS AND FREELANCE PROJECT POSTED BY CAMPUS ORGANIZATIONS AND DEPARTMENTS

Final Year Project

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Abstract— Many students seek part-time jobs or freelance opportunities to support their education or gain work experience. However, finding these within campus organizations can be challenging due to the lack of a centralized platform. This project aims to develop a mobile application that bridges the gap between students and campus organizations seeking temporary or project-based help.

Keywords— component; Part-time job, Centralized platform, Mobile application

INTRODUCTION

In today's dynamic and competitive academic environment, students often seek part-time jobs or freelance opportunities not only to support their education but also to gain valuable work experience and develop crucial skills for their future careers. Part-time employment helps students develop essential skills such as teamwork and communication, which are crucial for their future careers [1]. Meanwhile, the student and staff population at Universiti Malaysia Sarawak (UNIMAS) has been growing annually. By 2024, UNIMAS boasts over 13,700 students and more than 770 staff members, spread across an expansive area of 810 hectares [2]. With massive number of students, the demand for part-timer or freelancer also increases. UNIMAS recognizes the importance of these opportunities and wholeheartedly encourages students to pursue them. However, finding such opportunities within the campus environment can often be challenging due to the lack of a centralized platform for connecting students with potential employers.

This project proposes the development of an innovative and user-friendly mobile application designed specifically to address this gap. The app will serve as a vital bridge between students and campus organizations or departments looking for part-time job seekers or individuals to help with project-based tasks. By providing a centralized and accessible platform, the

mobile application aims to streamline the process, making it easier for students to find suitable work opportunities and for campus organizations to find reliable and talented students to meet their needs. This initiative will not only enhance the overall educational experience of the students but also foster a stronger sense of community within the university.

PROBLEM STATEMENT

In the current campus environment, there is a notable absence of a centralized or organized platform where campus departments and organizations can seamlessly post part time job openings or freelance project opportunities. For instance, UNIMAS Now, an all-in-one app used by UNIMAS members, lists vacancies primarily for high-requirement jobs that are not suitable for students who are simply looking for part-time or freelance work. This limitation means that students who wish to gain work experience or earn extra income through more flexible and less demanding roles often find themselves at a disadvantage.

In addition to the lack of a centralized platform, lecturers, campus departments, and organizations often resort to posting part-time job or freelance opportunities in social media groups like WhatsApp and Telegram. While these platforms are widely used, they are not designed for job postings and can be quite inefficient for this purpose. The high volume of messages in these groups means that job advertisements can easily get lost in the noise, leading to a high chance of being overlooked by potential applicants. This method not only makes it difficult for students to stay informed about available opportunities but also poses challenges for organizations trying to reach a broad audience of potential student workers. Consequently, this leads to inefficiencies in filling positions and completing projects, as the right candidates may never see the job postings

Addressing this issue with a robust and user-friendly platform is crucial to bridging this gap, thereby ensuring that students can more easily access opportunities and that organizations can efficiently find the help they need. Ultimately, the absence of such a platform leads to significant lost potential for both students and the wider campus community.

OBJECTIVES

1. To develop mobile application that enables UNIMAS campus organizations and departments to post part-time job opportunities and freelance projects.
2. To develop mobile application which allows UNIMAS students to search, view, and apply for these opportunities through the app by helping students quickly find and apply for position that match their skills and interest.

SIGNIFICANT OF PROJECT

UNIMAS JobConnect is important to campus organization and students of UNIMAS. It improves overall university experience for job seeking students by providing dedicated platform which allow students to access information on jobs or freelances that advertise within campus.

RELATED WORKS

There are three existing system that used in finding part-time job and freelance project. Each of this platform offer different feature and approach to problem-solving. These existing systems include:

PartTimePost

PartTimePost is an online platform connecting job seekers with part-time, freelance, and flexible jobs in Malaysia across various industries like marketing, education, and e-commerce. It offers tools like resume templates and job browsing features and allows employers to post job vacancies and manage applications. The platform provides customizable search tools, a resume builder, and an employer portal for job postings. It also supports remote job listings, which is beneficial for diverse applicants. However, there is high competition for remote jobs and the lack of a dedicated mobile app may be a drawback for some users.

Maukerja

Maukerja is a Malaysian job portal that helps job seekers find full-time, part-time, freelance, and contract roles in various industries such as IT, marketing, and retail. It caters specifically to the local workforce, offering job descriptions in both Bahasa Malaysia and English. Users can create profiles, upload resumes, and apply for jobs directly, while employers can post vacancies and manage applications. The platform features useful search filters and a user-friendly design, optimized for mobile browsing. However, the number of part-time is somewhat limited compared to international freelancing platforms.

