



Faculty of Computer Science and Technology

HOME RENOVATION CLIENT-CONTRACTOR SYSTEM

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Abstract

Home is one of the basic needs for human today, which leads to home renovation becoming another necessity to ensure the comfort, safety and functionality of living spaces. However, the current practice of finding contractors is more towards the social media platform like Facebook and Telegram lacks transparency, accountability and structured evaluation mechanism. Issues such as manipulated reviews, incomplete contractor information, and unclear communication channels often result in poor client experiences and substandard project outcomes. This project, *MyTukang - Home Renovation Client-Contractor System*, aims to address these challenges by introducing a centralized, web-based platform that connects clients and contractors while promoting fairness and trust. The key features include verified contractor registration, mutual rating and review capabilities with admin oversight, quotation request management, and structured contractor profile viewing. The system also integrates external links for contractor credential checking, enhancing informed decision-making. This project applied the Waterfall methodology, which a development process focuses on a structured, phase-by-phase approach, to ensure the clarity and precision in meeting the user requirements. The key features of the system include a user-friendly interface, secure data handling, and tools to enhance the trust and transparency between users.

Abstrak

Rumah merupakan salah satu keperluan asas manusia hari ini, yang membawa kepada pengubahsuaian rumah menjadi salah satu keperluan untuk memastikan keselesaan, keselamatan dan kefungisian ruang kediaman. Bagaimanapun, amalan semasa atau mencari kontraktor lebih menjurus kepada platform media sosial seperti Facebook dan Telegram yang tidak mempunyai ketelusan, akauntabiliti dan mekanisme penilaian berstruktur. Isu seperti ulasan yang dimanipulasi, maklumat kontraktor yang tidak lengkap dan saluran komunikasi yang tidak jelas sering mengakibatkan pengalaman pelanggan yang lemah dan hasil projek yang tidak berkualiti. Projek ini, MyTukang - Sistem Pelanggan-Kontraktor Pengubahsuaian Rumah, bertujuan untuk menangani cabaran ini dengan memperkenalkan platform berasaskan web berpusat yang menghubungkan pelanggan dan kontraktor sambil mempromosikan keadilan dan kepercayaan. Ciri utama termasuk pendaftaran kontraktor yang disahkan, penilaian bersama dan keupayaan semakan dengan pengawasan pentadbir, pengurusan permintaan sebut harga dan paparan profil kontraktor berstruktur. Sistem ini juga menyepadukan pautan luar untuk pemeriksaan kelayakan kontraktor, mempertingkatkan pembuatan keputusan yang tepat. Projek ini menggunakan metodologi Waterfall, yang proses pembangunan memfokuskan pada pendekatan berstruktur, fasa demi fasa, untuk memastikan kejelasan dan ketepatan dalam memenuhi keperluan pengguna. Ciri utama sistem termasuk antara muka mesra pengguna, pengendalian data yang selamat dan alat untuk meningkatkan kepercayaan dan ketelusan antara pengguna.

Chapter 1: Introduction

1.1 Introduction/ Background

"My Tukang" is a home renovation client-contractor system designed to provide an alternative platform to address the growing needs for a transparent, reliable, and user-friendly platform that connects the clients and the contractors. This project focuses on develop a centralized platform where clients can seek contractors based on their location, ratings, and reviews, ensuring that they can make informed decisions when selecting the right contractor for their home renovation projects. The idea of this project comes from the flaws of the current practice which is social media like Facebook and Telegram to look for a home renovation service. One of it is it lacks fairness in term of reviews or feedback from the previous client. The contractor or the page owner of the contractor page of the services possibly manipulate the feedback received by deleting the bad review from the comment section to maintain their good impression which effect the future client consideration. On the other hand, the current practice is biased toward the contractors, offering them more control and benefits, such as controlling visibility of feedback, leaving clients with limited protection or accountability. Additionally, there are some contractors who did not meet the expectation of the clients due to limited information of them on the internet. For example, the contractor advertise that they are experienced contractor in the social media without any relevant prove but in reality, they are not which lead to overpayment with the quality. Hence, the proposed system aims to bridge those gaps and provide a more balanced, and honest platform for both clients and contractors.

1.2 Problem Statement

Current practices for finding home renovation contractors, especially through social media platforms like Facebook and Telegram, suffer from significant transparency issues. One of the main concerns is the manipulation of contractor reviews. On these platforms, contractors or service providers can delete negative comments or reviews to preserve a favourable public image. As a result, potential clients are unable to access accurate feedback, making it difficult to assess the true quality of the contractor's works. This lack of fairness leads to clients unknowingly hiring contractors without full consideration.

Additionally, the current practice tends to favour contractors over clients. These platforms often have limited features and lack balance in how they treat both parties. For example, the clients may face challenges in accessing crucial information and fair negotiations with the contractors, as these platforms do not offer a structured system that ensures contractor accountability. This imbalance makes it difficult for clients to have confidence in the services provided, as they lack the necessary tools to ensure transparency and fairness in their dealings with contractors.

Another issue is the difficulty in finding reliable contractors. For example, there are some contractors advertise themselves as experienced or skilled but fail to deliver the expected quality of work. This discrepancy between what is promised and what is delivered often leads to subpar results, causing clients to face financial losses. Unfortunately, existing systems do not provide enough information of the contractor's credentials and past works, leaving clients at risk of hiring underqualified or dishonest individuals.

1.3 Scope

This project will focus on developing a web-based centralizes home renovation contractors, making it easier for clients to find and connect with reliable service providers. This project will be conducted in Kota Samarahan and Kuching, Sarawak. It will involve three main user which is contractor, client and admin. It will aim to address issues of trust, transparency, and ease of access, ensuring that clients can make informed decisions when selecting contractors for their home renovation projects.

1.4 Objectives

1. To connect clients and contractors into one centralized platform that promote fairness and accountability.
2. To provide clients and contractors with a reliable platform that allows both to rates and reviews each other with system admin supervision.
3. To provide a system that verifies the contractor credential.

1.5 Brief Methodology

The methodology chosen for the development of "MyTukang – Home Renovation Contractor System" is **Waterfall**, a structured and sequential approach. This approach provides a linear sequential phase, where follows step-by step approach of each phase (Lutkevich, n.d.). The breakdown of each phase is as in *figure 1.1*.

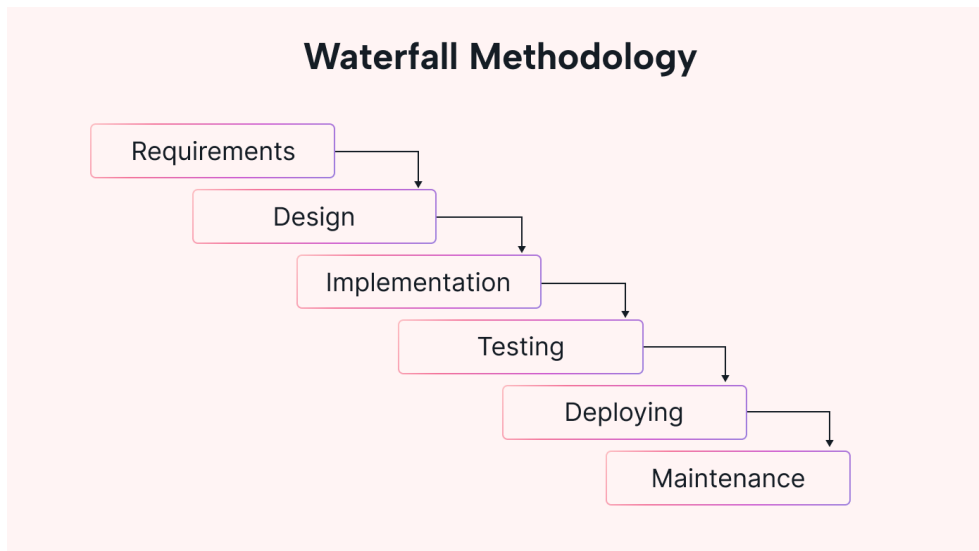


Figure 1.1: Waterfall Methodology Structure

1.6 Significance of Project

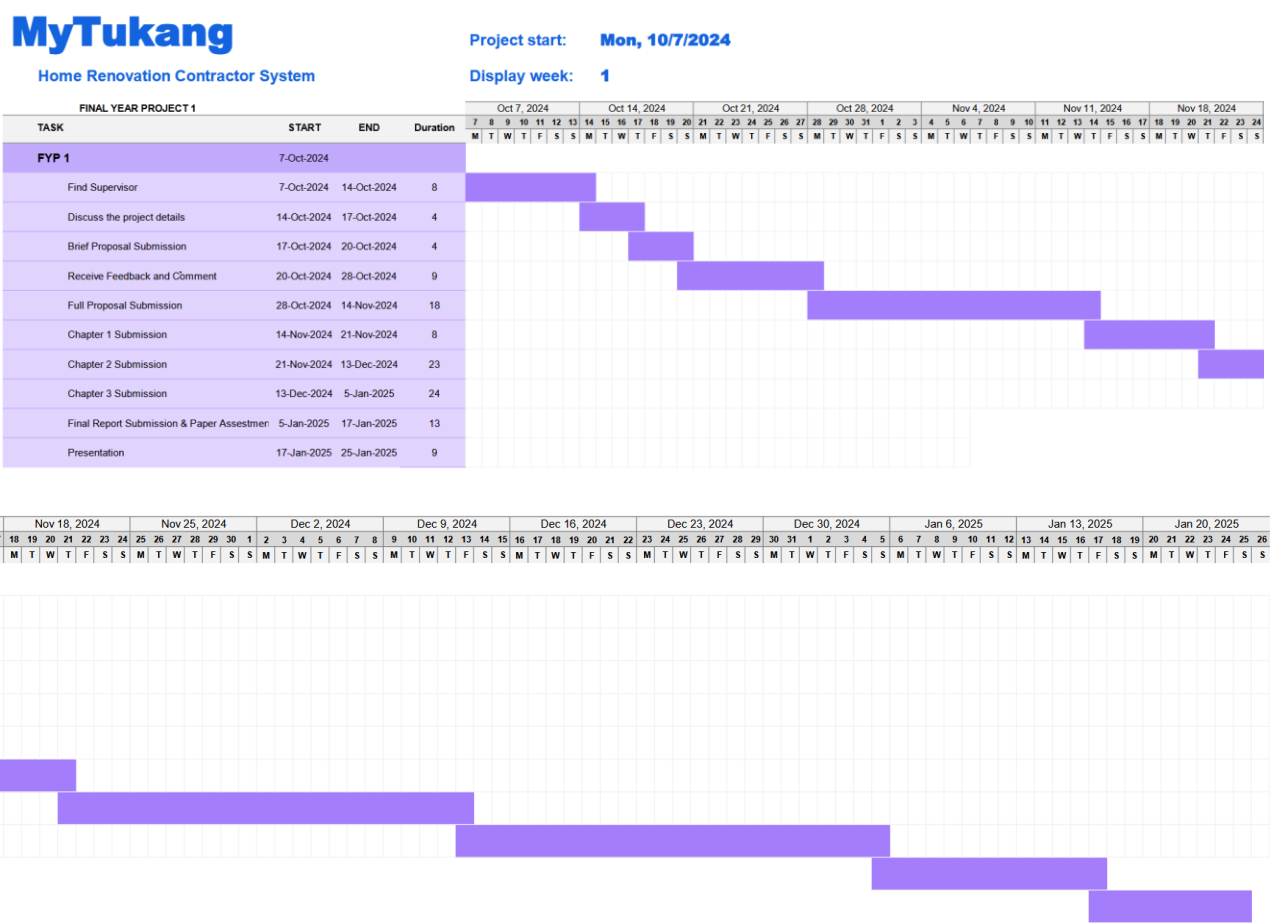
This project is designed to tackle common issues in the home renovation industry, bringing significant benefits to both clients and contractors. One of the benefits of this system is its focus on giving a fair platform to both client and contractor. Clients often face challenges in finding reliable contractors due to the lack of genuine reviews and feedback. On the other hand, contractor also might be deceived by the client who intentionally like to gain benefits from the contractor. Hence, "My Tukang" addresses this by providing a centralized platform where contractor and the client can be rated and reviewed, to ensure both can make informed decisions based on real data collection.

Additionally, the rating and feedback receiver accumulated will be visible to public without being filter by the contractor or the clients itself. The administration will have a power to filter the comments by judging the sensitivity in terms of wording or irrelevant reviews. This transparency and fairness could build trust, which is crucial in fostering long-term, successful relationships between clients and contractors.

Moreover, the system improves accessibility to the contractors by allowing users to filter contractors based on location, budget, and ratings. This streamlined access helps clients save time, avoid scams, and find contractors who best suit their renovation needs. In addition, by strengthening the client-contractor relationship, the platform encourages better communication and accountability, which ultimately leads to smoother project management and higher satisfaction for both parties.

Besides that, with a focus on user-friendly design, the system ensures that even those with limited technical knowledge can easily navigate and benefit from its features, making "My Tukang" a valuable tool for enhancing the overall experience of home renovation projects. The competitive nature of the platform also drives contractors to deliver high-quality work to maintain strong ratings, creating a marketplace where only the most reliable and skilled professionals thrive.

1.7 Project Schedule





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1.8 Expected Outcome

Project Outcome:

1. A web-based platform that gives fair treatment to every user in term of benefits and functionality.
2. An automated rating and review system allowing both contractors and clients to leave feedback, enhancing trust and transparency.
3. A search engine with filtering features that allows users to search for a specific keywords like contractor name or location.

Chapter 2: Literature Review

2.1 Brief Overview

This chapter is about the literature review, which is define as an academic paper that illustrates knowledge and comprehension of the academic literature on a particular topic in context (Literature Review, 2024). Three (3) similar system focusing on Home Renovation Client-Contractor System will be analysed in this chapter. The discussion will cover their functionality, advantages, weakness and key limitations to deliver insightful information about their performance and design as well as pointing out areas that require improvement.

2.2 Review of the similar system

2.2.1 Facebook (<https://www.facebook.com>)

Facebook is one of the popular social media that was founded in 2004 by Mark Zuckerberg, Eduardo Saverin, Dusti Moskovitz and Chris Hughes. Other than connecting other people all around the world, it also can be used to promote a business and connecting the contractor with the clients. There are few features and approaches to seek the client using this platform.

One of it is the system did provide a flexibility to its user to create a group with a specific focus. For example, a group named “Kontraktor Bina Rumah & Renovation” as in *Figure 2.1* which focus on connecting the contractors and the target clients in the same space. Both can post any advertisement either related to their service (Contractors) or project (Clients). There is a comment features that can be used to communicate or interact related to the post. The user also can chat in personal if needed with the post owner.

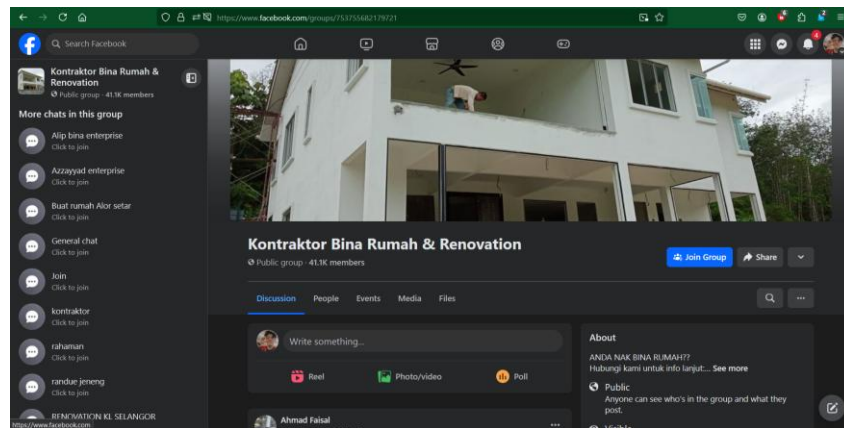


Figure 2.1: Example of Group in Facebook

1. By searching a specifics keyword using the search function

The platform also provides a search function to its user to get anything there are looking for either in posts, pages, people or anything else that suit with the keywords entered. For example, when search a specific keyword it will show the results as the *figure 2.2*. By default, the search results will show all type of the search related to the keyword, but the user can change it by choose the filter at the left side of the search page.

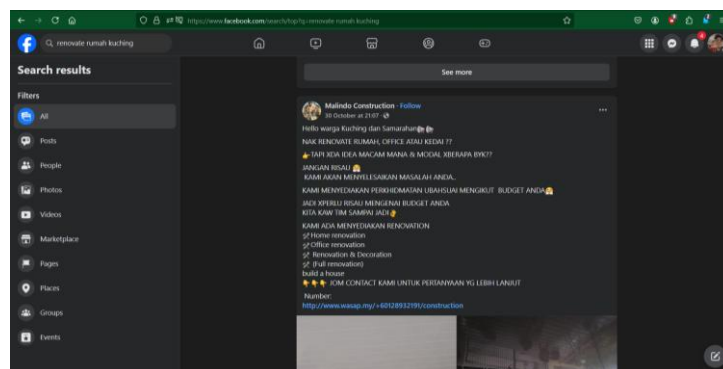


Figure 2.2: Example of search result in Facebook

2. By using Marketplace

Facebook Marketplace is one of the best features Facebook had that focus on connecting the sellers and buyers in a simple and effective way. Grigolon (2024) mentioned that in his article, marketplace is a digital platform that connects sellers to a better scope of consumer base, which works like a vast virtual shopping mall.

Home renovations service also can be found here as in *figure 2.3*. The contractor can advertise their services here while the client also can advertise their project. There are many filters that can be used to optimize the future client.

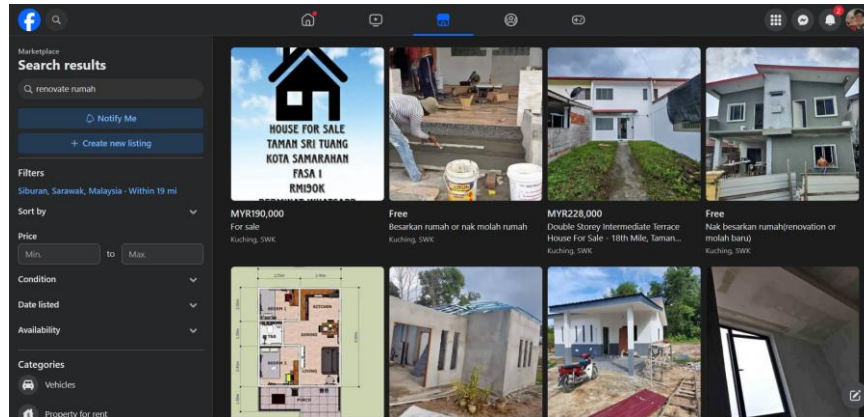


Figure 2.3: Example Of Marketplace

Other than that, Facebook also had a page that dedicated on promoting the contractor service that allows multiple user accounts managed it together. There is a lot of information related to the contractor can be share including their address, contact and past work. Below is one of the examples of pages (*figure 2.4*) dedicated to home renovation service. Other user will have flexibility to share, comment or even like to the post that have been made as in *figure 2.5*.

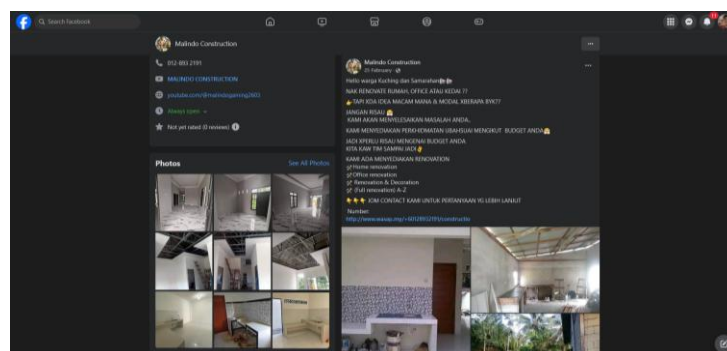


Figure 2.4: An example of Facebook Page

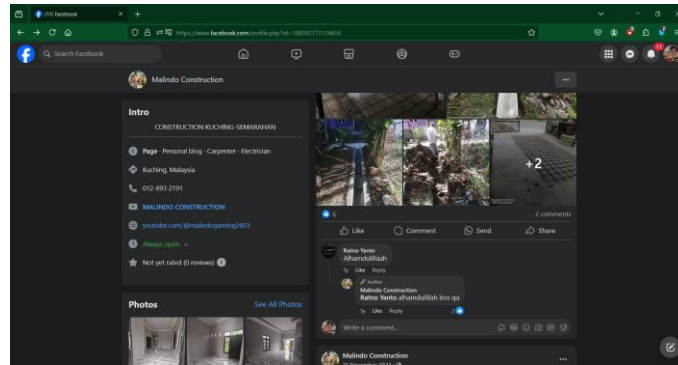


Figure 2.5 Example of comment or feedback received.

2.2.2 Recommend (<https://www.recommend.my/>)

Recommend.my is a “Home Service Platform” that was founded in 2014 by Jes Min Lua, Alex Tan and Anthony Eka Wijaya. (Tan, 2021). It was managed by the Recommend group that also had another similar system called Sejasa that focused on the Indonesia market. It provides lots of services like home maintenance, electrical appliance repair and home improvement. The platform offers a structured system where the services is all categorized which led to a better experience when looking for a specific service. Below is few features or ways to look a contractor here.

1. Search by category

The platform provides several different categories that consist of multiple services. To get the home renovation contractor, users need to select Home Improvement → Renovation Contractor. Then a page with detailed information of the service will appear as in the *figure 2.6*.

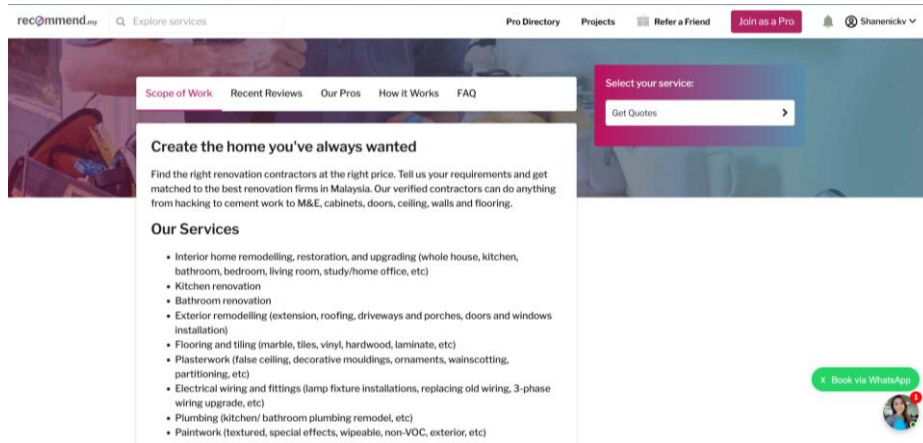


Figure 2.6 Example of Renovation Contractor service page

To start, the user needs to request the quotation by filling some information like type of work required, type of building, site visit availability date and budget as in figure 2.7. After submission, multiple response can be gotten up alongside with the price estimates within a day depends on the user's location. This streamlined process allows user to compare options efficiently and choose the contractor that best fits their needs.

Figure 2.7 Example of Quotation Request Form

2. Request Vendor

To request a specifics contractor, the user can explore the “Pro Directory” pages to view the list of contractors existed in the system. The system provides

a various filter such as category, state, city, rating and highlights to minimize the scope of the search result. Additionally, a search bar tool also available for the user to search for a specific vendor or contractor directly (*see figure 2.8*).

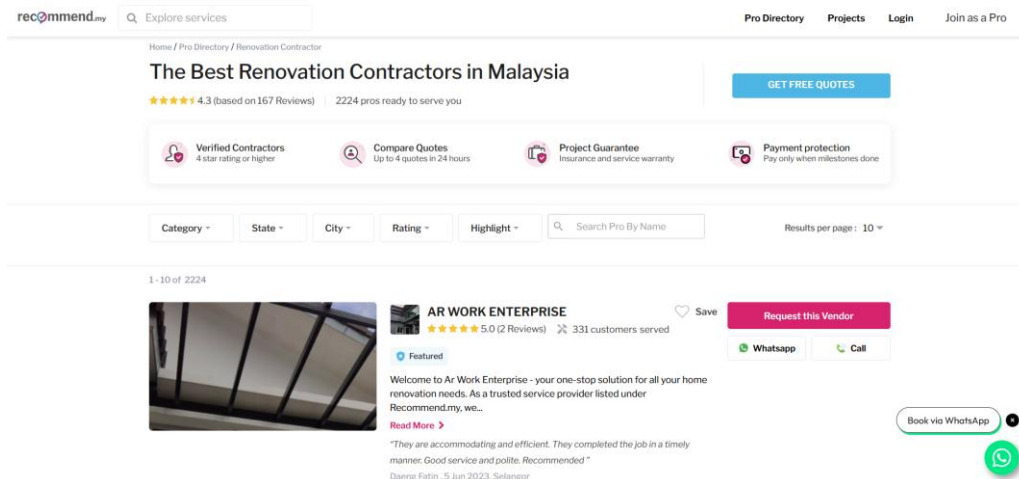


Figure 2.8: Pro Directory Page for Renovation Contractor

By clicking on a contractor’s name, users can view detailed information, including an overview of the vendor, the services they offer, albums showcasing their past work, credentials, and customer reviews like in *figure 2.9*. If the user decides to use their service, they can click the “Request the Vendor” button to request a quotation by them.

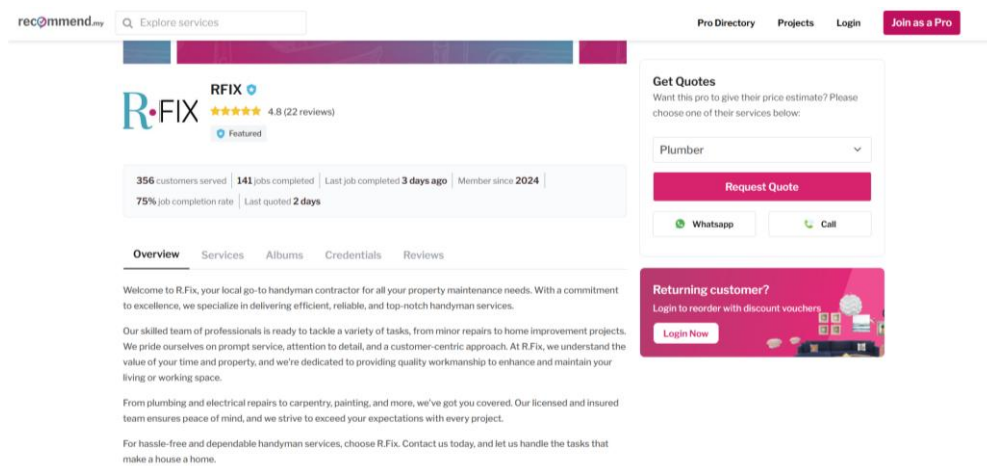


Figure 2.9: A single page that shows the vendor information.

2.2.3 Atap (<https://atap.co/malaysia/en>)

Atap.co is one of the famous interior design platform in Malaysia that was founded in 2016 by Shen Maosheng and Seow Yaohan with purpose to solve the problems faced by the property owner like lack of budget transparency, unverified firms, and low quality workmanship (Atap.co — Interior Design Platform To Help Malaysians Design Their Dream Home, 2021). The platform mainly focuses on connecting users with professional interior designers, but it also extends its services to include home renovation projects tied to design upgrades. *Figure 2.10* depicts the structure of homepage of the Atap.co

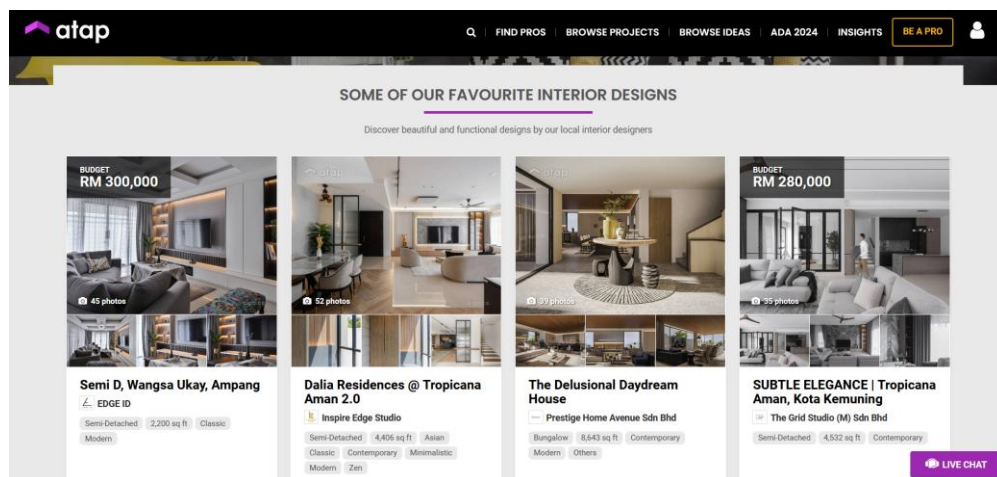


Figure 2.10 Home Page of Atap.co

Compared to the other platforms, this system does have limitation on looking a home renovation contractor. In the beginning, the user can look any vendor portfolio by clicking their name at the main page. The portfolio consists of photos, descriptions, and details about the vendor's past projects, allowing users to assess the quality and the style of work.

At the bottom of each vendor's portfolio page, there is a section called "Contact Us," where users can request a quotation. To do so, they must fill out a form with details such as:

- **Property type** (Eg: apartment, bungalow, townhouse).
- **Property size** (Eg: 1,000 – 2,000 sq ft).

- **Location** of the project. (Eg: State-Sarawak, Area- Kuching)
- **Project budget range** (Eg: RM100,000 – RM200,000).
- **Preferred interior style** (Eg: Asian, Minimalist and Modern).
- **Floor plan** (optional).
- **Additional information** about the project.

This process also requires the user to provide their contact details, enabling vendors to reach out for further discussions.

2.3 Comparison of existing system

Table 2.1: Comparison of the 3 similar platform

	Facebook	Recommend	Atap.co
System	Social media	Home Service Platform	Interior Design Platform
Link	https://www.facebook.com	<a href="https://www.recommen
d.my/">https://www.recommen d.my/	<a href="https://atap.co/malaysia
/en">https://atap.co/malaysia /en
Related Features	• Groups • Search Function • Marketplace • Business Pages	• Categorized Search • Quotation Request • Pro Directory • Vendor Profiles	• Vendor Portfolios • Contact Us Form • Editorial Content
pros	• Has various interesting features. • Free to use. • Provide Community Interaction	• Verified Vendors. • Customizable Filters. • Quotation Estimates. • Trustworthy Contractor Reviews.	• Professional Focus. • Transparent Portfolios. • Vendor Information are displayed into one page
Cons	• Lack of Verification. • Comment Control. • Ambiguous Contractor Details.	• Limited Contractor Option • Service depends on User's Location: • Need to wait for vendor to response the quotation.	• More focus on interior design. • Not Ideal for Large-Scale Project. • Cannot compare multiple quotes simultaneously

2.3.1 Facebook

- Pros

Facebook is a well know social media that has been established since 2004 with the highest number of user compared to the other social media platform. The platform did provides various type of features that useful for its users. It can be proved by the existing of space like Groups, Marketplace and Pages that allows the users to promote their services, Other than that, the platform is also free to use for everyone in all age groups. So it can help the contractor promoting their business in a wider scope. Community interaction that provided like comment, likes and personal chat is also interesting since it can build trust and connect the clients with contractors.

- Cons

Since Facebook is just a social media with purpose to connect peoples, it lacks verification that can used to validate the contractors. This is important for the clients to avoid fraud and wasting time looking for a counterfeit contractor. Besides that, this platform also provides a feature that let the page, group or post owner delete the comments that can lead to transparency issue. The negative reviews or feedback can easily be removed to ensure their name keep clean. Additionally, the contractor details also might or be incomplete or vague. For example, some contractor does not update their pages that shows their office location, phone number or even their past work. The future client might face difficulty to make decision or potentially being scammed.

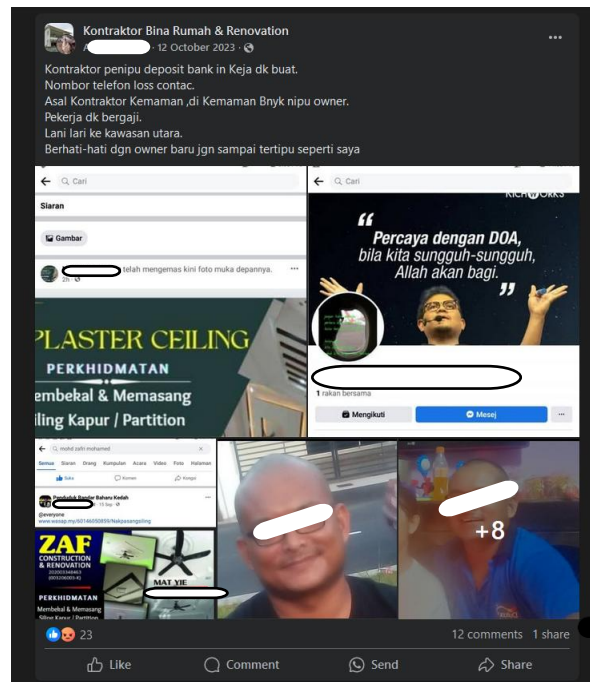


Figure 2.11: Example of post made to expose scammer on Facebook.

2.3.2 Recommend.my

- **Pros**

Recommend.my is home service platform that focused on providing home services to its clients. One of the best things of this platform is they provides a verified vendors or contractors to the clients. All the contractors listed are verified before being recommend to its user which guarantees providing a reliable contractor. Effective customizable filters also give an advantage to let the users find what they look in no time and suits their preferences. Besides that, a quotation system also has been provided to estimate the cost of the renovation. The client just needs to fill some information, and the quotation will be received in four days approximately after submitted. As the result, the client can compare the pricing from several vendor before deciding. It also has trustworthy contractor reviews by the past client that can promote transparency and help the future client make informed decisions.

- **Cons**

Since Recommend.my provides lots of services in its platform, it has limited number of contractor options. Comparing to Facebook who have a larger market scope, Recommend.my only lists contractors who are registered and verified within the platform, which narrows the choices for users looking for more variety. Besides that, the availability of services also depends on the user's location. For instance, clients from the rural areas might face difficulty finding contractors as the platform focuses on urban regions. Additionally, the system requires users to wait for vendors to respond to quotation requests, which can take up to four days. This waiting period may delay urgent projects and cause inconvenience to users seeking immediate solutions.

2.3.3 Atap.co

- **Pros**

Atap.co is an interior design platform that focuses on connecting the property owners (clients) with the interior designers and renovation contractors. The professional focus provided help the future clients to be matched with a specialized professional. It also provides a transparent portfolio that can showcase a detailed portfolio of the designers. The present of project photos, description and past client feedback can help the future clients assess the quality and style before engagement. A consolidated vendor details also can help simplifies the decision-making process for potential clients. For example, all the details like contact information, portfolio, and feedback can be found on a single page.

- **Cons**

Unfortunately, the platform is focusing more on interior design compared to home renovation which might not be ideal for clients who literally seek for a renovation

service. Hence, the project scale is also limited since it focusses more on interior design and renovation rather than major construction. It will be a problem for those who are planning to build a new structure. The single quote process also may lead to slow decision making since the potential client need to request quotation from each vendor individually instead of received several quotations right after filled the project details.

2.4 Proposed System Features Overview

Compared to all the reviewed platform at 2.0 Review of Similar System and 3.0 Comparison, MyTukang is a Home Renovation Client-Contractor System with medium size of scope. Hence, the focus is to provide an alternative to address the growing needs for a transparent, reliable and user-friendly platform that can seek contractors based in their preferences. The following table outline the system details.

Table 2.2: Proposed System Features Overview

	MyTukang
Type of System	Home Renovation Client-Contractor
Size of Scope	Medium
Features	• Contractor Directory – Provide a list of contractors registered in the platform to the user. • Quotation Request – Submit the project scope to get cost estimation by the contractor. • Multiple Quotation Request – Allows client to submit several requests to multiple contractors.

	• Rating and Feedback – Allows client and contractor to rate and give feedback to each other once the project done.
Pros	• Provide a transparent platform where the client and contractor can submit the rating and feedback to each other once the project done. • Provide a reliable search engine where the users can search for the contractor based on their preferences like rating and location. • Provide a secure system where all the contractors need to submit their information like personal info, portfolio, and company info to the system. • Display the Contractor details and the feedback received by the previous clients. • Contractor also can view the potential client feedback and rating received by the previous contractors who have been worked.
Cons	• Does not provide a payment method to pay the contractors. • Does not have integrated chatting space. • Focusing more on looking for a contractor.

2.5 Conclusion

Table 2.3: Comparison of three reviewed system and the proposed system

	Facebook	Recommend	Atap.co	MyTukang (Proposed System)
System	Social media	Home Service Platform	Interior Design Platform	Home Renovation Client-Contractor System
Related Features	• Groups • Search Function • Marketplace • Business Pages	• Categorized Search • Quotation Request • Pro Directory • Vendor Profiles	• Vendor Portfolios • Contact Us Form • Editorial Content	• Contractor Directory • Estimate cost via quotation. • Multiple Quotation Request • Feedback and Rating system for both client and Contractor
pros	• Has various interesting features. • Free to use. • Provide Community Interaction	• Verified Vendors. • Customizable Filters. • Quotation Estimates. • Trustworthy Contractor Reviews.	• Professional Focus. • Transparent Portfolios. • Vendor Information are displayed into one page	• Promote Transparency • Easy browsing by providing search bar. • Secure System with detailed contractor info. • Both client and contractor can view rating and feedback before

				confirming the deal.
Cons	• Lack of Verification. • Comment Control. • Ambiguous Contractor Details.	• Limited Contractor Option • Service depends on User's Location: • Need to wait for vendor to response the quotation.	• More focus on interior design. • Not Ideal for Large-Scale Project. • Cannot compare multiple quotes simultaneously	• Does not provide a payment method to pay the contractors. • Does not have integrated chatting space. • Focus more on finding home renovation contractor.

This chapter highlights the strengths and limitations of the existing platforms like Facebook, Recommend.my and Atap.co in addressing the needs of clients seeking home renovation contractor. Each of their functionality, advantages, weakness and key limitation has been mentioned in the previous sub-chapter in detailed before delivered the idea in 2.4 Proposed System Overview to show the uniqueness of MyTukang compared to another existed similar platform. The comparison of the existing reviewed platform with the proposed system are represented in *table 2.3*.

To recap, MyTukang aims to provide a transparent, reliable and user-friendly platform tailored to the specific needs of home renovation projects. By integrate features like contractor directories, rating and feedback, and quotation requests, MyTukang will bridge the shortcoming of existing platform and become an alternative to other similar system. This system will ensure secure interactions, verified contractor information, and an optimized search experienced based on the user preferences, making it more practical and trustworthy solution for clients and contractors.

Chapter 3: Requirement Analysis and Design

3.1 Introduction/ Background

This chapter provides a detailed discussion on the requirements analysis and the specification of the proposed system. The methodology used which is Waterfall also will be reviewed in this chapter to give better understanding of it. Additionally, the system design also will be another focus, highlighting how the requirements are translated into a functional architecture to meet the project objectives.

3.2 Methodology

The methodology that will be used to develop "My Tukang – Home Renovation Client-Contractor System" is **Waterfall**, a structured and sequential approach. This model is well-suited for this project as it provides a clear structure which need to complete one phase before moving to another phase. This allows for early planning for the requirements and unsure that the end goal is defined from the outset. The structure of the Waterfall Model is as *figure 3.1*.

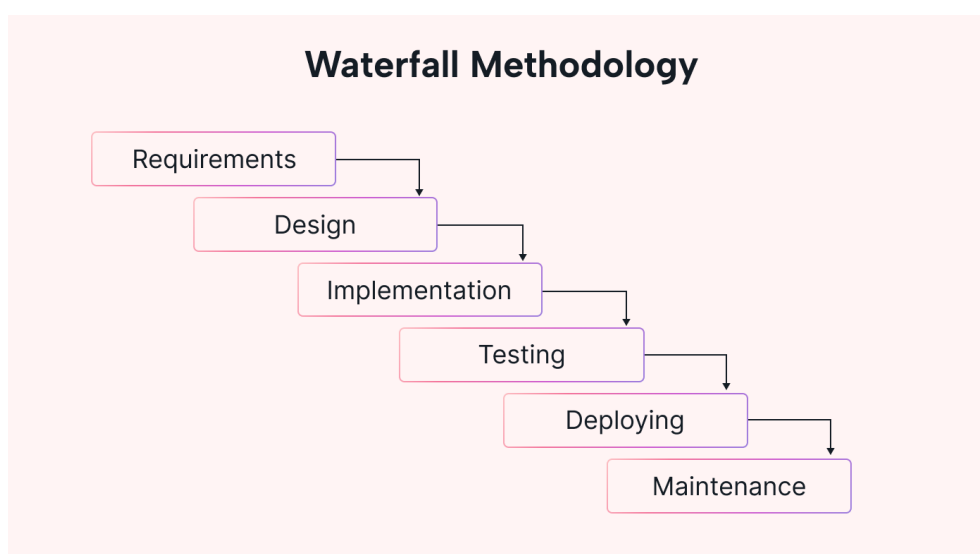


Figure 3.1: The Structure of the Waterfall Model

This chapter will focus discussing on the first two phases of the waterfall methodology. The remaining four phases will be cover on Final Year Project 2 chapters. Below is the brief information of all the phases.

- Requirements
 - In this stage, all the project needs are gathered and documented. This is a crucial stage since all the research including identifying the core functionalities of the system, user roles and performance expectations.
 - Eg: Identifying the project's problem statement, Solution and objective to achieved.
 - This phase also includes the data gathered by using Interview and Questionnaire that will be discuss in 3.3 Requirements Analysis.
- Design
 - This stage focused on outlining the architecture of the system, user interface design, and the database structure. At the end, a clear image of the system has been made, and the system structure has been planned.
 - Eg: Create the wireframe of the system and drafting the system flow as in 3.4 System Design.
- Implementation
 - In this phase, the actual development of the system will be run. Both front-end and back-end components are coded based on the output from the previous phase.
 - Eg: Front-End – Develop UI by Using HTML, CSS and JavaScript, Backend- PHP, setup the database.
- Testing

- Testing is the next step to ensure the system functions as intended. Both functional and non-functional aspect are tested. If any error occurs, fixing the bug will be done here.
- Eg: Test the rating system, search and filtering features.
- Deploying
 - Once the system has passed all the test case, the system will be ready for the deployment. The code will be posted online through the web hosting and will be publish to the public.
 - Eg: Hosting the “MyTukang” platform using a web server, set a domain configuration and ensuring it connected to the database successfully.
- Maintenance
 - The last phases mainly focus on fixing any bugs or issues that arise are addressed, and periodic updates are made to improve is functionality, security and performance.
 - Eg: Regularly monitoring the system performance, solve it in the next updates.

3.3 Requirement analysis

In this part, defining the need and expectations of the system's stakeholders will be the focus. This process ensures that the proposed system address the user requirements and is reasonable to implement. Two types of data gathering methods are used to collect the specifics data from the public to ensure the success of this project.

3.3.1 Interview and Questionnaire

3.3.1.1 Interview

In this section, the interview was conducted on the focus roles, client (who have hired the contractor) and the contractor (who have experienced in home renovation field). The purpose of this section is to gain qualitative insight into their challenges, expectations and preferred features. The Structure of the question is as below.

1. General Background
2. Current Practices
3. Experience with Platform
4. Expectations
5. Suggestion

Results

- **Client Part**

Client 1 Background:

The client interviewed is a 38 years old housewife that experienced in several project renovating her house in the previous year. The frequency of seeking contractor is low like once a year just for a small-scale project such as adding room or redesign the kitchen.

Interview 1 Outcome:

The client usually finds a contractor through recommendations by other including relatives and friends, and social media platform like Facebook and TikTok. The key factors that influence the contractor selection for her are quality, creativity, timeliness and positive

feedback from others. One of the challenge the client ever faced is to get the preferred contractor service due to the contractor availability.

The client expects the platform need to have the contractor detailed profile with feedback from the previous client, and also the credential verification of the contractor. Having a multiple contractor request for quotation is preferred for her since it give flexibility to choose a better offer from the contractors. As for the preferences, the priority should be on the contractor with legal qualifications or licenses. The client also suggests to include features that provide benefits to the clients and simplify the hiring process.

Client 2 Background:

The client interviewed is a 23 years old university students that has experienced two home renovation projects with one of it is still ongoing during the interview was conducted for his family house. For him, the frequency of seeking contractor is also low like only when it is needed like small repairing and services in past.

Interview 2 Outcome:

Based on the client, he and his father usually seek a contractor through recommendations by other including relatives and friends. The key factors that influence the contractor selection for him are cost and positive feedback from others. One of the challenge the client ever faced is the contractor is ambiguous and not fully reliable when working.

The client expects the platform need to provide the contractor's ratings, qualification details, and also legit certificate that has been verified. Having a multiple contractor request for quotation is preferred because it allows him to make a choice that suits his preferences. As for the preferences, the priority should be on the contractor with legal qualifications or licenses. The client also suggests to include features that allows to see the contractor preferred working circumstances.