Job Posting Through social media

Posting job through social media group chat like Telegram and WhatsApps offer a traditional way for students and employer to

post and apply for part-time jobs. This method is easy to use since it cost nothing in advertising job and students can directly contact employer if they interested with the job. However, due to high volume of message in group chat, the job's advertisement might not be able to reach students that want to find part-time job in university.

METHODOLOGY

The methodology applied through development of this project is Waterfall Methodology [3].

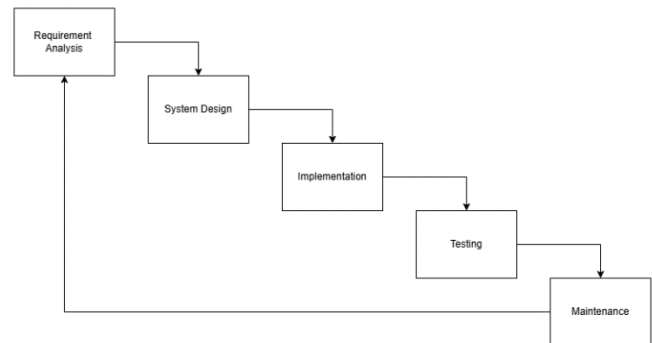


Figure 35. Waterfall Model

Requirement analysis

Requirement analysis is a critical process in software development that involves defining and managing user expectations for a new or modified software product. This phase is essential for ensuring that the final product aligns with business objectives. During this phase, the data collected from a targeted group will be used in requirement analysis to develop a mobile application that is relevant and efficient for the targeted users to utilize. The specified group for the data collection of the system would be students who want to search for part-time job or the employer that wish to provide part-time job within the UNIMAS community. This phase also covers important processes like functional requirement, non-functional requirement, software requirement and the use case.

System Design

System design serves as a bridge between the requirements gathered during the analysis phase and the actual implementation of the software. It aims to create a comprehensive plan that outlines how various elements of the system will work together to achieve desired functionality, performance, scalability, reliability, and maintainability. This process translates user needs and functional specifications into a detailed blueprint that guides the implementation phase.



Figure 36. Use Case Diagram of UNIMAS JobConnect

Figure 36 presents the use case diagram illustrating interactions between users and the system. The system is designed for two types of users. Both students and employers are required to register an account before accessing the platform's features. Once registered, employers can create and manage job postings as well as review applications from students. Students, on the other hand, can browse and apply for job listings displayed on the homepage. To enable resume generation, students must first complete their profile information. In addition, the system includes a messaging feature that facilitates direct communication between students and employers. After a job is completed, both parties have the ability to rate and review each other.

Implementation

The implementation phase, also known as the coding or development phase, involves in translating the design specifications into actual software code. Proper execution during this phase sets the foundation for successful testing, and maintenance of the software. All the interfaces of this system also showed in this chapter using the suitable tools and programming languages that been chosen.

Testing

Table 2: Test case sample of UNIMAS JobConnect

Project Name	UNIMAS JobConnect			Designed By	Shamry Igat anak Bujang
Module	All				
Test title	Login Page				
No	Test Case	Prerequisite	Test Procedure	Expected Result	Result
1.	Login	User not yet registered	Enter unregistered email and password. Then, click Login button.	User failed to login	Pass
		User already registered	Enter registered email and password. Then click login button.	User successfully login	Pass

The testing phase follows the implementation phase and is focused on verifying that the software meets the specified requirements and is free of defects. Thorough testing will be conducted to identify and resolve any issues in job searches, application processing, or user registration flows before the app goes live. This phase is important so that any error or bugs can be minimized before publishing the final application to public. Table 2 shows the test case of login page in UNIMAS JobConnect.

Deployment

Once the testing complete, the application will be deployed in Android devices. The proposed system will be implemented, and the user applying the real-life data. User acceptance will be the endpoint of the implementation process. Ongoing user feedback will be gathered to continuously improve the app's features and usability.

PROPOSED SYSTEM

The purpose of this app is to make it easy for student to search for part time job and freelance opportunities posted by the campus organization or department. Moreover, the app developed to improve communication between students and campus organizations. Campus organizations and departments will be able to post job opportunities and receive applications directly through the app, enhancing communication and eliminating outdated methods like bulletin boards or email chains. Both parties can track the progress of applications in real-time, ensuring a smoother process. For campus organizations, the app expected to offer efficient application management. Organizations can easily manage applications, review student profiles, filter candidates, and track the application process. This will lead to faster and more organized recruitment processes for campus jobs and freelance projects, allowing departments and organizations to focus on selecting the best candidates rather than spending time on manual recruitment processes.