- **Home Renovation Contractor Part**

Contractor 1 Background:

The contractor interviewed is a 47 years old female freelance contractor that experienced in many projects including home renovation, construction, and repair with over 20 years experienced. Some of her previous projects are including repair and maintain government quarters building, projects under Program Perumahan Rakyat Miskin Tegar (PPRT) and private building and home for renovation.

Interview 1 Result:

The interviewee typically seek client through social media to get information of the open tenders and close contact personal networks. Through the interviewee journey in this field, he often faced challenge like late payment and job requests exceeding the agreed scope.

Based on the interviewee experienced, she has used Facebook before to promote her services. However, she faced few challenges including limited audience reach due to lack of time for updates and advertisements together with high competition from other contractor. One of the main issues with the current approach is it is difficult to maintain regular updates due to project workload, and unfair competition due to lack of engagement she received.

The interviewee expects the proposed system will promotes fairness and build trust between the contractor and client. She also suggested active advertising to improve the contractor visibility and attract more client. However, he emphasized the importance of a simple, user-friendly platform to avoid overly complicated system.

Contractor 2 Background:

The contractor interviewed is a 26 years old male contractor that experienced in several project mostly focus on civil and structural works with one year experience.

Interview 2 Result:

The interviewee typically seeks and gain client through the open tenders. He admits the reliability of online platforms, social media and personal network for the client acquisition. Through the interviewee journey in this field, he has faced challenges when dealing with older people who cannot use new technology or inventions.

Based on the interviewee experienced, he only used direct approach at the moment to promote his business and find clients. The reason for this is that he believes most platforms still lack efforts to promote fairness, which would help foster honesty.

The interviewee prefers if the platform can showcase their past work or portfolio on the contractor profile. He also suggested a feature that can help them managing the project efficiently.

3.3.1.2 Questionnaire

In this section, a google form was distributed to the public targeted to two types of respondents - individuals who have experience in seeking home renovation contractor and the contractor itself. This survey is divided to two main categories, client and contractor. For each category will have three similar sections as below;

1. Section A – Current Practices and Preferences
2. Section B- Experienced with existing platforms.
3. Section C- Feedback on Proposed System (MyTukang).

Outcome

General Part:

Which one best describes you? Mana satu yang paling sesuai untuk menggambarkan anda?

15 jawapan

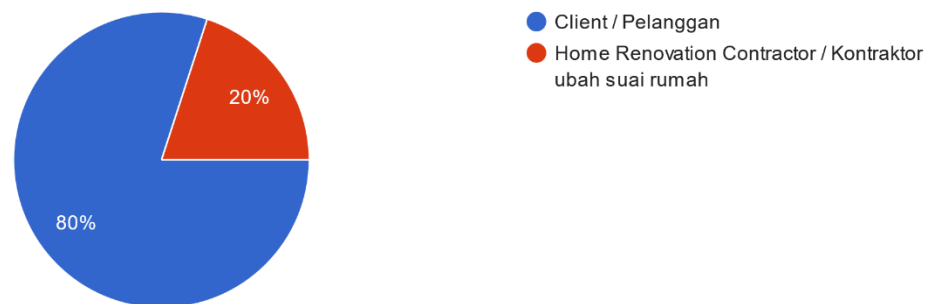


Figure 3.2: No of respondent

The questionnaire was open for two weeks and received 15 responses from two respondent categories. Referring to *figure 3.2*, twelve respondents identified as clients, while the remaining three identified as home renovation contractors.

Client Part:

How have you found a home renovation contractor before? Bagaimanakah anda pernah menemui kontraktor ubah suai rumah sebelum ini?

12 jawapan

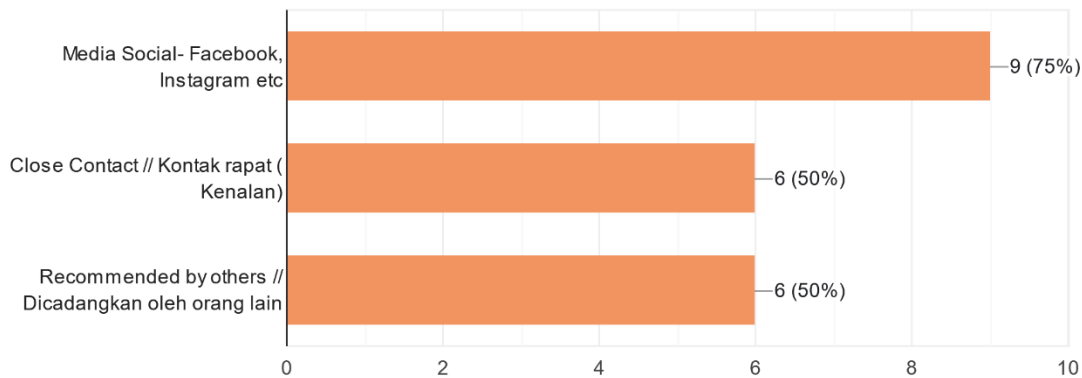


Figure 3.3: Client- Sec A Questionnaire 1

According to *figure 3.3*, most of the user have used media social media platform as the main medium of seeking contractor which are 75% selected it compared with the other way which is by close contact and recommend by others with selected percentage of 50% each.

Based on your answer above, what are the advantages of getting a contractor through this method? Berdasarkan jawapan anda di atas, apakah...an mendapatkan kontraktor melalui cara tersebut?

12 jawapan

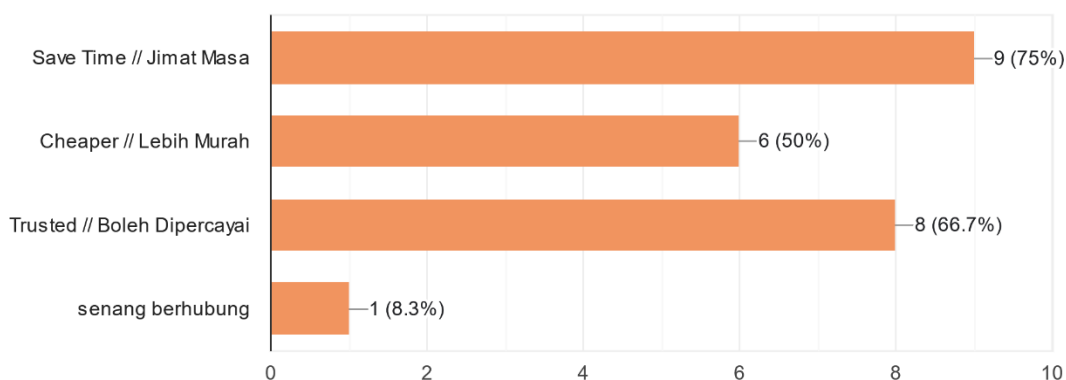


Figure 3.4: Client- Sec A Questionnaire 2

Based on *figure 3.4*, most respondents use the approach selected in *figure 3.3* are because it saves time (75%) and trusted (66.7%). Half of the respondent also agree it give cheaper cost to

the project and the unpopular opinion is it gives easy communication between client and contractor with only one respondent selected it.

Do you care if the contractor has legal qualifications such as licenses or education certificates? Adakah anda mengambil berat jika ko...ndang-undang seperti lesen atau sijil pendidikan?
12 jawapan

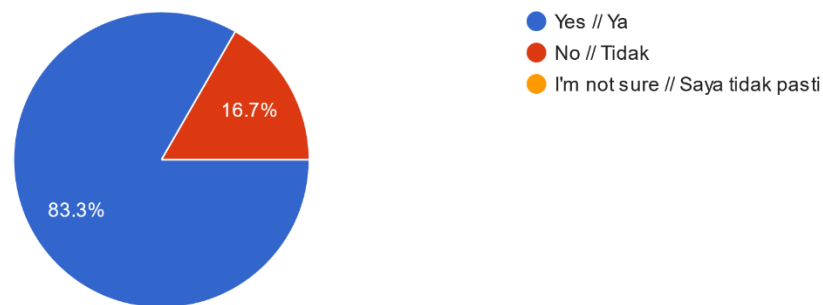


Figure 3.5: Client- Sec A Questionnaire 3

Based on the figure 3.5, most respondents (83.3%) stated that they care about contractors having legal qualifications, such as licenses or education certificates, while 16.7% (2 people) indicated they do not. This highlights a strong preference for licensed or certified contractors, emphasizing the need for a verification feature in the system to build user trust.

Will you take experienced contractor even they do not have any valid qualification? Adakah anda akan mengambil kontraktor berpengalaman walaupun... tidak mempunyai sebarang kelayakan yang sah?
12 jawapan

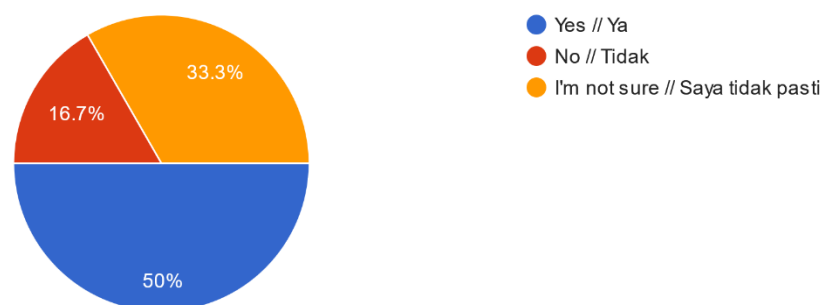


Figure 3.6: Client- Sec A Questionnaire 4

Based on the figure 3.6, half of the respondents (50%) stated that they would consider hiring an experienced contractor even without valid qualifications. Meanwhile, 33.3% were unsure,

and 16.7% outright said they would not. This indicates that while experience holds significant value, a portion of users remain hesitant, reinforcing the need for clear qualification and experience information in the system to help clients make informed decisions.

Have you used any online platform to search for home renovation contractors? Pernahkah anda menggunakan mana-mana platform dalam talian untuk mencari kontraktor pengubahsuaian rumah?
12 jawapan

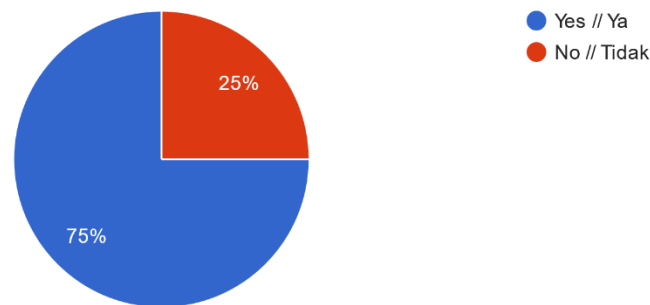


Figure 3.7: Client- Sec B Questionnaire 1

Referring on the *figure 3.7*, 75% of the respondents indicated that they have used an online platform to search for home renovation contractors, while 25% have not. This suggests that the majority of individuals prefer using online resources when looking for contractors, highlighting the importance of having a digital presence for contractors.

If yes, which platforms have you used? (Select all that apply) Jika ya, platform yang manakah telah anda gunakan? (Pilih semua yang berkenaan)
10 jawapan

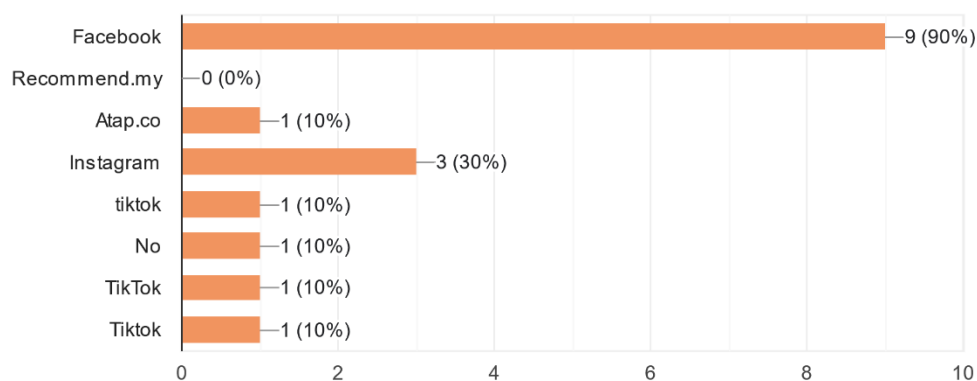


Figure 3.8: Client- Sec B Questionnaire 2

Based on the *figure 3.8*, 90% of the respondents who have used online platforms to search for home renovation contractors reported using Facebook, making it the most popular platform. Instagram and TikTok followed with 30% each, indicating that social media platforms with visual content and community engagement are also preferred for contractor searches. Only 10% of respondents used Atap.co, while Recommend.my had no respondents, suggesting that niche platforms may have limited reach compared to more widely used social media platforms.

Based on your experience, how would you rate the following features of the platform(s)? (1 = Very Poor, 5 = Excellent) Berdasarkan pengalaman and...tform berikut? (1 = Sangat Lemah, 5 = Cemerlang)

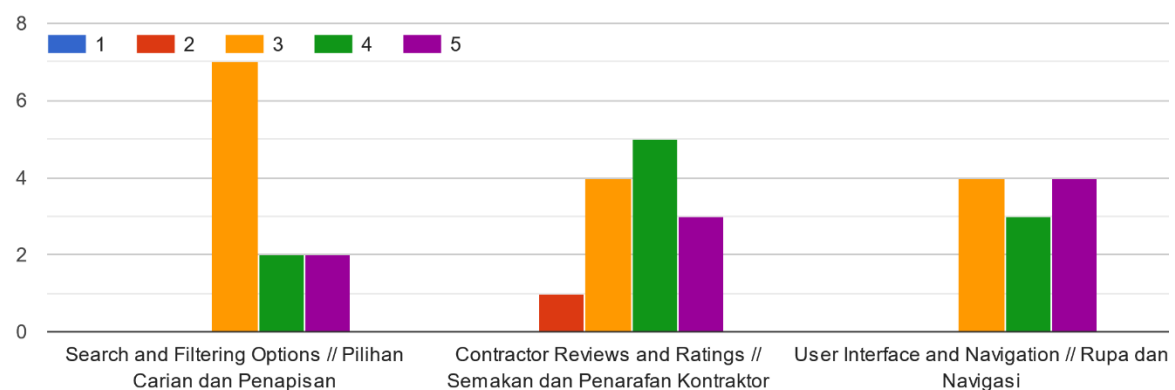


Figure 3.9: Client- Sec B Questionnaire 3

Search and Filtering Options:

Most respondents rated the search and filtering options as “3-Average” (*refer figure 3.9*). This shows that many users are not completely satisfied with the search feature and may feel it could be improved to help them find contractors more easily.

Contractor Review and Ratings:

For reviews and ratings, most users rated it as “4-Good” with five votes followed by “3-Average” with 4 voted. This suggests that while the review system is mostly helpful, some users may still want more detailed or reliable feedback about contractors.

User Interface and Navigation:

For the interface and navigation, 4 users rated it as “5-Excellent”, with support of three “4-Good”, and another four as “3-Average”. This indicates that many users find the platform easy to use, but others feel it could be more user-friendly.

How important are the following features for you when searching for a contractor? (1 = Not Important, 5 = Very Important) Betapa penting ciri-ciri berikut bagi anda semasa mencari kontraktor?

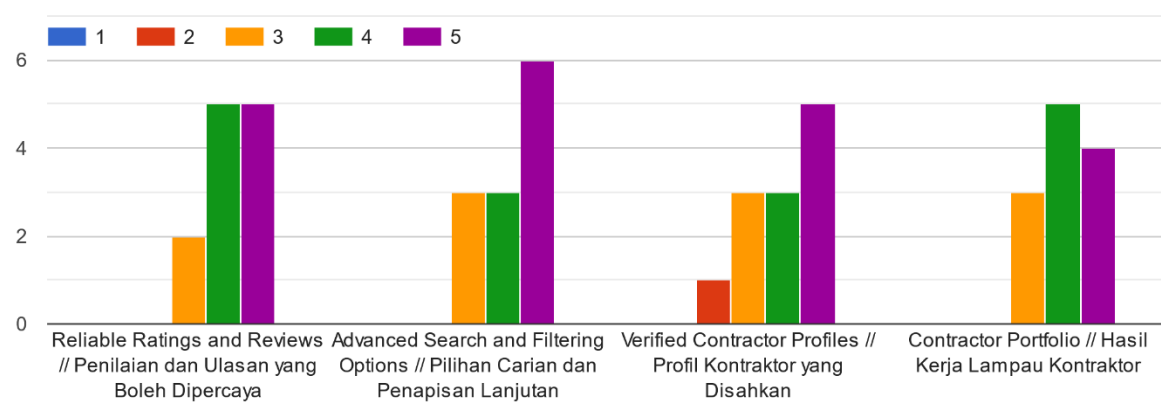


Figure 3.10: Client- Sec C Questionnaire 1

Reliable Ratings and Reviews:

Most respondents rated reliable ratings and reviews as “5-Very Important” together with “4-Important” which each has 5 voted and “3-Average” (2 votes). This shows that the majority of users consider reliable ratings and reviews to be crucial when selecting a contractor, indicating a strong need for trustworthy feedback on contractors.

Advanced Search and Filtering:

Most respondents rated advanced search and filtering as “5-Very Important” with 6 votes, followed by “4-Important” and “3-Average” with 3 votes each. This shows that users find advanced search features critical for effectively finding the right contractor, and improvements in this area would likely enhance the user experience.

Verified Contractor Profiles:

Most respondents rated verified contractor profiles as “5-Very Important” with 5 votes, and only one respondent rating it as “2-Not Important”. This suggests that users highly value verified contractor profiles to ensure fairness and trustworthiness when selecting contractors.

Contractor Portfolio:

For contractor portfolios, most rated it as “4-Important”, followed by “5-Very Important” with 4 and 3 votes respectively and only 3 votes for “3-Average”. This indicates that a majority of users find contractor portfolios important for evaluating skills and previous work.

Would you be interested in a platform that offers all the above features in one place? Adakah anda berminat dengan platform yang menawarkan semua ciri di atas dalam satu tempat?

12 jawapan

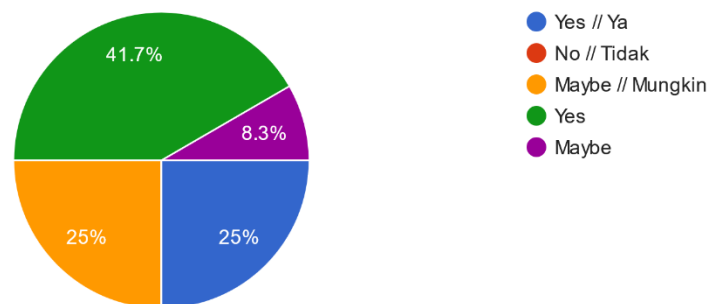


Figure 3.11: Client- Sec C Questionnaire 2

According to the *figure 3.11*, 66.7% of the respondent agree they would be interested to see all the mentioned features in one platform and only 32.3% unsure if they would be interested. This highlights the acceptance of the features could being benefit to the system functionality.

What additional features would you like to see in the MyTukang platform?

Apakah ciri tambahan yang anda ingin lihat dalam platform MyTukang?

4 jawapan

menanyakan pendapat design pada pelanggan & minimal kan kos

Menepati masa

Harga dan feedback

Sentiasa kongsi contoh contoh projek yang telah dilakukan

Figure 3.12: Client- Sec C Questionnaire 3

Based on the respond as in *figure 3.12*, some respondents wish to have additional features that allow them to give opinion on their design preferences, with minimal cost project offer. There is also some opinion wish they can see the contractor feedback and portfolio that consistently updated.

Contractor Part:

How do you usually find clients for your renovation services? (Select all that apply) Bagaimana anda biasanya mencari pelanggan untuk perkhidmatan pengubahsuaian anda?

3 jawapan

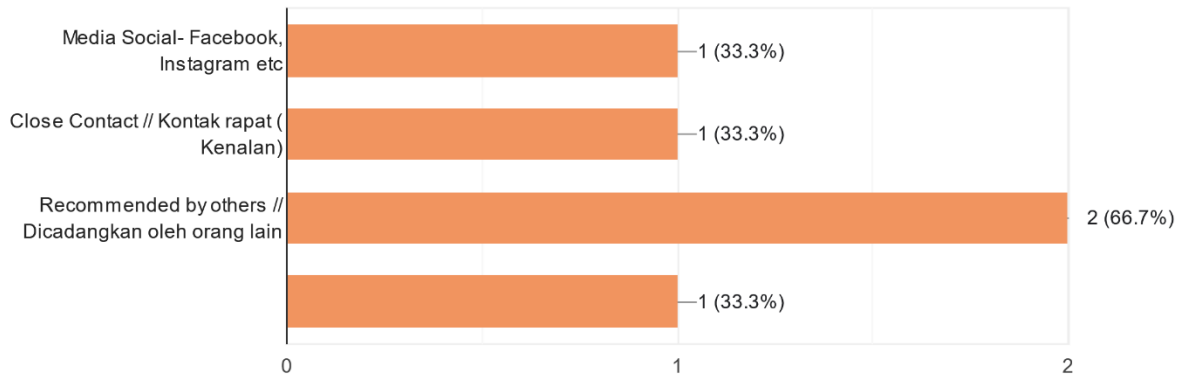


Figure 3.13: Contractor- Sec A Questionnaire 1

Based on the respond as in *figure 3.13*, the popular approach is by recommended by others with 66.7% selected it and the other option each gives 33.33 selected rate.

**Ps: The fourth option is for others.*

Based on your answer above, what are the advantages of finding clients through this method? Berdasarkan jawapan anda di atas, apakah...lebih mencari pelanggan melalui cara tersebut?

3 jawapan

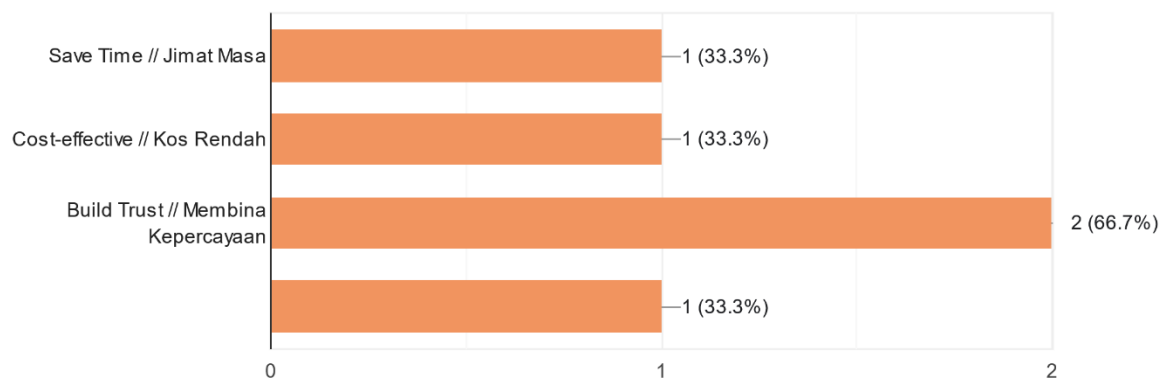


Figure 3.14: Contractor- Sec A Questionnaire 2

**Ps: The fourth option is for others.*

Based on the *figure 3.14*, the respondent believes that the selected approach in the previous section could build trust (66.7%) together with saving time and cost effective (33.3% respectively).

Do you believe having legal qualifications such as licenses or education certificates helps gain client trust? Adakah anda percaya bahawa me...dikan membantu membina kepercayaan pelanggan?
3 jawapan

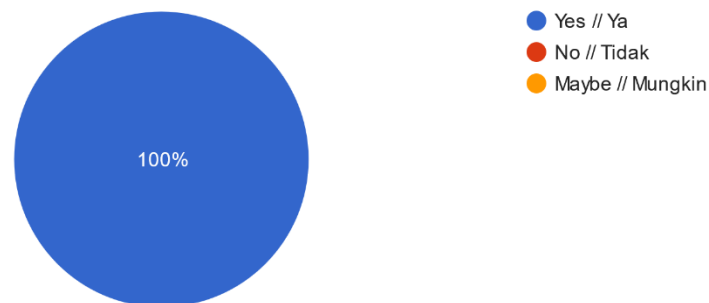


Figure 3.15: Contractor- Sec A Questionnaire 3

Based on the *figure 3.15*, all the respondents agree that having legal qualifications and education certificates could help gain the client trust, emphasizing the critical role of credentials in credibility.

Have you used any online platform promote your services or find clients? Pernahkah anda menggunakan mana-mana platform dalam talian u...omosikan perkhidmatan atau mencari pelanggan?
3 jawapan

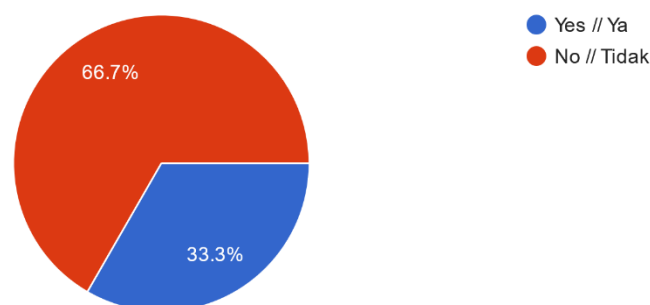


Figure 3.16: Contractor- Sec B Questionnaire 1

Based on the *figure 3.16*, 66.7% of the respondent stated that they never used any online platform to promote their services or find clients, only the minority with 33.3% indicated that

they have. This suggests that the majority of respondents are not leveraging online platforms for client outreach or service promotion yet.

If yes, which platforms have you used? (Select all that apply) Jika ya, platform manakah yang anda gunakan?

2 jawapan

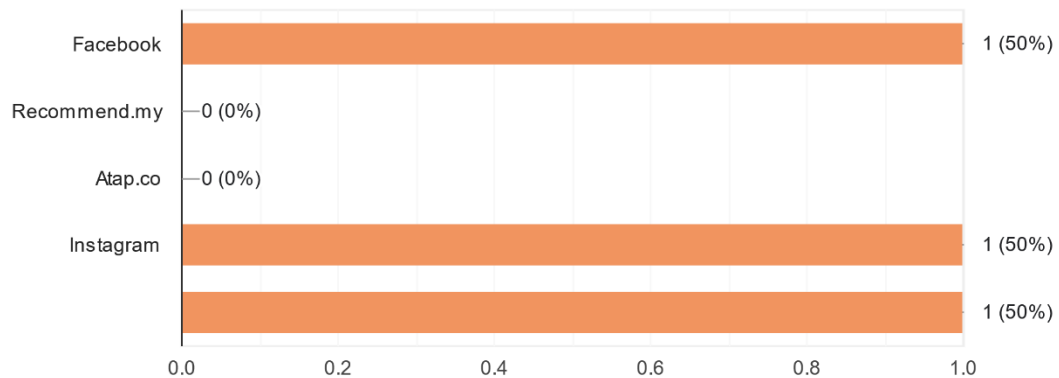


Figure 3.17: Contractor- Sec B Questionnaire 2

Based on the figure 3.17, the respondents who used online platforms, answer have used Facebook, Instagram, and other platform to promote their service. This indicates that social media platforms are the preferred choice for promoting services or finding clients among the respondents.

Based on your experience, how would you rate the following features of the platform(s)? (1 = Very Poor, 5 = Excellent) Berdasarkan pengalaman anda,...orm tersebut? (1 = Sangat Teruk, 5 = Sangat Baik)

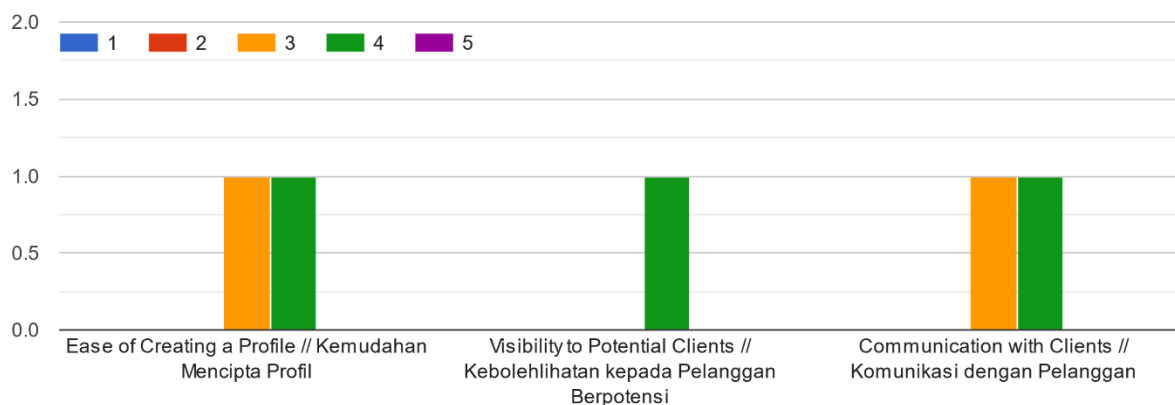


Figure 3.18: Contractor- Sec B Questionnaire 3

Based on the *figure 3.18*, the respondents rated few features of the current platform based on their experience. For ease of creating a profile, it got “3-Average” and “4- Good” with each 1 vote, Visibility to potential clients also voted as “4-Good” while the last features are communication with clients with 1 vote each for “3-Average” and “4- Good”.

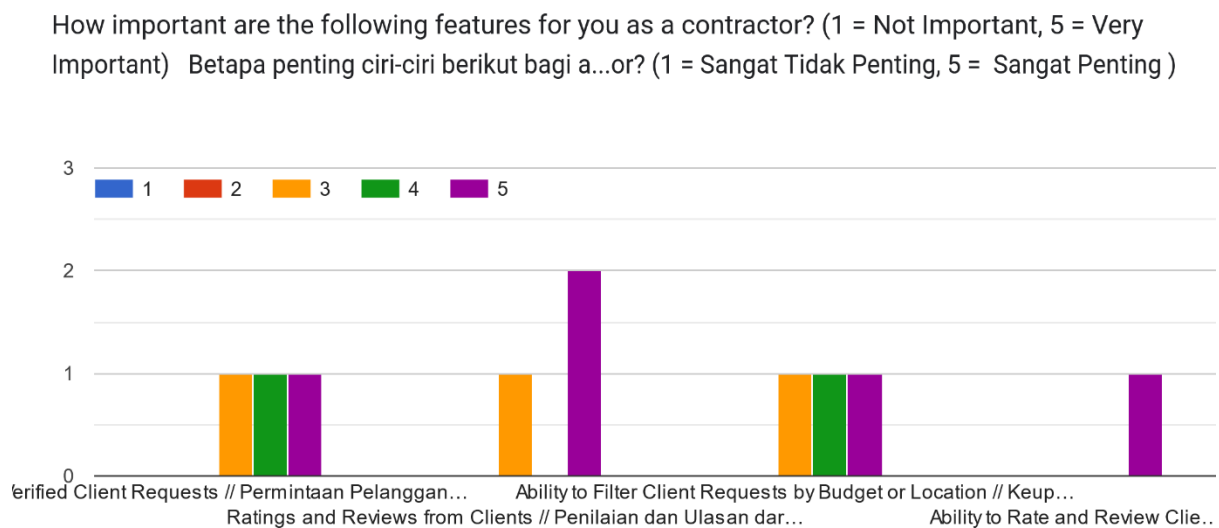


Figure 3.19: Contractor- Sec C Questionnaire 1

Based on the respondent votes in *figure3.19*, the verified client request feature is acceptable with no votes of “1-Very not important” and “2-Not important”. The ratings and reviews from the client feature are very crucial for the contractor with 2 votes of “5-Very Important”. Besides that, the ability to filter client requests by budget or location is considered as acceptable with no votes on “1-Very not important” and “2-Not important”. Lastly, the ability to rate and review the clients also voted for very important in the perspective of contractor.

Would you be interested in a platform that offers all the above features in one place? Adakah anda berminat dengan platform yang menawarkan semua ciri di atas dalam satu tempat?

3 jawapan

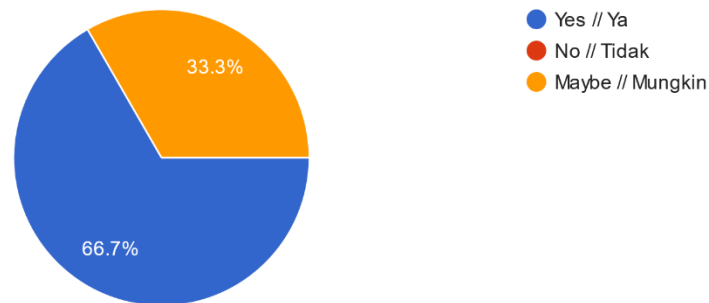


Figure 3.20: Contractor- Sec C Questionnaire 2

Based on the *figure 3.20*, 66.7% of respondents expressed interest in a platform that offers all the mentioned features in one place, while 33.3% were uncertain, responding with "Maybe." This indicates a significant interest in an integrated platform, though some respondents may require further clarification or additional features to be fully convinced.

3.3.2 Functional Requirements

The functional requirements are defined as product features or functions that are compulsory to be done. There are their primary users that will be the focus of this section which is client, contractor and admin.

Table 3.1: Functional Requirements

ID	Requirement Analysis	Priority
	User: Client	
CL1	Registration for the new user	High
CL2	Login to the system	High
CL3	Search and filter contractors based on location, rating, and service type.	Medium
CL4	View contractor profiles, including portfolios, licenses, and reviews.	Medium
CL5	Submit and track quotation requests.	High
CL6	Submit feedback and rating to contractor once the project finished	Medium
	User: Contractors	
CO1	Registration for the new user	High
CO2	Login to the system	High
CO3	Create and manage profiles, including portfolios and qualifications.	Medium
CO4	View list of quotation request and manage it.	High
CO5	View client ratings and feedback.	Medium
CO6	Submit feedback and rating to client once the project finished	High
	User: Admin	
A1	Handle report or complaints about the clients or contractors	High
A2	Suspend or deactivate user accounts that violate the system policy	Medium
A3	Generate system reports	Medium

A4	Moderate reviews and ratings to ensure compliance with community guidelines.	High
A5	Respond to user inquiries or support requests.	Medium
A6	Manage user authentication settings (e.g., password resets, access control).	Medium

3.4 System Design

3.4.1 Use Case Diagram

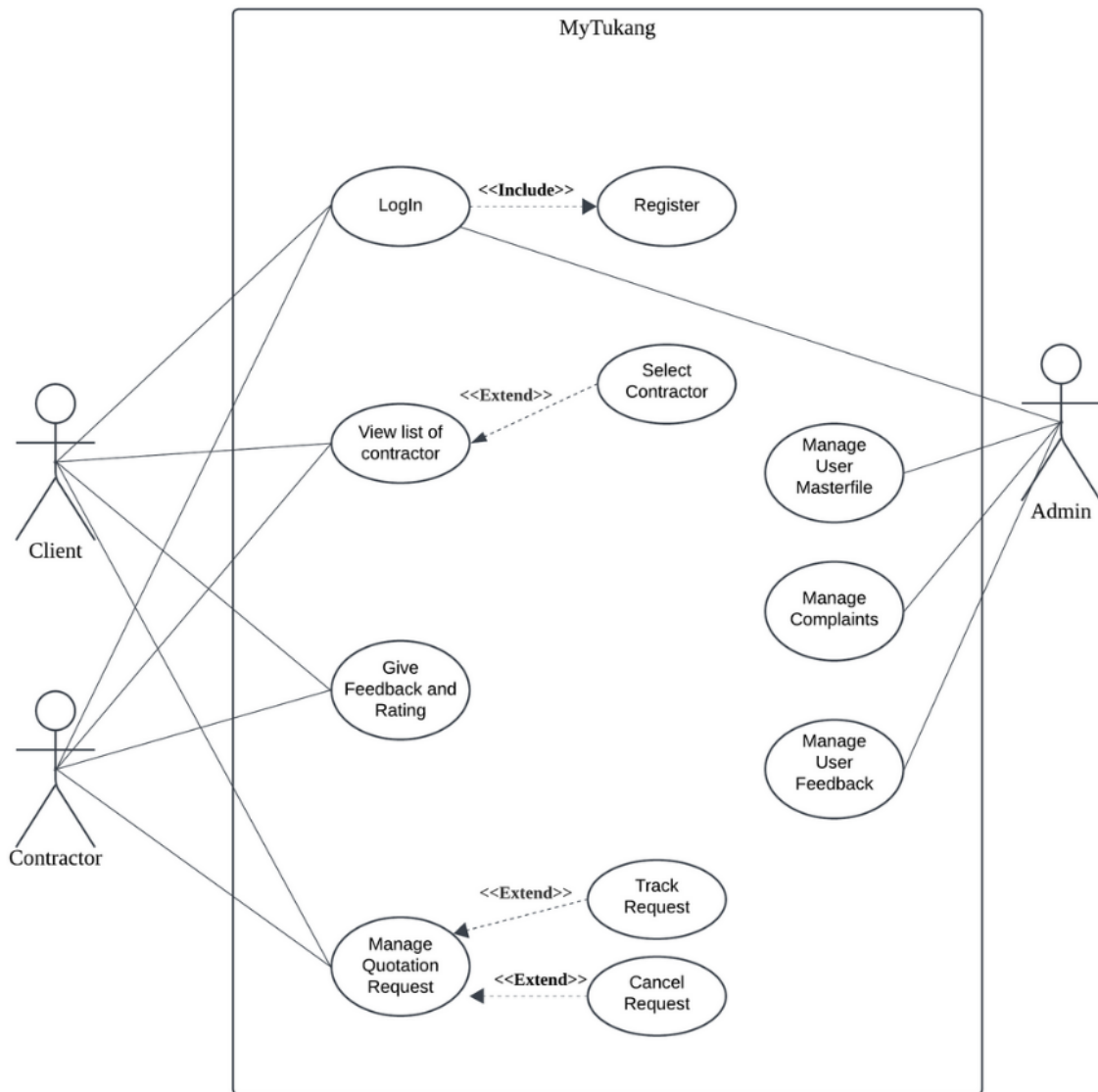


Figure 3.21: Use Case Diagram

Figure 3.21 is presenting the system use case which involve three main users, client, contractor and admin with 7 use case in total. The details of each use case are written in the next subtopic.

3.4.2 Use Case Specification

Use Case 1: Login

Short Description: The user enters their credentials to login to the system.

Actors: Client, Contractor and Admin

Requirements: The system must be able to validate the user credentials

Pre-Conditions: Need to have access to the internet.

Post- Conditions: The information is verified by the server.

Main Flow:

1. The actor opens the login page.
2. The actor enters their username and password at the respected text box.
3. The system validates the credentials.

Alternate Flow(s):

1. If the actor does not have registered account, they can register a new one by choosing a username and set their password.
2. If the actor forgot the password, they could click the forgot password to reset their password.

Exception Flow(s):

If the user entered the wrong credential, the system would display the error message and prompt to re-enter the credential.

Use Case 2: View list of Contractor.

Short Description: The dashboard will display a list of contractors.

Actors: Client and Contractor

Requirements: The system must be able to display the contractor profiles, including ratings and location.

Pre-Conditions: There must be a contractor information in the database stored.

Post- Conditions: The list must be relevant to the actor preference.

Main Flow:

1. The actor enters the dashboard or main page.
2. The system will display the list of contractors on the page by default.
3. The actor may apply filter and sorting criteria if needed.
4. Search function also will be provided for specific contractor is searched.
5. The system will display the list of contractors that fit with the actor preferences.

Alternate Flow(s):

Exception Flow(s): If no contractor can be found, the system will display the error message.

Use Case 3: Submit quotation request.

Short Description: The actor can be rate and review after the project done.

Actors: Client and Contractor.

Requirements: The client and contractor must have been relating by the quotation request.

Pre-Conditions: The client has accepted the contractor quotation.

Post- Conditions: The Client and Contractor can rate and review to each other.

Main Flow:

1. The client clicks the job details.
2. Then mark the job as completed.
3. After that the system will allows the client to give feedback and rating to the contractor. (Same goes to contractor)
4. The system will update the current rating and the list of feedback of the contractor.

Alternate Flow(s): If the client or contractor skips giving feedback, the system records the job as completed without feedback.

Exception Flow(s): If the job is not marked as completed, the system displays a message:

"Feedback is only allowed after marking the job as completed."

Use Case 3: Give Feedback and Rating

Short Description: The actor can be rate and review after the project done.

Actors: Client and Contractor

Requirements: The client and contractor must have been relating by the quotation request.

Pre-Conditions: The client has accepted the contractor quotation.

Post- Conditions: The Client and Contractor can rate and review to each other.

Main Flow:

1. The client clicks the job details.
2. Then mark the job as completed.
3. After that the system will allows the client to give feedback and rating to the contractor. (Same goes to contractor)
4. The system will update the current rating and the list of feedback of the contractor.

Alternate Flow(s): If the client or contractor skips giving feedback, the system records the job as completed without feedback.

Exception Flow(s): If the job is not marked as completed, the system displays a message:

"Feedback is only allowed after marking the job as completed."

Use Case 4: Manage Quotation Request

Short Description: The actor can manage their quotation requests, including submitting, cancelling or tracking its status.

Actors: Client and Contractor

Requirements: The system must allow quotation submission, tracking, and cancellation.

Pre-Conditions: The user must be logged in.

Post- Conditions: The quotation status is updated in the system.

Main Flow:

1. Open the Track quotation page.
2. The page will display the list of existing quotation request of the client with its status.
3. The client will be able to either cancel the request or edit the request information.

Alternate Flow(s):

Exception Flow(s): If the contractor does not respond within a specified time, the request is marked as expired.

Use Case 5: Manage User Masterfile

Short Description: The admin can manage user profiles, including registration approval, updates, and deactivation.

Actors: Admin

Requirements: The system must allow the admin to access and modify user records.

Pre-Conditions: The admin must be logged in.

Post- Conditions: The user master file is updated successfully.

Main Flow:

1. The admin views the user master file.
2. The admin approves, updates, or deactivates user accounts.
3. The system updates the user master file accordingly.

Alternate Flow(s):

The admin may filter users based on specific criteria (e.g. Role, location.).

Exception Flow(s): If the admin tries to delete a user with active projects, the system prevents the deletion and displays an error message.

Use Case 6: Manage Complaints

Short Description: The admin resolves complaints submitted by clients or contractors.

Actors: Admin

Requirements: The system must allow the admin to view and address complaints.

Pre-Conditions: Complaints must be submitted by users.

Post- Conditions: Complaints are marked as resolved or closed.

Main Flow:

1. The admin views the list of submitted complaints.
2. The admin selects a complaint to review.
3. The admin investigates and resolves the complaint.
4. The system updates the complaint status as resolved or closed.

Alternate Flow(s): The admin may request additional information from the complainant before resolving the issue.

Exception Flow(s): If the complaint cannot be resolved due to insufficient information, the admin marks it as "Pending Further Review."

Use Case 7: Manage User Feedback

Short Description: The admin monitors and manages feedback provided by clients and contractors.

Actors: Admin

Requirements: The system must allow the admin to view, filter, and remove inappropriate feedback.

Pre-Conditions: Feedback must already exist in the system.

Post- Conditions: The feedback database is updated accordingly.

Main Flow:

1. The admin views the list of feedback entries.
2. The admin filters or searches for specific feedback.
3. The admin removes or flags inappropriate feedback.
4. The system updates the feedback database.

Alternate Flow(s): The admin may notify users about flagged feedback and request clarification.

Exception Flow(s): If the admin cannot remove feedback due to a technical issue, the system displays an error message, "Unable to remove feedback. Please try again later."