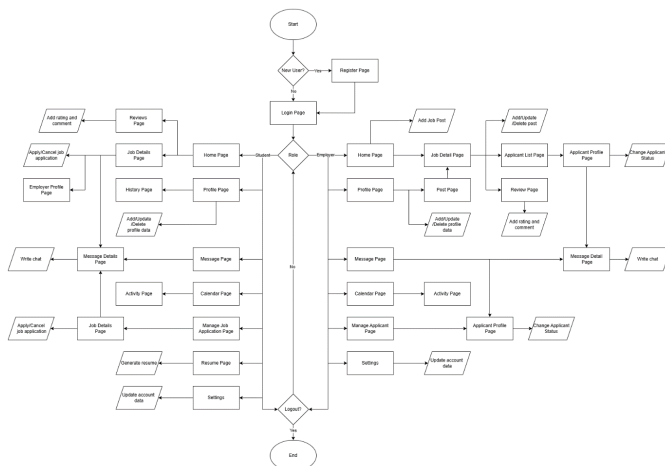


Figure 37: Flow chart of UNIMAS JobConnect

The flow of the app is shown in Figure 37. Based on the flow chart, there will be two type of user which are the employer and the student. The UNIMAS JobConnect can perform functionalities as below:

1. User Registration: User must register account to access the system.
2. Login: User login using their account to enter respective dashboard.
3. Manage Profile: User can add, edit, and delete their profile information.
4. Manage Resume: Student can create their own resume using this system.
5. Search Job: Student can search for desire jobs.
6. Manage Calendar: User (student/employer) can view upcoming event.
7. Apply Job: Student can apply desired job.
8. Manage Job Applied: Student can view and delete their own job application.
9. Message: User can view and reply to any incoming message.
10. Rating and Review: User (student/employer) can rate and review each other based on their experience on the job.
11. Manage Post: Employer can add, edit, or delete the job post.
12. Manage Student Application: Employer can approve, shortlist or reject student application.
13. Manage User Account: Admin have the authority to manage users account by adding, updating, or deleting user account.
14. Manage User Activities: Admin have the authority to view or delete any post and job application made by the users.
15. Logout: User can logout from the system whenever they want.

LIMITATIONS

UNIMAS JobConnect successfully met all its objectives and user requirements during the development of the mobile application. However, several inevitable limitations emerged throughout the development process.

A significant limitation was that it was not possible to finish the app under the scheduled timeline because there was a learning curve in mobile application development. As this was the first endeavour to create a mobile app, lots of time was necessary to learn important things in technologies like Kotlin, Flutter, Firebase, and Android Studio. The extended learning period caused delays and resulted in a hurried development process wherein some of the intended features were skipped.

Furthermore, the app was created only for the Android operating system, which greatly limited use by users with other operating systems, like iOS. This narrowed the total user base and kept more users from being able to use the application. Increased support of different platforms in the future might increase access and enhance the user experience for more people.

Another limitation is that the admin will only rely on the Firebase console to manage all the data. The admin interface in the app is limited to only graph to see user registration by faculty and post by faculty only. Other functionality such as to manage user account, post and activities will need to be done in Firebase console.

FUTURE WORKS

While UNIMAS JobConnect was created on the basis of survey responses from concerned respondents, there remains room for expansion and additional features. One improvement that would be significant is expanding the platform to iOS, which would enable more users to access the app. Another improvement would be adding more language options since UNIMAS accommodates both local and overseas students. Still, some features—calendar, filtering, and searching—need polishing. Although these attributes are operational, they fall short of meeting the expected task due to the rushed development pace. Additionally, enhancing the admin interface should be a priority. Administrators play a vital role in overseeing user activity and managing accounts. Currently, the admin panel only supports the display and download of two graphs. Future improvements could include expanding the range of visualizations, adding data tables that reflect database contents, and providing tools for managing user-generated content such as job posts and profile details, among other functions.

CONCLUSION

UNIMAS JobConnect app has been successfully developed to solve the problem faced, which are clearly stated in Chapter 1. Furthermore, the project objectives are also achieved as stated in table below.

Table 3. Objective and achievement

Objective	Achievement
To develop mobile application that enables UNIMAS campus organizations and departments to post part-time job opportunities and freelance projects.	The UNIMAS campus organizations and departments are now able to post part-time job and freelance project for the student in UNIMAS.

To develop mobile application which allows UNIMAS students to search, view, and apply for these opportunities through the app by helping students quickly find and apply for position that match their skills and interest.	Student now able to search, view, and apply for part-time job or freelance project easily thanks to UNIMAS JobConnect.
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APPENDIX D: FORM B -THESIS STATUS ENDORSEMENT FORM
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THESIS STATUS ENDORSEMENT FORM

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