3.4.3 Flowchart Diagram

Client

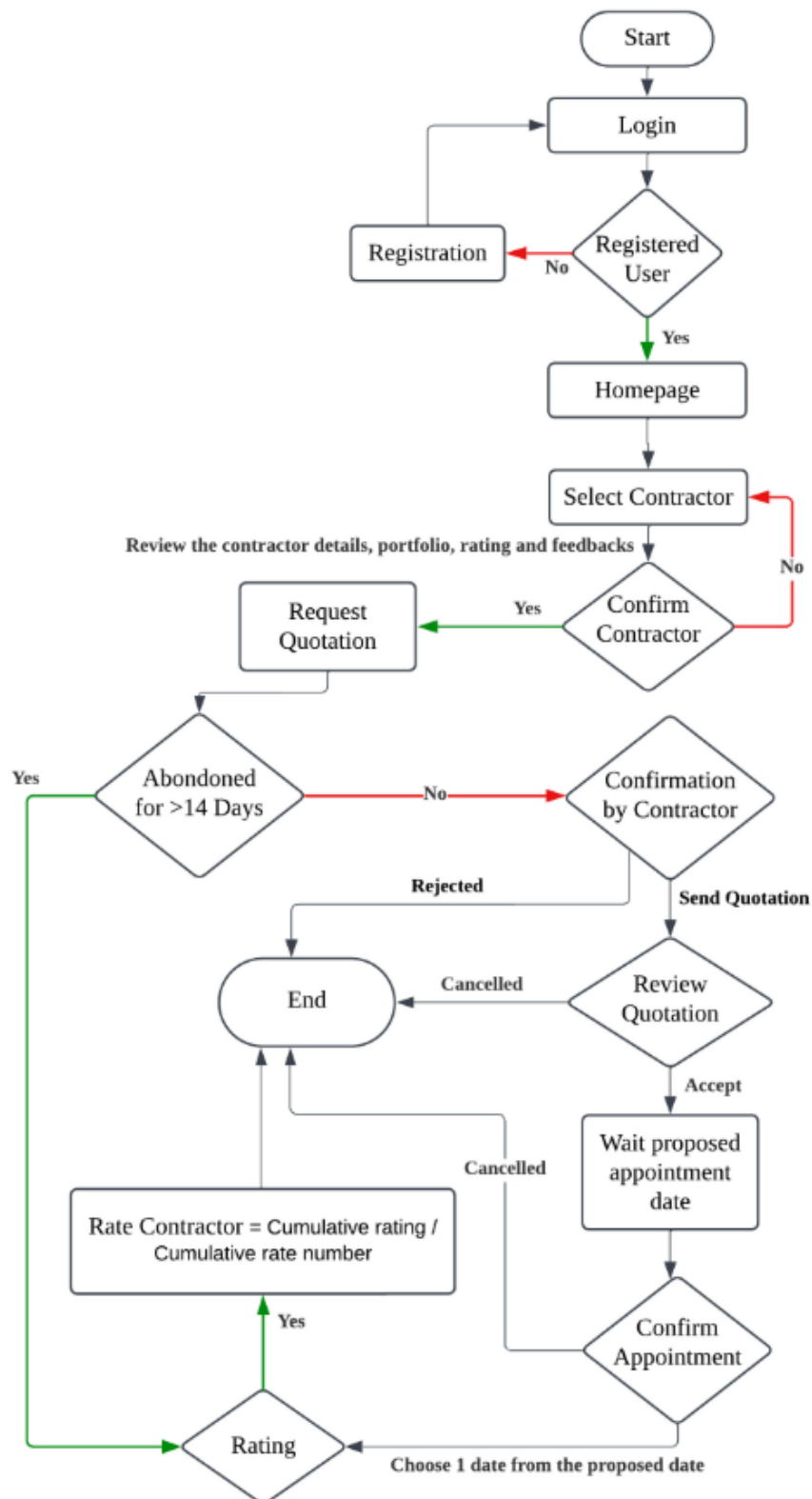


Figure 3.22: Flowchart for Client

Contractor

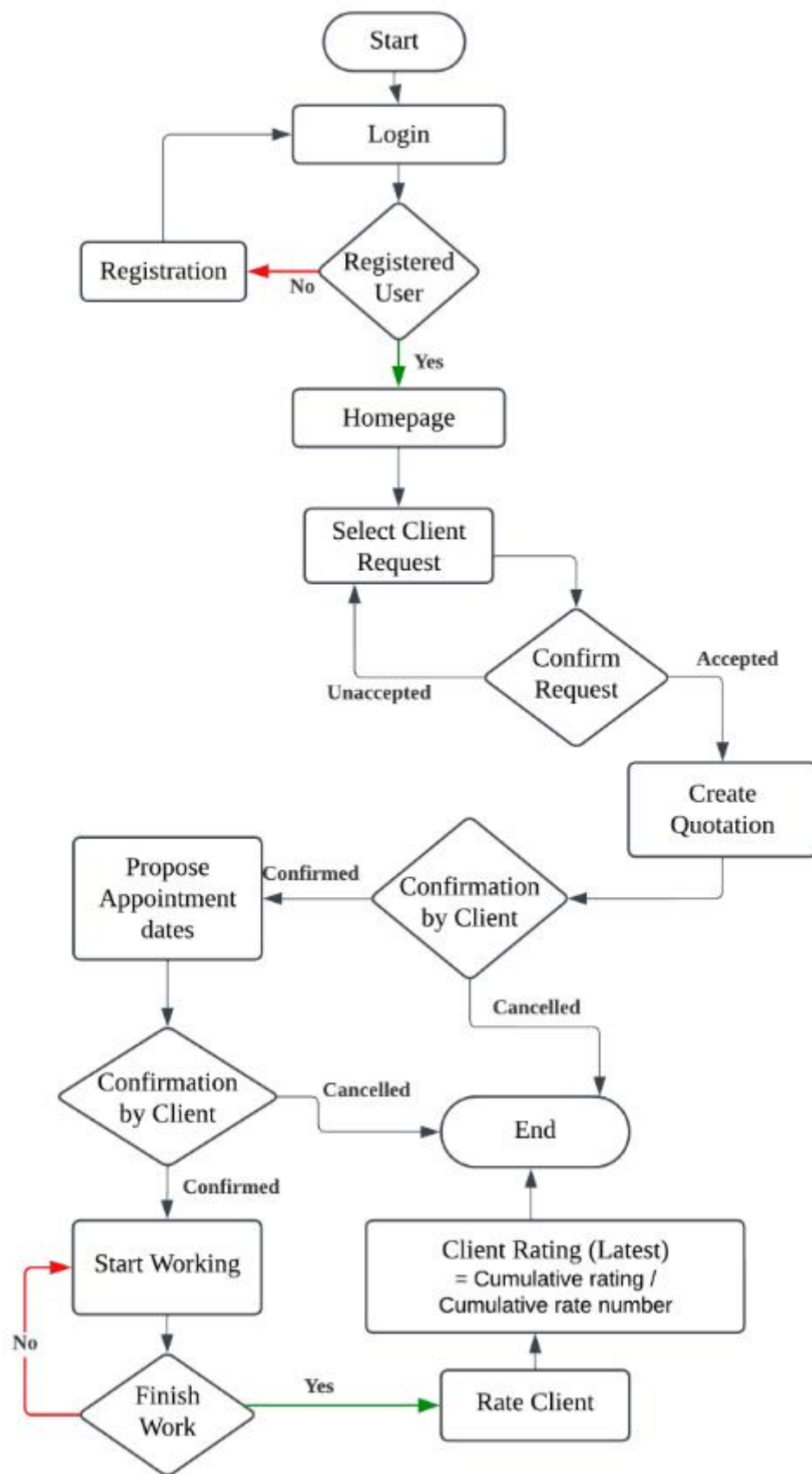


Figure 3.23: Flowchart for Contractor

Admin



Figure 3.24: Flowchart for Admin

The flowcharts are divided into three separate part which define by the user roles: Client, Contractor and Admin. *Figure 3.22* shows the main idea of the client flow which focus on the hiring process until the rate and review process ends. Meanwhile, *figure 3.23* depicts the flow for the contractor which focus on replying to the client quotation request until the rate and review process. Lastly, *Figure 3.24* outlines the admin key tasks like manage complaints, user accounts and manual user feedback.

3.4.4 Entity Relationship Diagram (ERD)

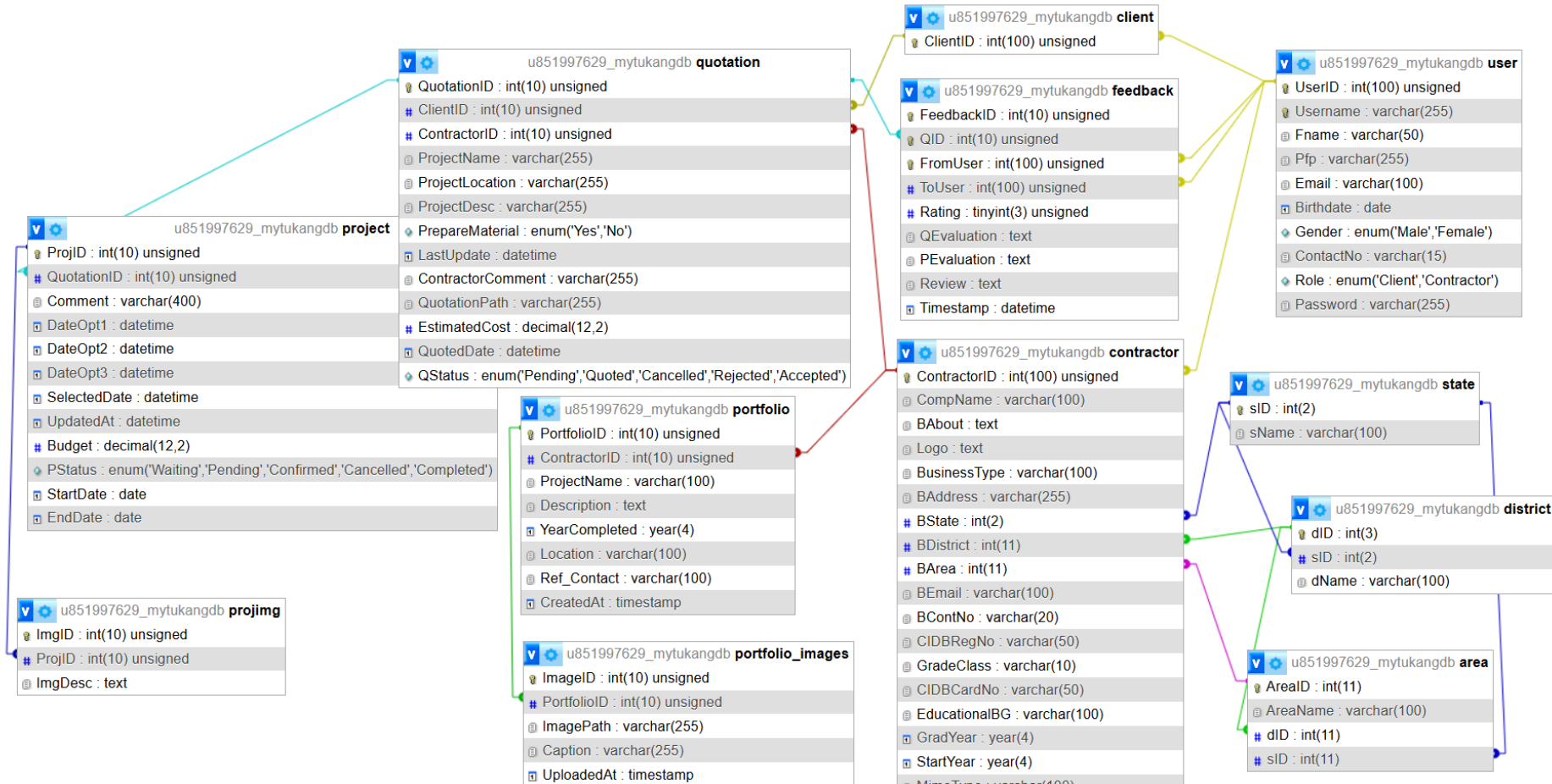
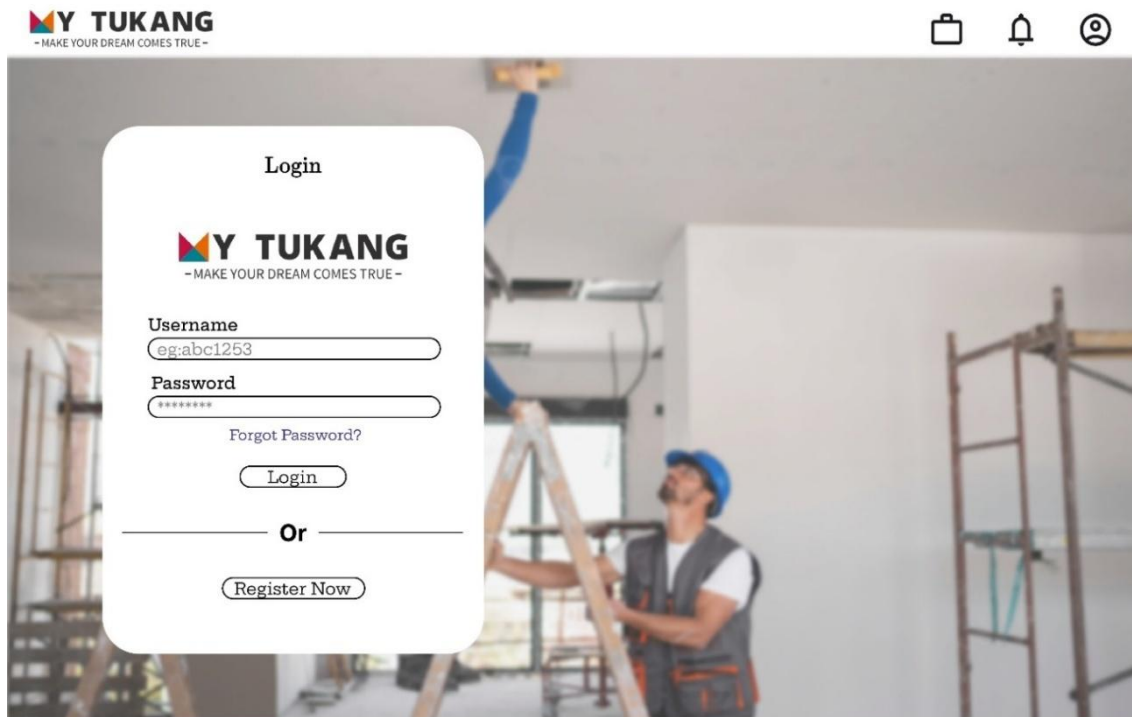


Figure 3.25: Entity Relationship Diagram

Based on the *figure 3.25*, the system consists of 12 main entities: User, Client, Contractor, Project, Quotation, Portfolio, Report, Feedback, Project Images, State, District, and Area. The User table stores general user details, while Client and Contractor are separate entities linked to their respective roles. Quotation allows clients to request the cost estimation from the contractors before starts the project. The project is linked to the client, contractor, and quotation, storing details like budget, status, and appointment details. Besides that, portfolio showcases the contractor's past projects, and ProjImg stores images related to each project. Other than that, Report will allow users to submit the complaints, while Feedback lets the client and the contractor to rate and review each other regarding the experience through the project. The other 3 entities are about the information of the address that cover the State, its Districts, and its Area which connected to each other. Overall, the diagram shows the database design that will be use during the implementation phase.

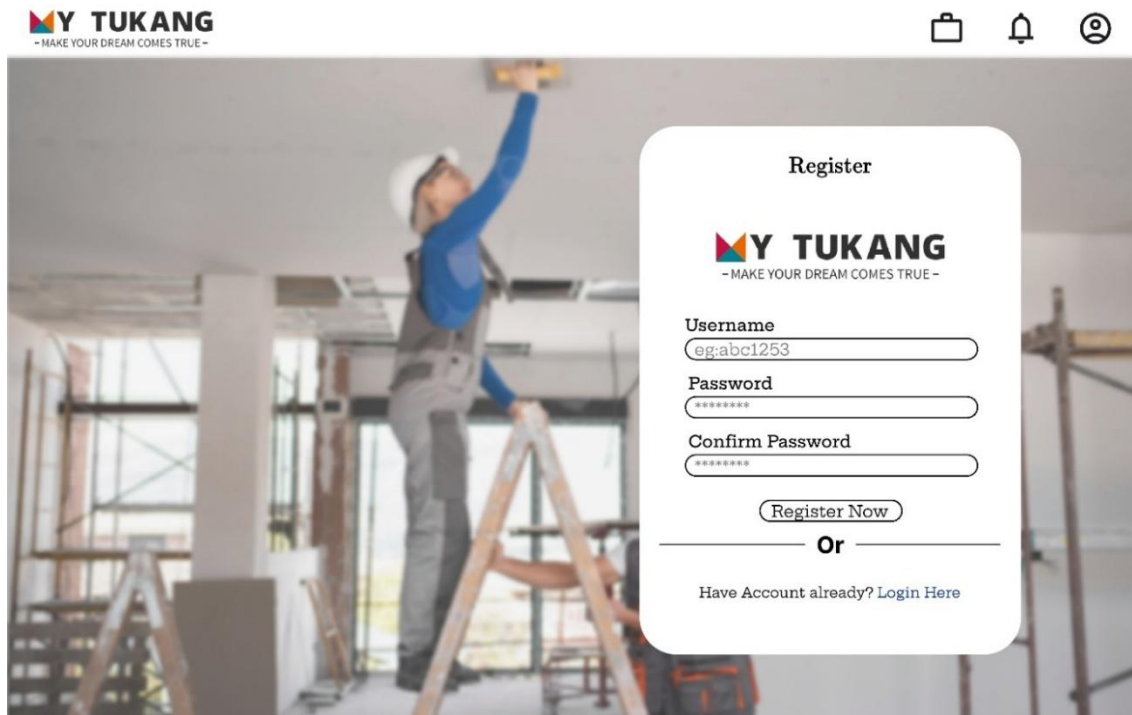
3.4.5 Wireframe

Client/Contractor Interface



The login page features a white modal box centered on a background image of a construction worker. The modal is titled "Login" and contains the "MY TUKANG" logo with the tagline "- MAKE YOUR DREAM COMES TRUE -". Below the logo are two input fields: "Username" with the placeholder "eg:abc1253" and "Password" with a masked "*****". A "Forgot Password?" link is positioned below the password field. At the bottom of the modal are two buttons: "Login" and "Register Now", separated by a horizontal line and the word "Or". The top of the page includes the "MY TUKANG" logo and three icons: a shopping bag, a bell, and a user profile.

Figure 3.26: Login Page



The registration page features a white modal box centered on the same background image. The modal is titled "Register" and contains the "MY TUKANG" logo with the tagline "- MAKE YOUR DREAM COMES TRUE -". Below the logo are three input fields: "Username" with the placeholder "eg:abc1253", "Password" with a masked "*****", and "Confirm Password" with a masked "*****". A "Register Now" button is located below the confirm password field. At the bottom of the modal are two options: "Or" followed by a link "Have Account already? Login Here". The top of the page includes the "MY TUKANG" logo and three icons: a shopping bag, a bell, and a user profile.

Figure 3.27: Registration Page

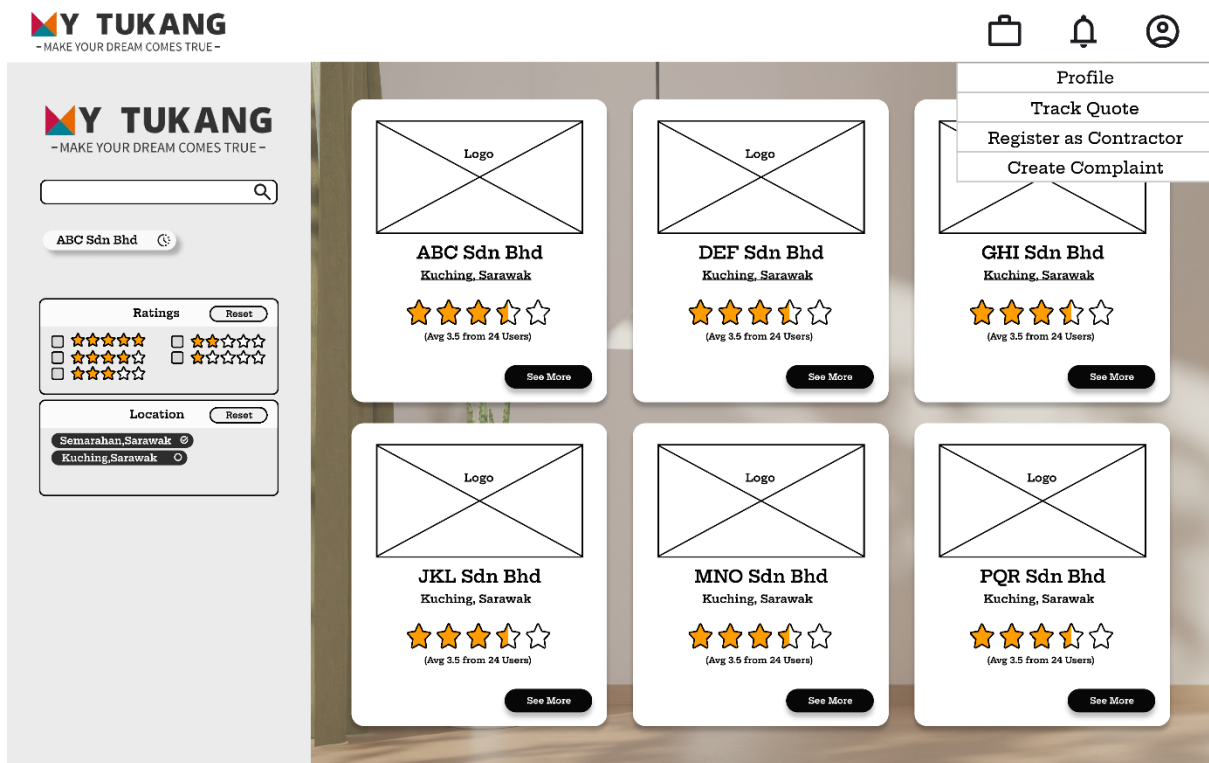


Figure 3.28: Homepage (with user icon opened)

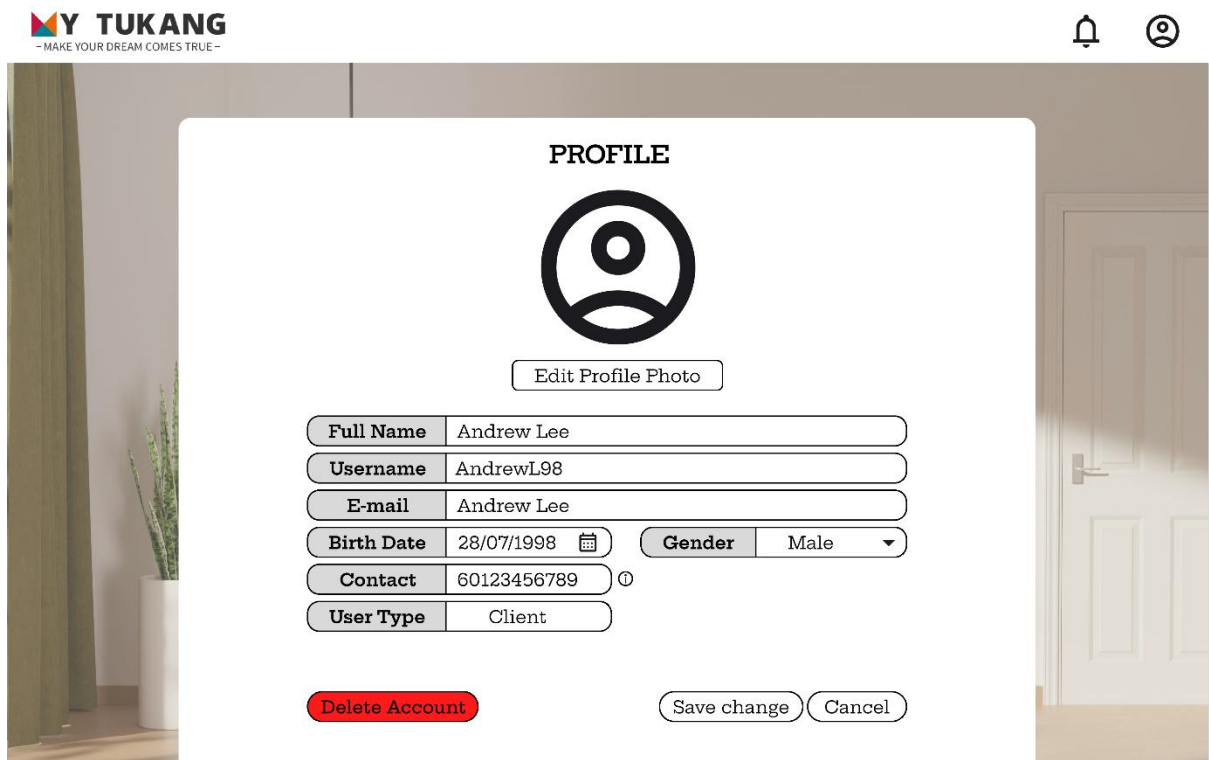


Figure 3.29: Edit Profile






Register as Contractor

○

●

●

●

Business Information

Professional Qualification

Experience

Submit

Company Name	Alam Bina Sdn Bhd
SSM Register No	Not Set
Business Type	--Select type Eg:Partnership, Sdn Bhd...
Business Address	--Address--
Email	eg: alambina@gmail.com
Contact	--Contact No

Cancel

Back

Next

Figure 3.30: Register as Contractor-Step 1






Register as Contractor

●

○

●

●

Business Information

Professional Qualification

Experience

Submit

CIDB Reg No	-
Grade Classification	-
CIDB Green Card No	-
Educational Backgro	-
Certification	-
Contact	-

Cancel

Back

Next

Figure 3.31: Register as Contractor-Step 2 Figure 6: Register as Contractor-Step 2






Register as Contractor

●

●

○

●

Business Information

Professional Qualification

Experience

Submit

Year of Experience

-

Portfolio

Project Name

Upload 

Client Ref

Add

Project List

Project A	Project A	01129822334	 
-----------	---------------------------	-------------	---

Cancel

Back

Next

Figure 3.32: Register as Contractor-Step 3






Register as Contractor

●

●

●

○

Business Information

Professional Qualification

Experience

Submit

Consent

I declare that everything I have filled out here is true and I may be subject to legal action if found to have been deceived.

☐

Cancel

Back

Submit

Figure 3.33: Register as Contractor-Step 4

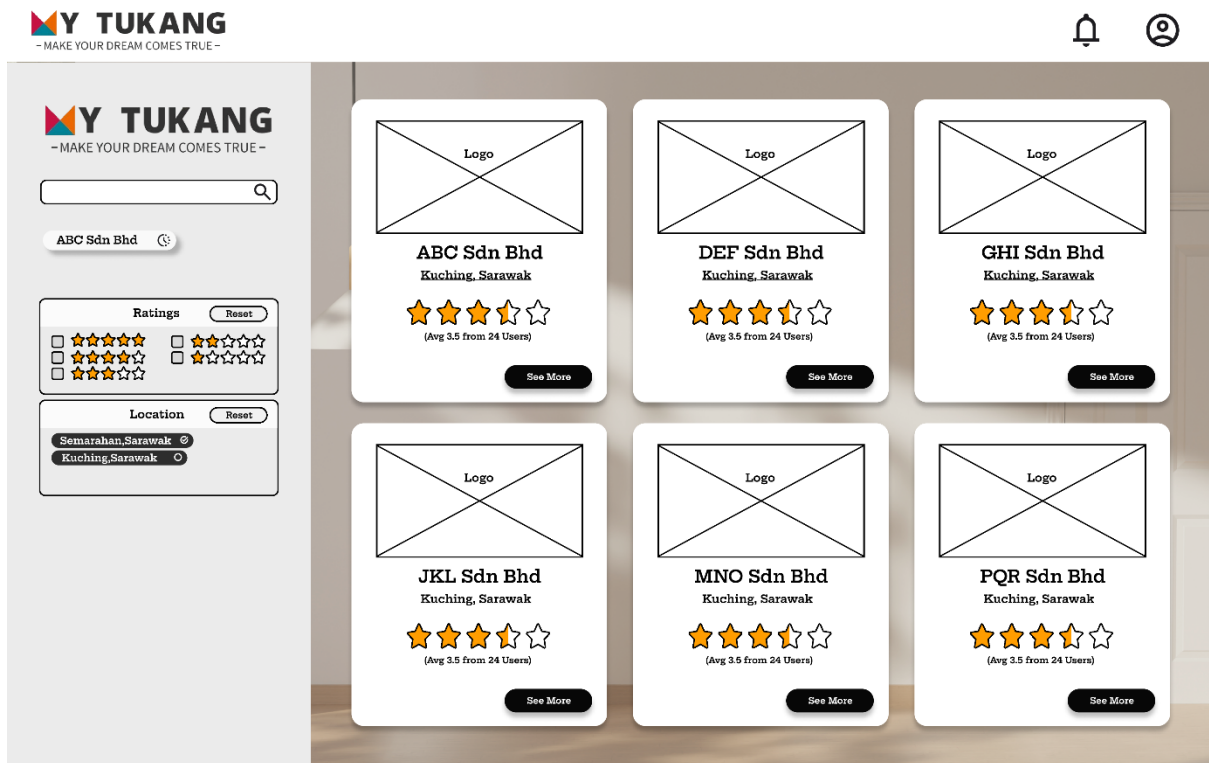


Figure 3.34: Homepage (List of Contractor)

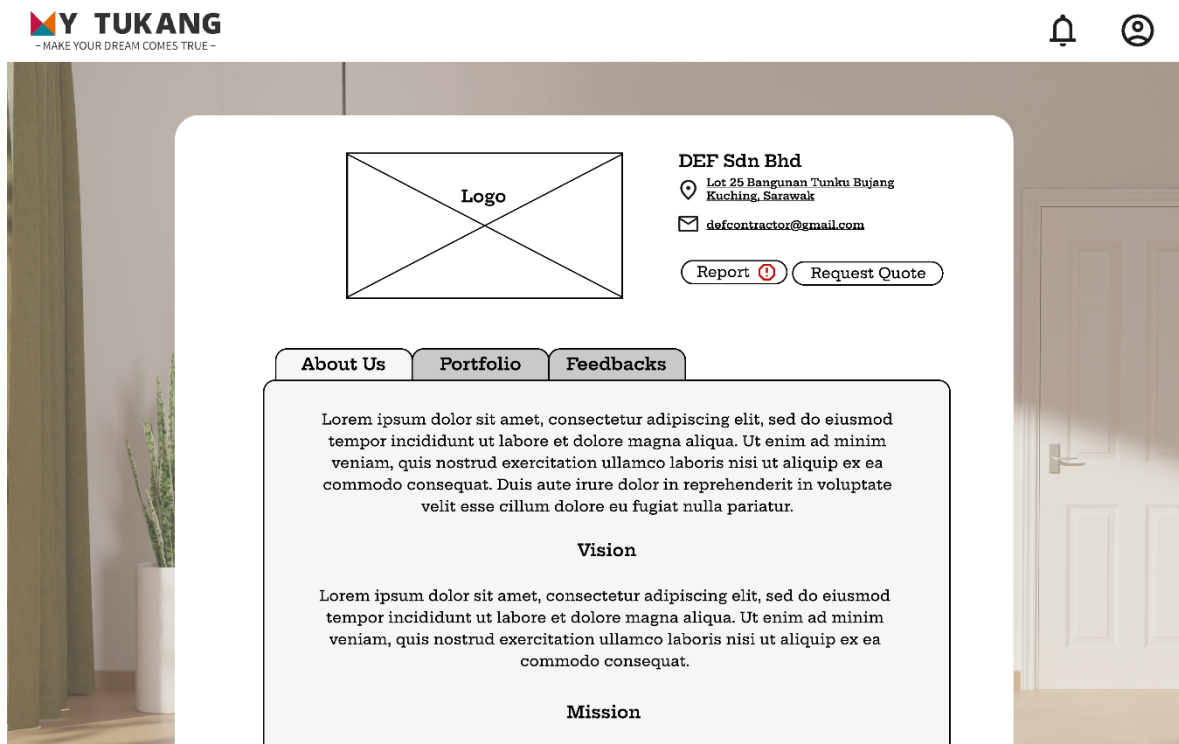


Figure 3.35: Contractor Overview -1

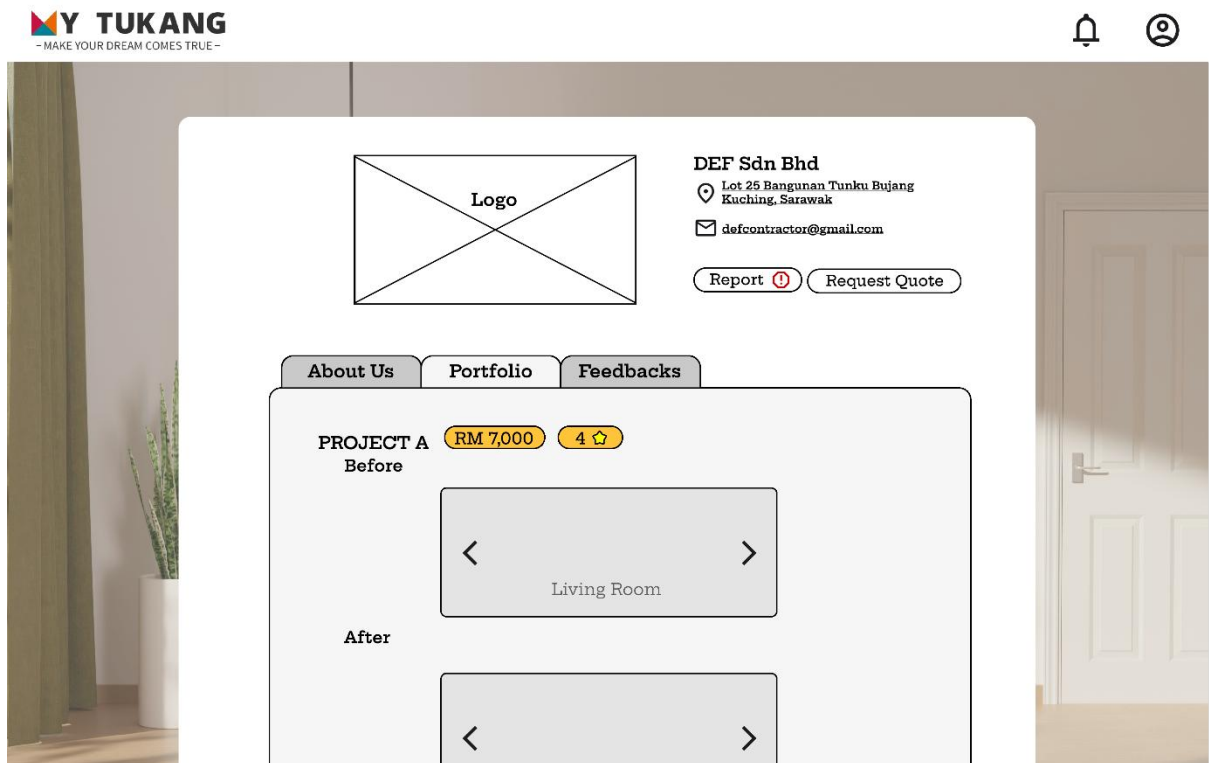


Figure 3.36: Contractor Overview -2

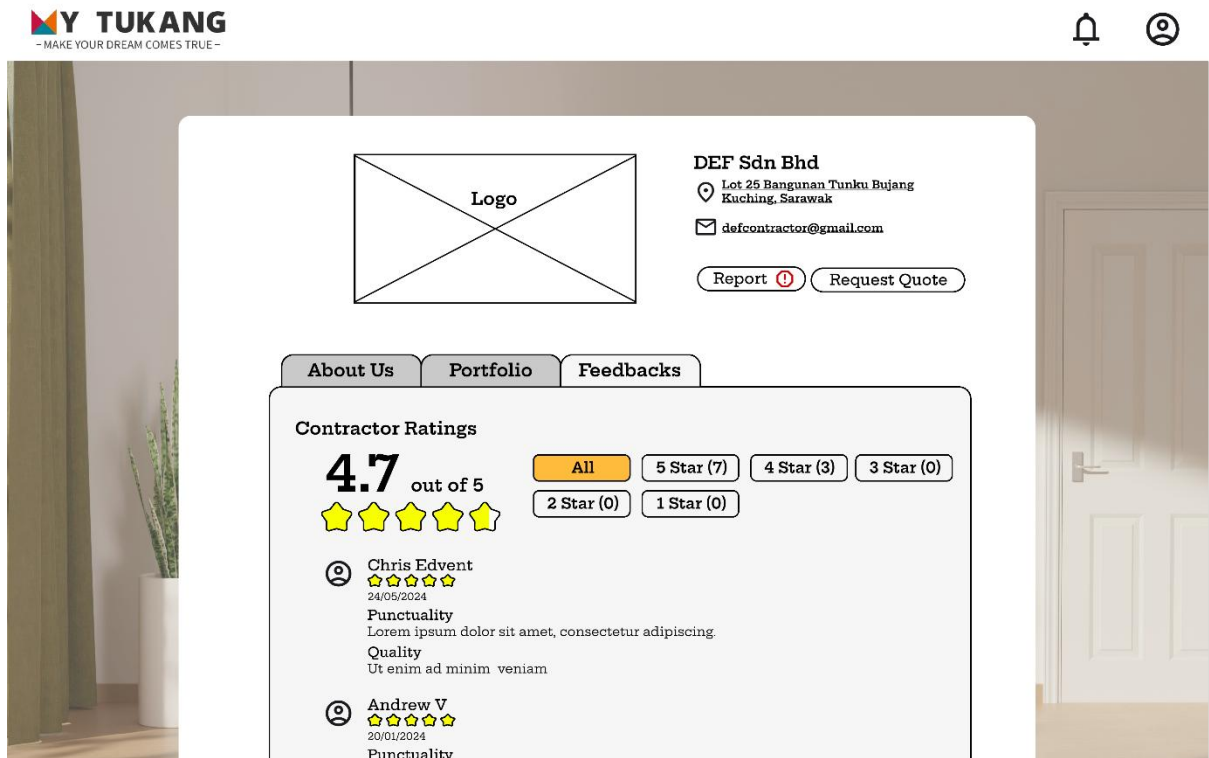


Figure 3.37: Contractor Overview -3

Admin Interface

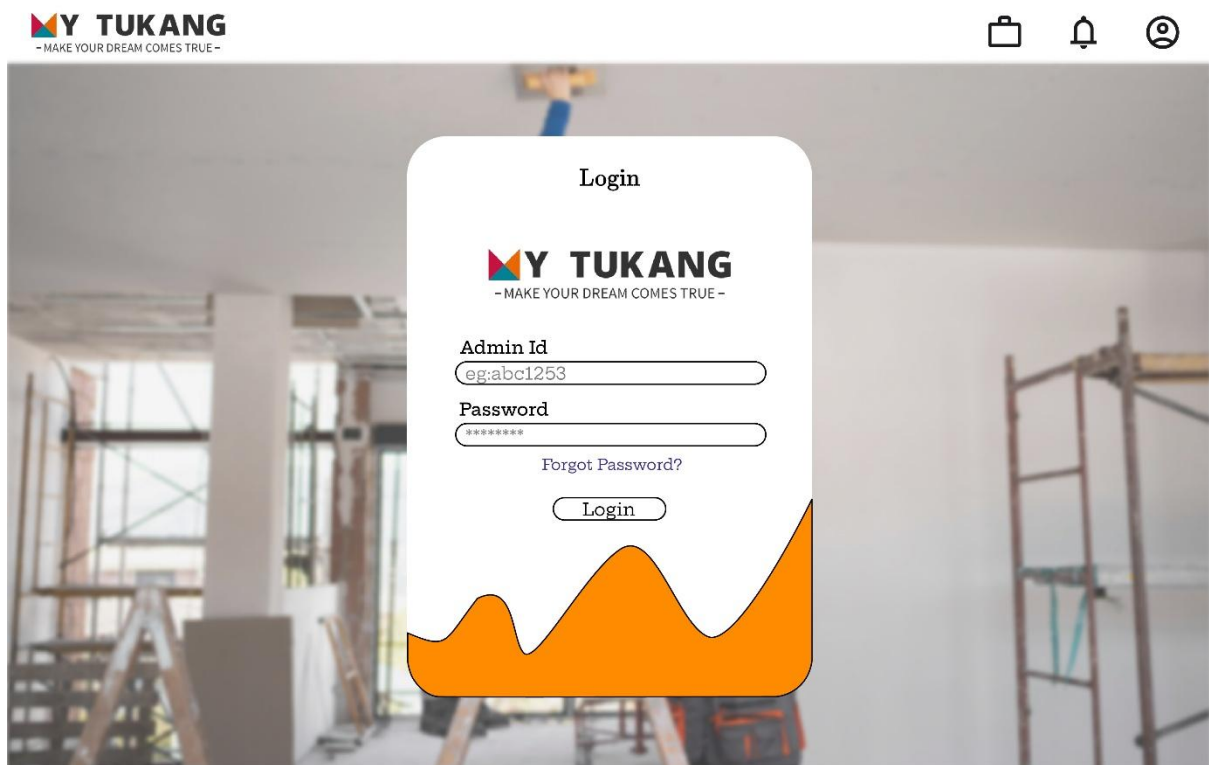


Figure 3.38: Login Page

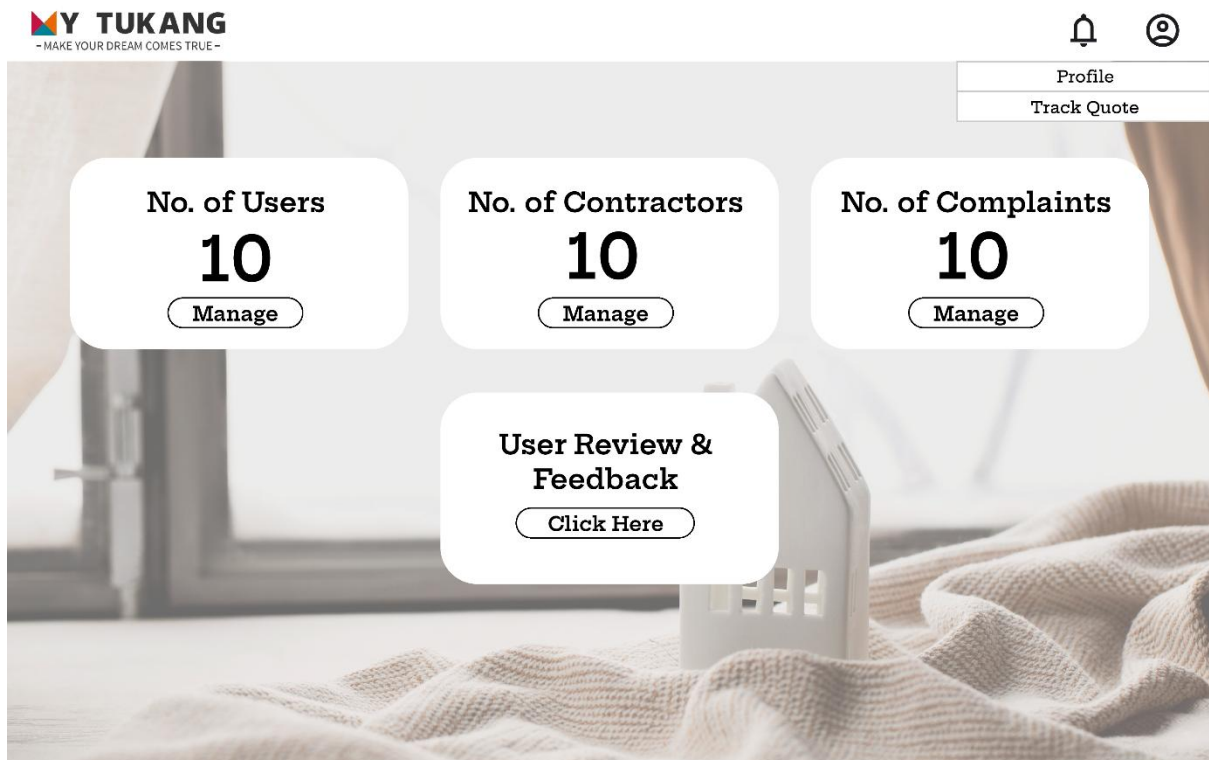


Figure 3.39: Admin Dashboard

User Master File

No	Username	Full name	Email	Birth Date	Contact	Gender	User Type
1.	AndrewL98	Andrew Lee	andrew988@gmail.com	28/07/1998	60123456789	Male	Client

Figure 3.40: User Master File

Complaints

No	Reporter	Reported	Issues	Status	Action
1.	AndrewL98	DEF Company	This company address is invalid. I checked their office location and I can't find it.	Review	Click

Figure 3.41: List of Complaints

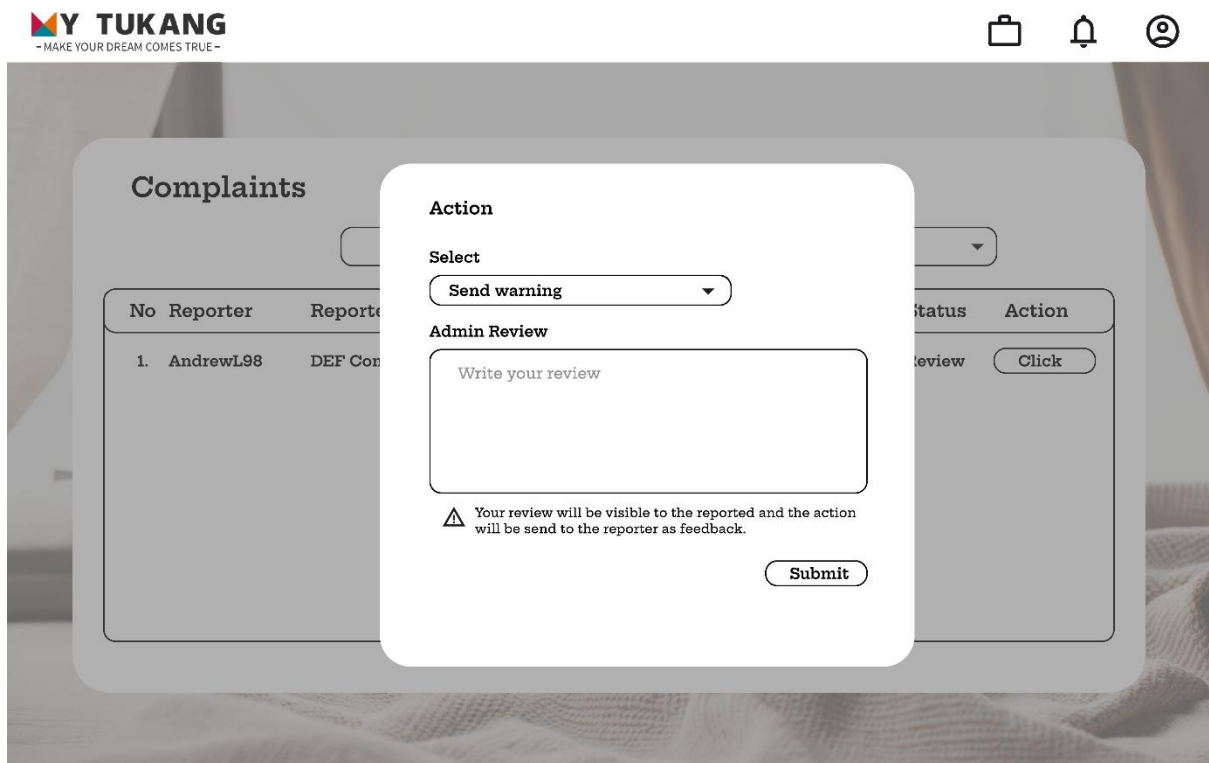


Figure 3.42: Action for complaint

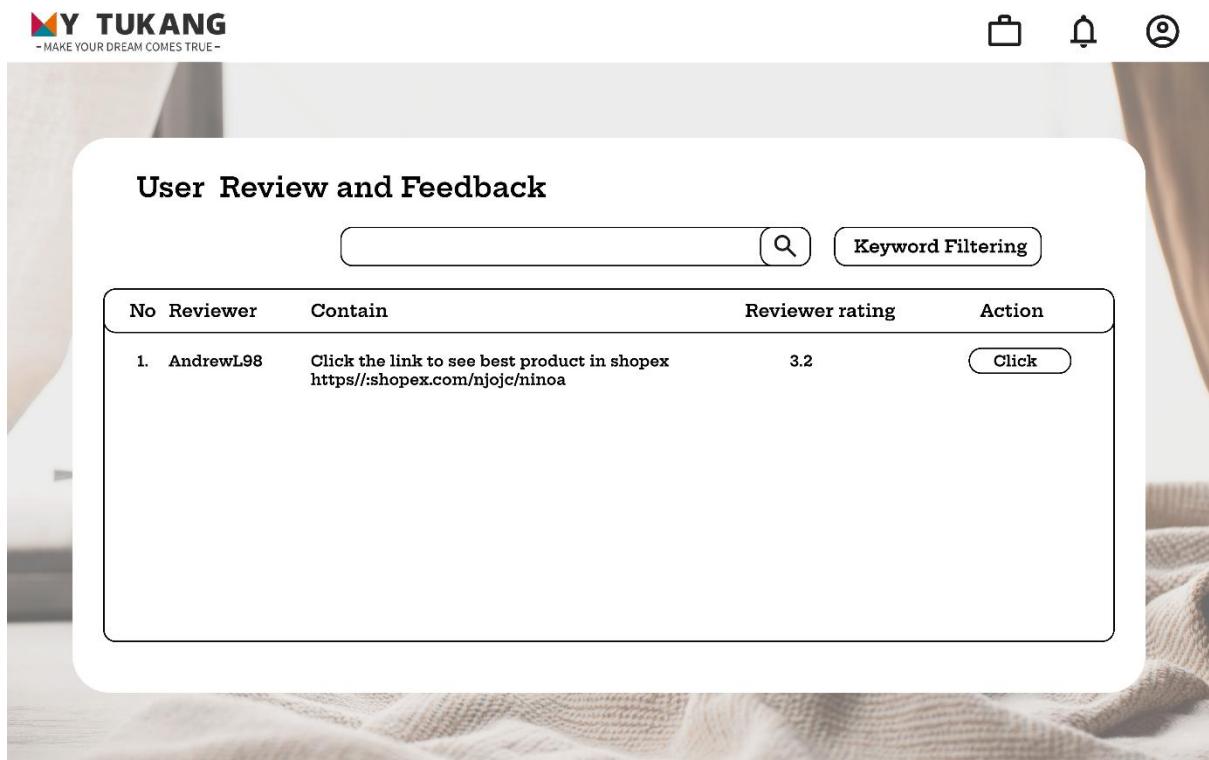


Figure 3.43: Uset Review and Feedback Page

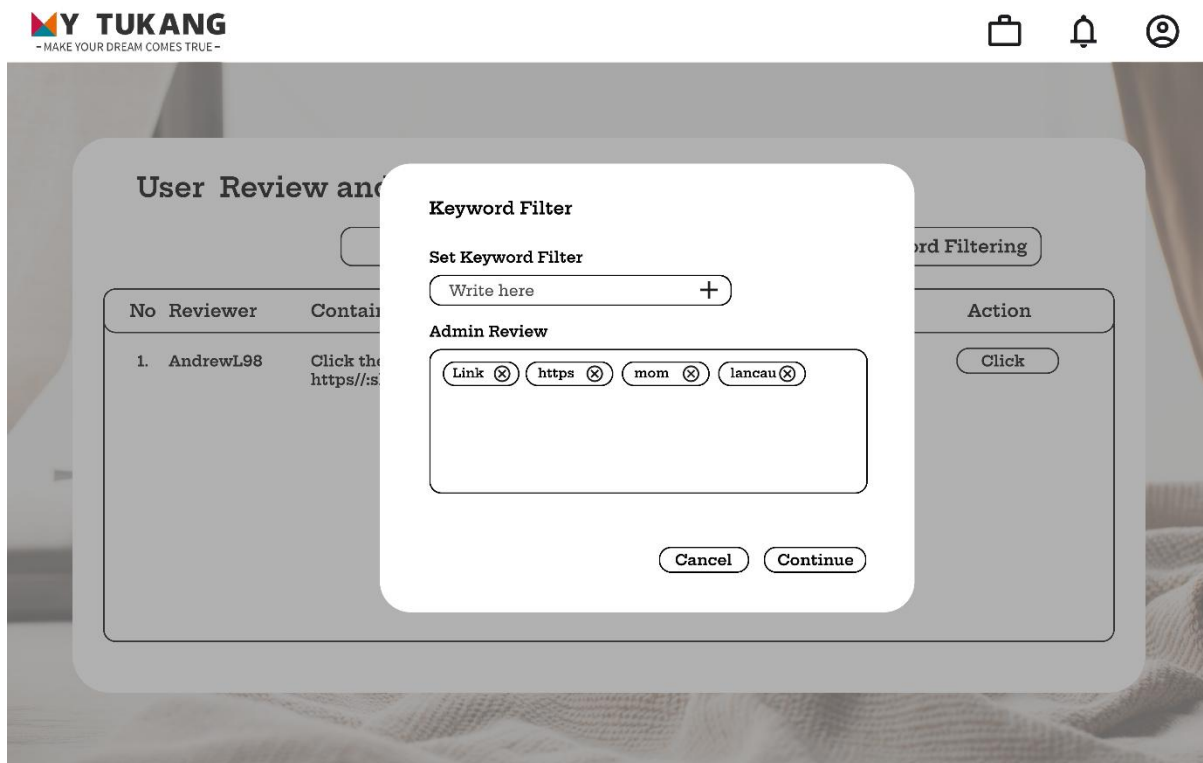


Figure 3.44: User Review and Feedback Page (Keyword Filter)

3.5 Summary

To conclude, this chapter discussed the methodology used to develop the "My Tukang – Home Renovation Client-Contractor System," focusing on the structured approach of the Waterfall model. It also covered the requirement analysis, which was divided into two main parts: "Interview and Questionnaire" and "Functional Requirements". Additionally, this chapter outlined the system design, including the use case diagram, detailed use case specifications, flowchart, and wireframes, which provide a clear visualization of the system's structure and functionality. These elements together form the foundation for the implementation and development of the system in subsequent phases.

Chapter 4: Implementation

4.1 Introduction

This chapter outlines the implementation process of the proposed system — My Tukang: Home Renovation Client–Contractor System. The system is developed as a web-based application to ensure it meets the project objectives efficiently and is accessible to users on various platforms.

For development, Visual Studio Code is used as the primary Integrated Development Environment (IDE), providing a flexible and user-friendly coding experience. Version control and collaboration are managed through Git and GitHub, enabling clear tracking of changes, easier rollback to previous versions, and making it easier for software maintenance.

In the initial phase, XAMPP is used to set up a local development environment, acting as the backend server on the localhost. This setup allows for safe and efficient testing before deployment. To design the user interface, Bootstrap 5 is utilized for responsive layout and modern design elements. Additionally, Google Fonts and Font Awesome 5 are integrated to enhance the visual appeal and improve user experience.

The development mainly uses HTML, PHP, and JavaScript to build the frontend and backend components of the system. MySQL is used as the database to handle data storage, retrieval, and management. Once development and testing on the local environment are completed, the system will be deployed online using GoDaddy's web hosting services. A custom domain name will also be purchased to ensure full accessibility via the internet and provide a more professional user experience.

4.2 Implementation Tool

4.2.1 Visual Studio Code



Figure 4.1 The logo of Visual Studio Code

Visual Studio Code (VSCode) is a lightweight but powerful source code editor developed by Microsoft. It supports a wide range of programming languages and includes features like syntax highlighting, debugging tools and extensions that can enhance the development experience. For this project, VSCode streamlines the development process by offering a clean and efficient workplace, makes it easier to manage multiple languages like HTML, PHP, and Javascript while improving productivity and code quality.

4.2.2 Xampp



Figure 4.2: The logo of Xampp

XAMPP is a free and open-source local server package that includes Apache, MySQL, PHP, and Perl, designed to help developers simulate a live server environment on their local machines. In order to enable backend testing and database integration with MySQL in a secure, offline environment prior to the system being deployed to a live server, XAMPP is essential to this project's development environment setup.

4.2.3 Git and GitHub



Figure 4.3: The logo of Git and GitHub

Git and GitHub are tools used for version control and code hosting, where Git helps track changes in the source code and GitHub serves as an online repository to store and manage those changes. Even though this project is developed independently, there are still a lot of advantages to utilizing Git and GitHub, like keeping a transparent record of code updates, making it simple to roll back to earlier iterations when necessary, and acting as a dependable cloud backup. Additionally, it gives the development process professionalism and organization, which is particularly helpful for exhibiting the project or for future reference.

4.2.4 Google fonts and Font Awesome



Figure 4.4: The logo of Font Awesome 6 and GitHub

Font Awesome is a well-known icon toolkit that offers scalable vector icons that can be customized using CSS, whereas Google Fonts is a renowned and free library of open-source fonts that makes it simple for developers to include unique typography into their websites. Google Fonts is utilized in this project to apply contemporary, polished typeface, improving the system's readability and visual attractiveness. Font Awesome, on the other hand, makes it easier to employ icons for buttons, navigation, and labels, enhancing user experience and UI clarity without requiring the creation of unique artwork. With little effect on performance, both techniques help create a front-end design that is neater and easier to use.

4.2.5 Bootstrap 5

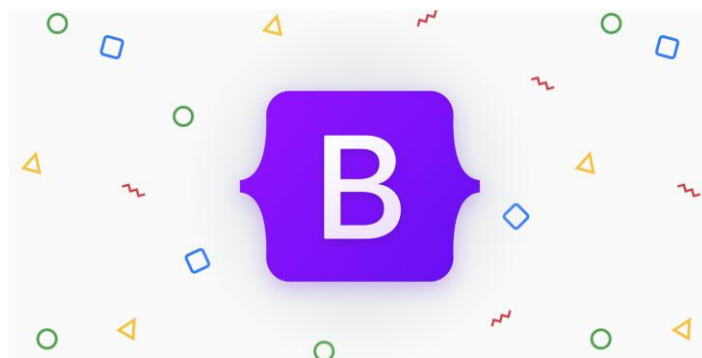


Figure 4.5: The logo of Bootstrap

Bootstrap is a popular front-end framework that provides a collection of pre-designed HTML, CSS, and JavaScript components to help developers build responsive and mobile-

friendly websites quickly. In order to minimize the time required to create layouts from scratch, Bootstrap 5 is utilized in this project to create a simple and standardized user experience. It guarantees that the system functions properly on a variety of screen sizes, including desktops and mobile devices, and looks aesthetically pleasing. Bootstrap simplifies the UI development process and improves the user experience by including pre-built elements like form controls, modals, and navigation bars.

4.3 User Interface Design

4.3.1 User: Login

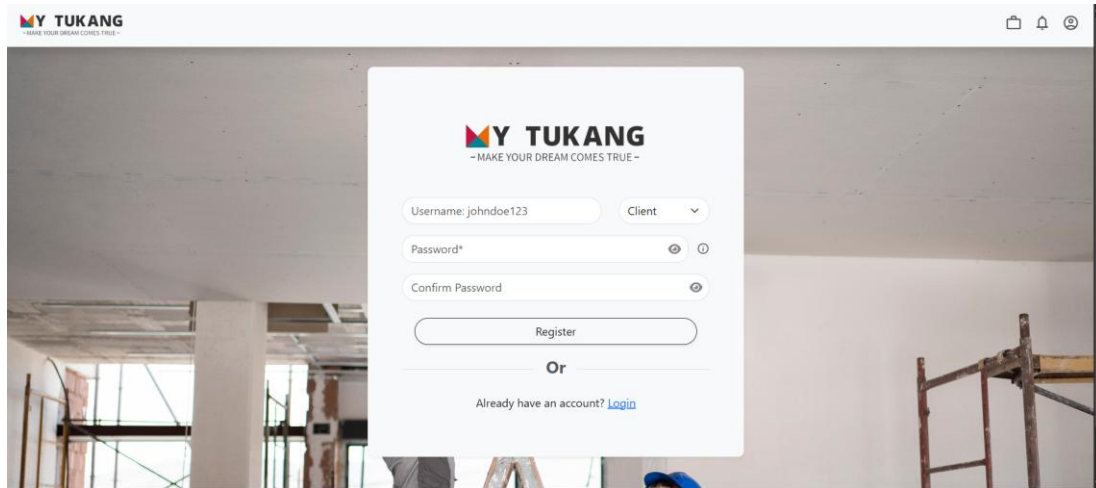


Figure 4.6: Login Page for User

The login page is designed to be simple to give the minimize idea. Only username and password field are displayed here with the placeholder. The option “Forgot Password” and “Register new user” also can be found here to give more option to the users as in Figure 4.6.

4.3.2 User: Registration

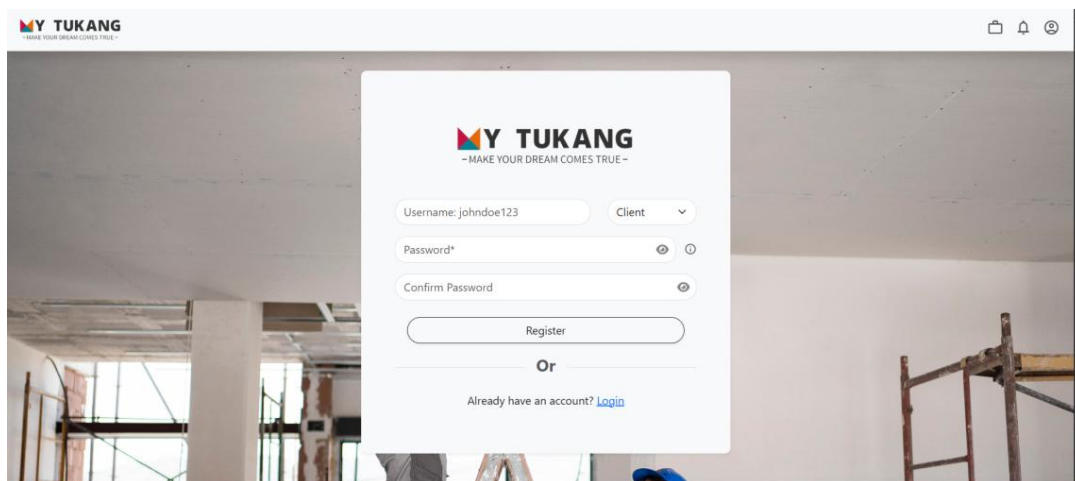


Figure 4.7: Registration Page for User

Figure 4.7 shows the registration page for user. In this page, the user can assign their username and password including their preferred role. The password needs to follow certain

rules to make it valid which is “Need to have 8 characters with, one uppercase, one lowercase, one special character and one number”. While for the role, the user can choose either “Client” or “Contractor” which will differ their access through the system.

4.3.3 User: Homepage

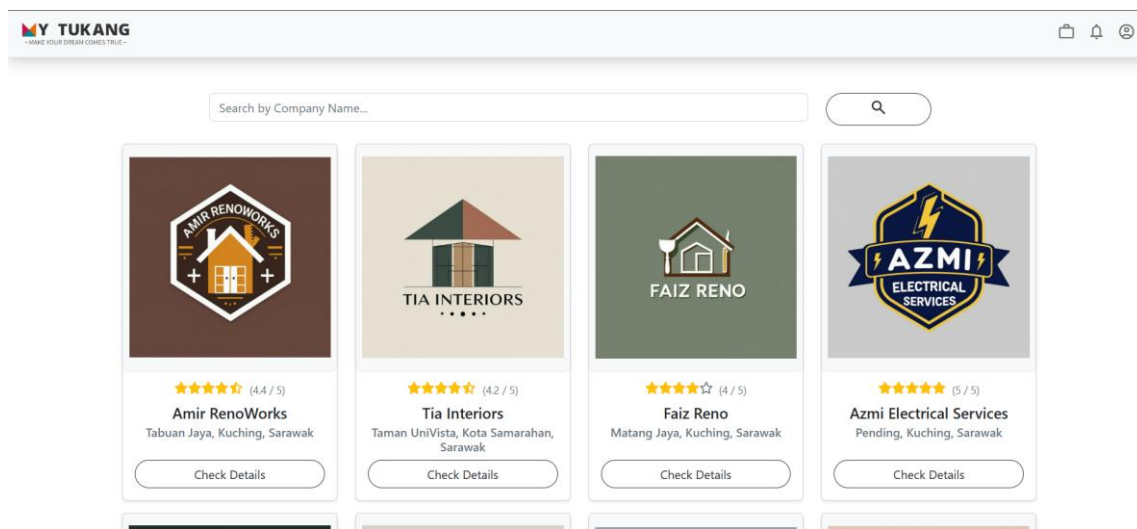


Figure 4.8; Homepage for user

Figure 4.8 show the homepage for the user. In this page, both the client and contractor will get access to view the catalogues of contractor. The search bar and the filters are added to this section to make it the searching process more efficient and easier for the users. Each the contractor card will display the cumulative ratings, their company name and their location.

4.3.4 User: Company Details and Feedback

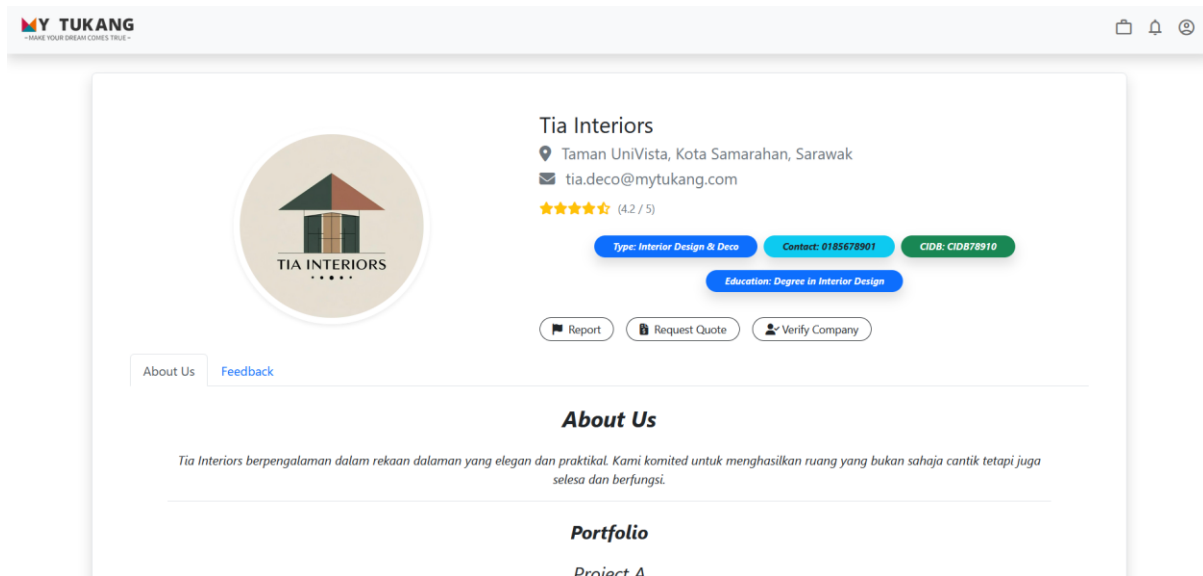
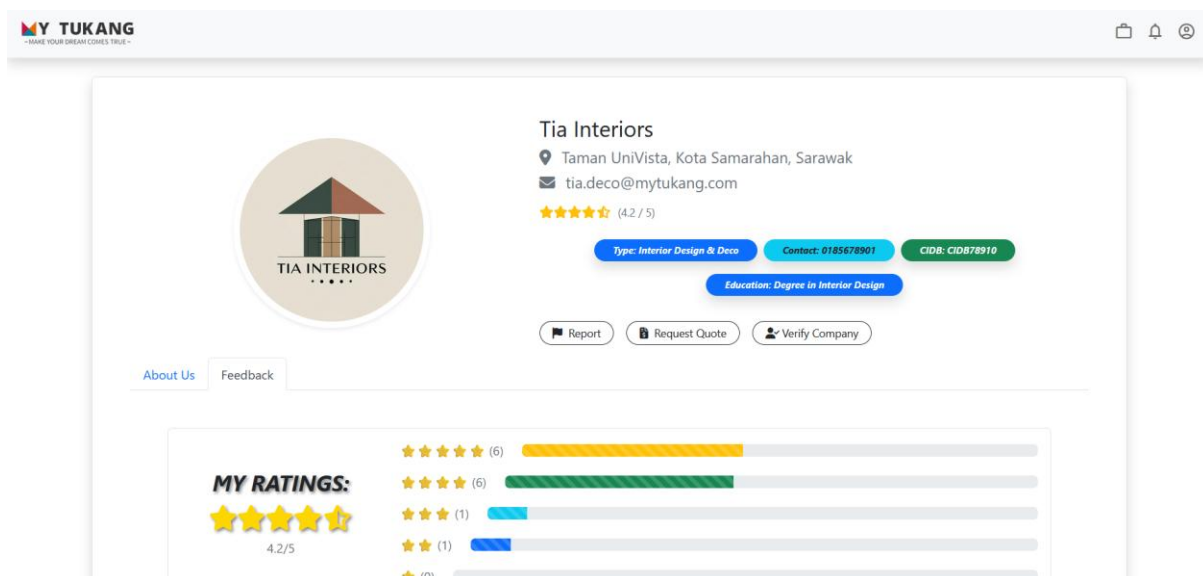


Figure 4.9: Company Details (About Us)

Figure 4.9 shows the company brief details at the top with some badges that specify their Type of Service, Contact, CIDB registration ID, Experience Year, and Highest Education. The Report and Request Quote button also can be found here to give more access to the client(role). Then the below section is designed to have a tab which divided to have two sections, About Us and Feedback. In the “About Us” section, the user can find the intro of the company and their portfolios.



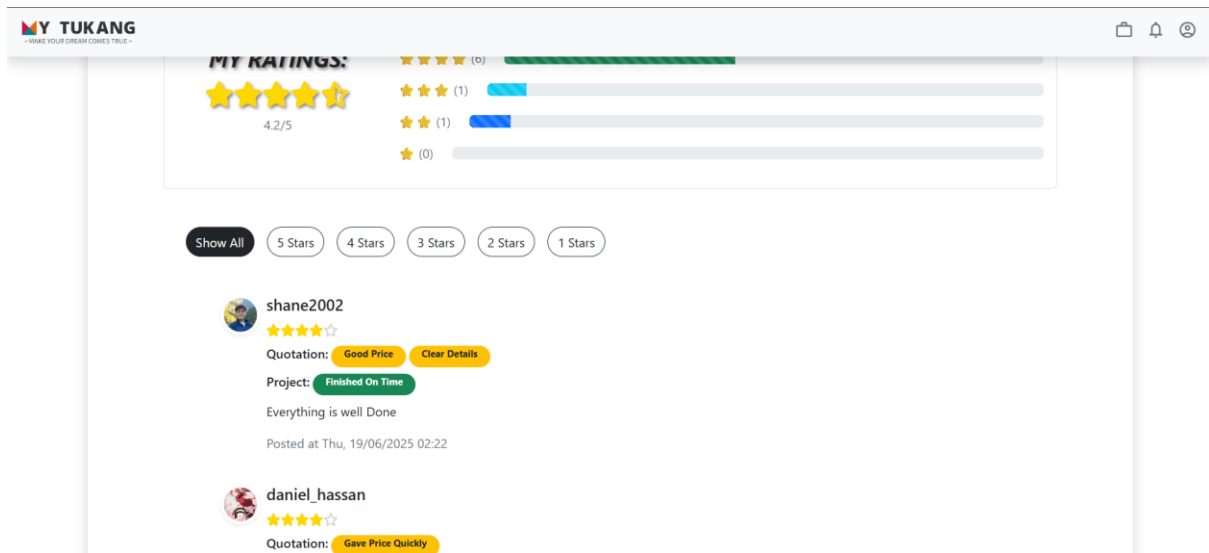


Figure 4.10: Feedback Section

The feedback and review section will be displayed as in Figure 4.10 which will consists of the ratings statistics and the feedback received from the previous client. The feedback or review will consist of quotation and project evaluation and the overall review to conclude the experience of the client when using the contractor services.

4.3.5 User: Quotation Management

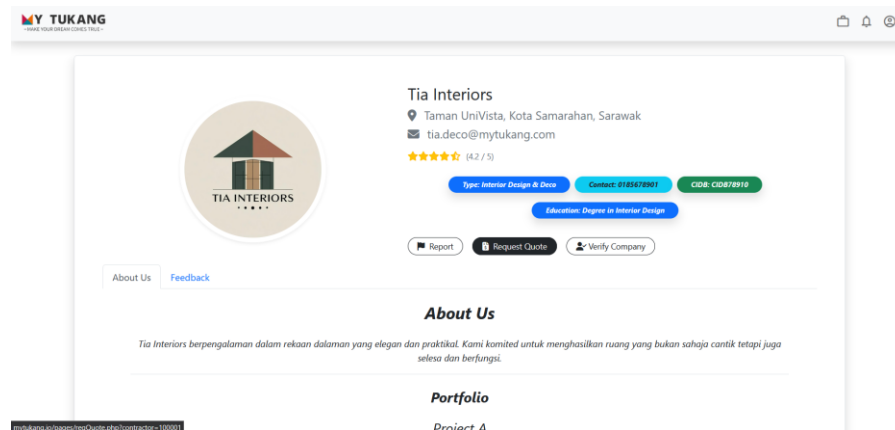


Figure 4.11: The Request Button Location

Figure 4.12: The Request Quotation Form

Figure 4.11 shows the button location inside the company details page. Once the button trigger, it will bring the user to the request quotation form as in figure 4.12 to be submitted. All the request and active quotation will be display in job page as in figure 4.13.

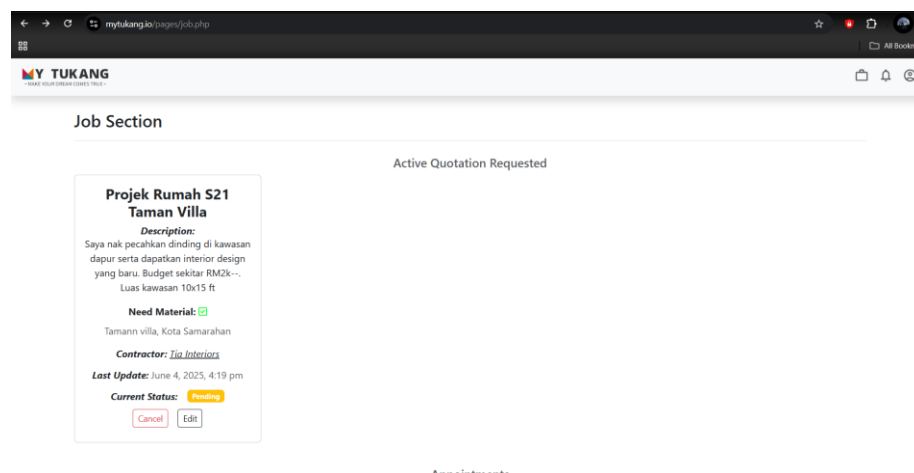


Figure 4.13: Active Quotation Section

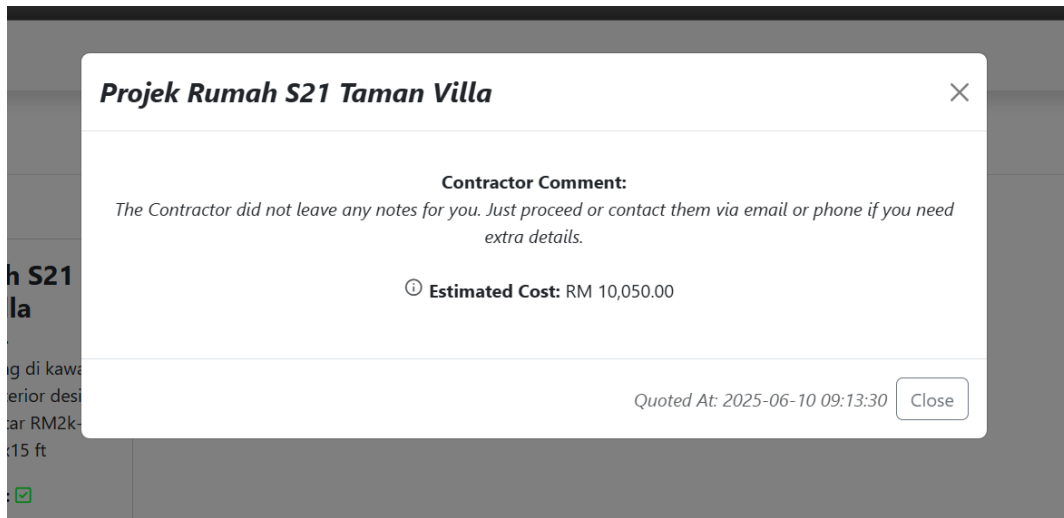


Figure 4.14: View Quotation – 1

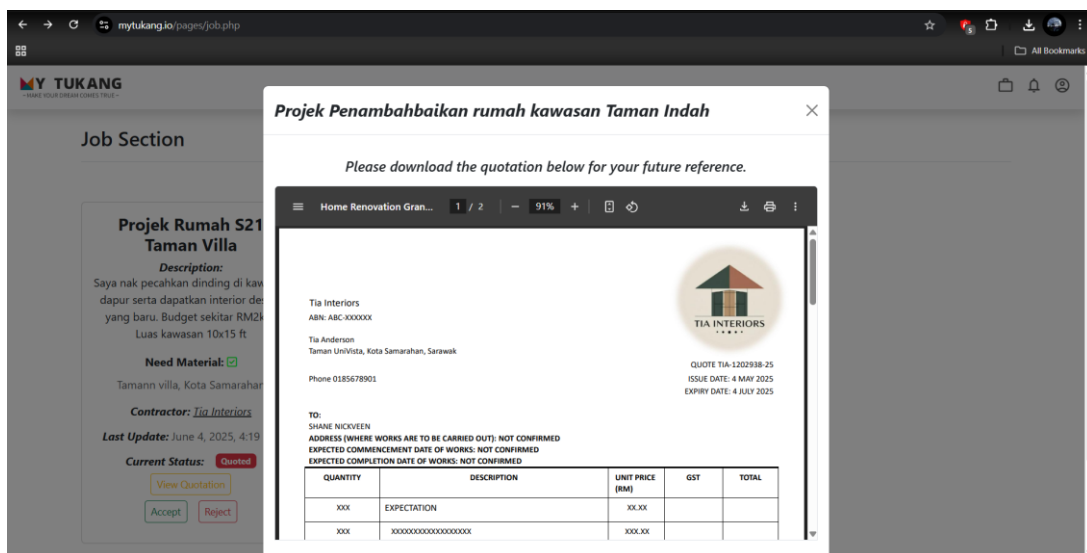


Figure 4.15: View Quotation – 2

There are two types of quotation allowed to be sent by the contractor. Either they key in the details like comment and estimated cost as in figure 4.14 or they will send a pdf for extra details as in figure 4.15.

Table 4.1: Five Different Status for Quotation

Status	Description
Pending	This status is the initial phase that indicate the user is waiting for the contractor sending them a quotation or reject their request.

Quoted	This status appears after the contractor submitted a quotation to the client
Accepted	This status indicates the client has accepted the quotation of the contractor
Cancelled	This status indicates the contractor has cancelled the quotation request
Rejected	This status indicates the contractor has reject the quotation request

4.3.6 User: Project Management – Client side

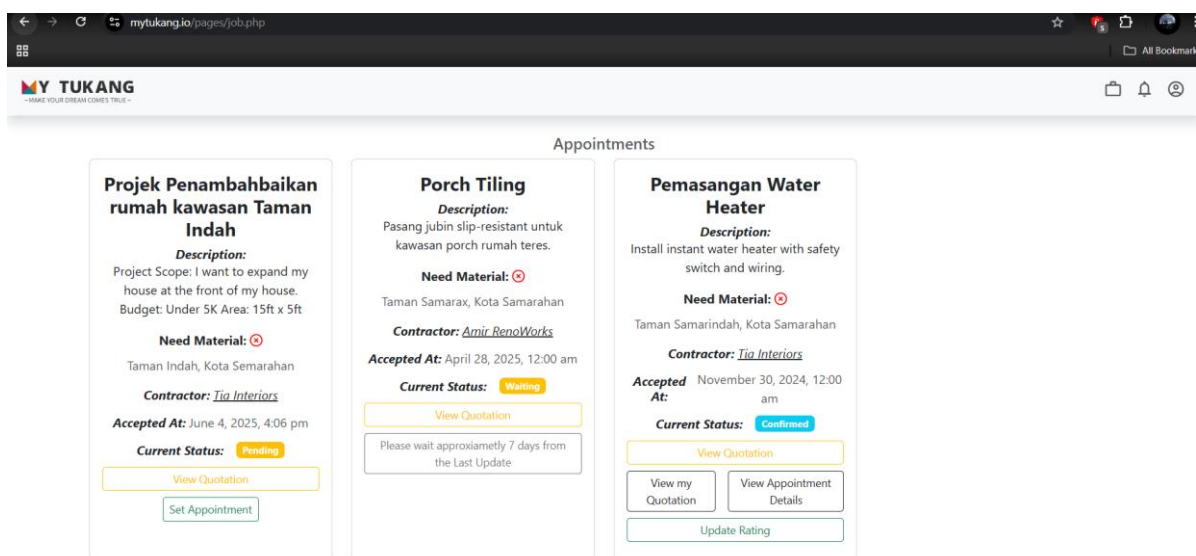


Figure 4.16: Three different Project

Figure 4.16 shows the Appointment Section inside the mytukang.io/pages/job.php which will highlight the accepted quotation. There are 5 main statuses here as the table 4.2 below:

Table 4.2: Five Different Status for Appointment

Status	Description
Waiting	This status is the initial phase that indicate the user is waiting for the contractor proposed some dates for the appointment or site visit.

Pending	This status appear after the contractor has proposed 3 dates at most and need the client to choose either one proposed date.
Confirmed	This status indicates the client has agree one date for the appointment
Cancelled	This status indicates the client has cancelled the projects
Completed	This status indicates the contractor has set the project as finished

Set Appointment [X]

Message from contractor
The Contractor hasn't written anything to you.

Please choose one of the proposed dates for appointment.

You can choose one of the proposed dates by the contractor. If none of the proposed slots are suitable for you, please reach them through email/contact number that have been registered before 14 days from the contractor proposed time.

Proposed Dates:

- ☒ 8 June 2025, 9:30pm
- ☐ 11 June 2025, 1:30am
- ☐ 20 June 2025, 11:30am

Submit

Figure 4.17: Client chooses proposed date to meet.

Figure 4.17 shows a model when the client clicks the “Set Appointment” button when the status is *Pending*. It will display any comment or message from the contractor and option(s) date that they can select. If none of the proposed dates is acceptable, they need to approach the contractor through email/contact number as displayed on the company background pages.

Update Your Rating [Close]

Rating:
★ ★ ★ ★ ★

Quotation Evaluation:

☒ Gave Price Quickly ☐ Good Price ☐ Clear Details ☐ Easy to Understand

Project Evaluation:

☐ Good Quality ☒ Finished On Time ☐ Well Organized ☐ Within Budget

Review:

Heater berfungsi dengan baik. Wiringemas.

[Update Rating]

Figure 4.18: Rating Model

Next, figure 4.18 which used to rate the contractor based on their experience working with them. The rating button will only display in 3 conditions like:

1. After the contractor did not respond for the quotation request in 14 days (still in Pending status)
2. Right after the quotation is accepted by the client and create a new card in appointment section (pending status- but only able to evaluate the quotation and send review)
3. When the appointment card status turned to Confirmed.

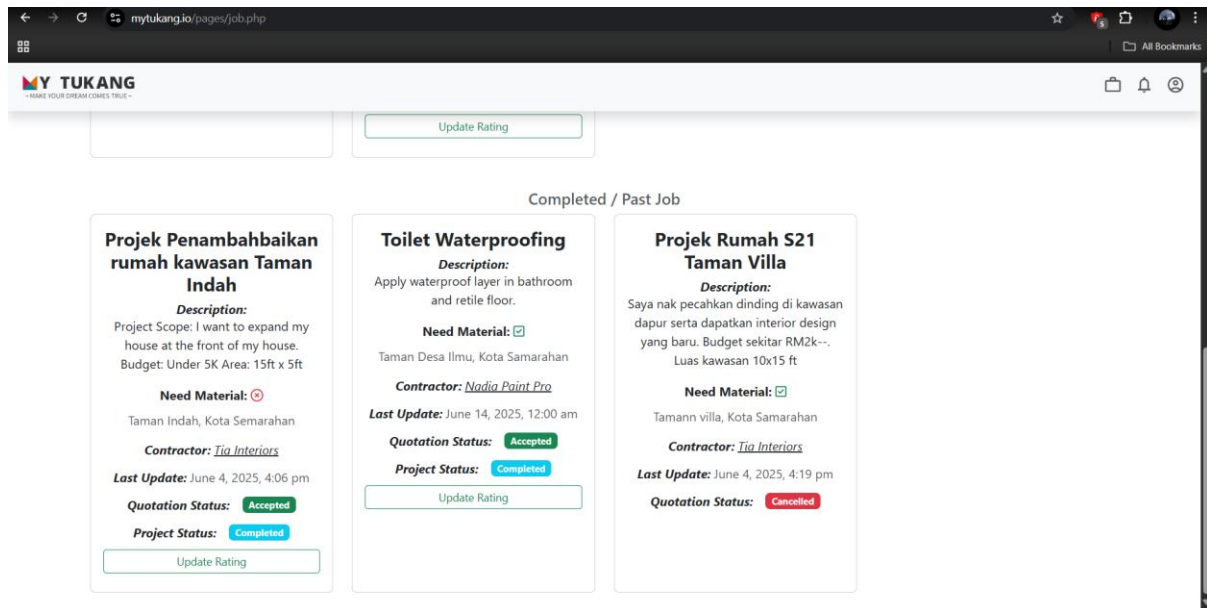


Figure 4.18: Completed Section

Figure 4.18 shows the completed job section where will consist of all cards from quotation section and appointment that are considered end. The list will be as follows:

A. From Quotation Section:

- All card with status Rejected, Cancelled will be display here (for 14 Days)

B. From Appointment Section:

- All card with status Cancelled (For 14 Days) and Completed will be display here.

4.4 Web Hosting Setup

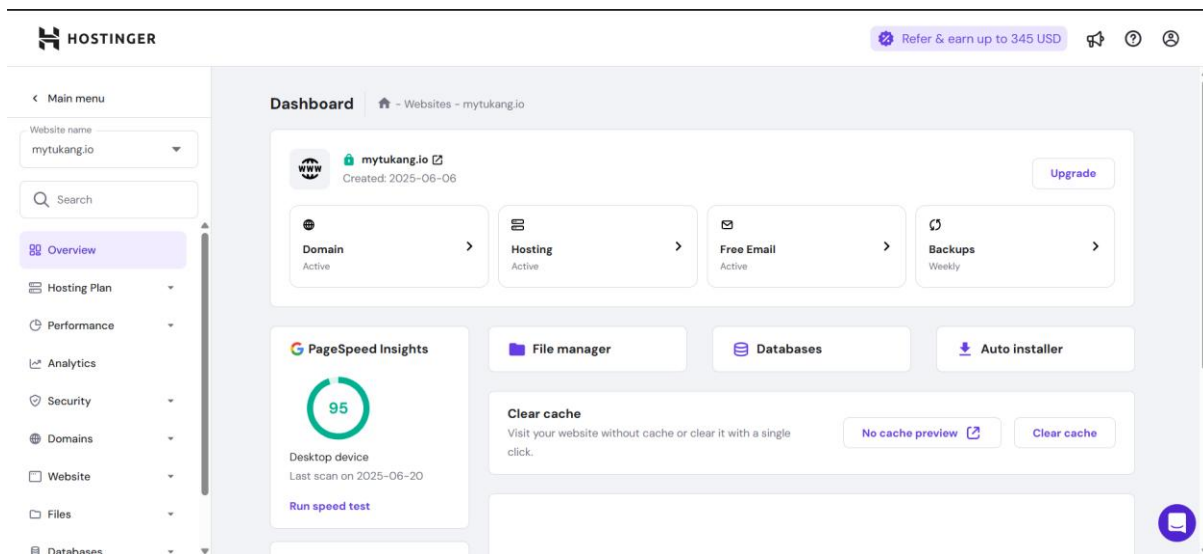


Figure 4.19: The overview of the hosting panel

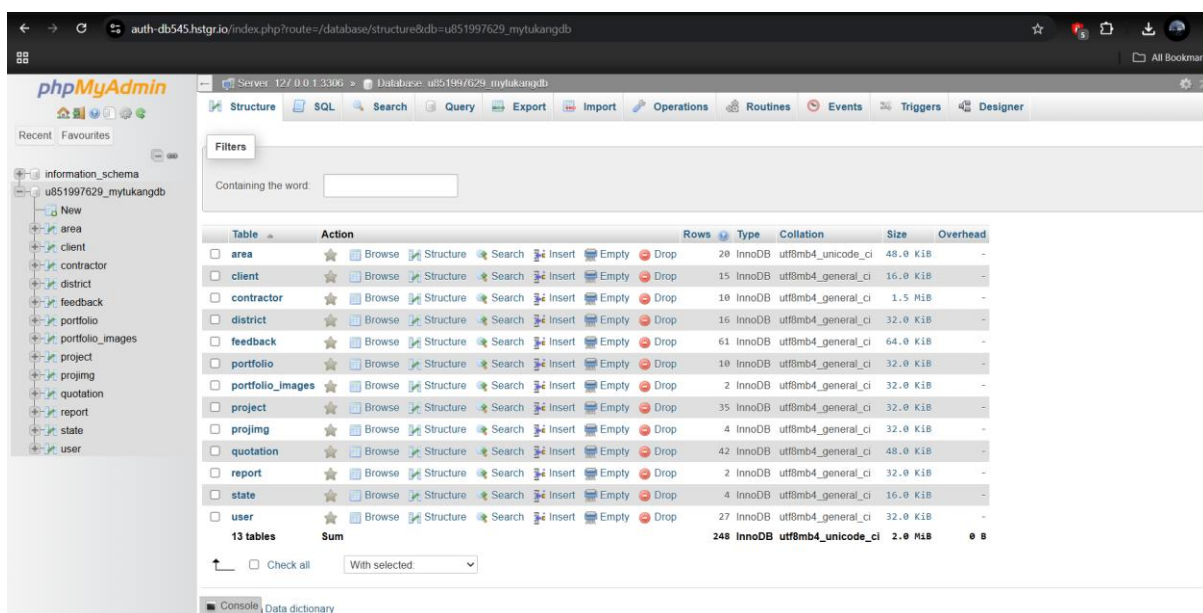


Figure 4.20: The tables of the website database

For this section, Hostinger HPanel is used to manage the website hosting and database deployment. The panel provides an intuitive interface for tasks such as uploading files, configuring domains, managing MySQL databases, and setting up PHP environments. The database structure, as shown in Figure 4.20, was uploaded using the phpMyAdmin tool

integrated within the HPanel, ensuring that the system's backend is fully functional and accessible online.

4.5 Summary

This chapter mainly focus on the end-to-end implementation process of the *MyTukang: Home Renovation Client–Contractor System*. It began with the explanation of the tools and platforms used throughout development, including Visual Studio Code, XAMPP, GitHub, Bootstrap 5, Font Awesome, and Google Fonts which each one of it contributing to both the functionality and appearance of the system.

The User Interface (UI) section showcased how different user roles (Client and Contractor) interact with the system through various interfaces such as login, registration, company detail pages, quotation management, and appointment scheduling. Special emphasis was placed on usability and clarity to improve user experience, including clear navigation, proper feedback loops, and status indicators.

Additionally, the integration of a dynamic rating and feedback system allows users to evaluate services, promoting transparency and quality assurance. The project management module, particularly the appointment system, includes well-defined statuses that guide both client and contractor through the project flow until completion.

Finally, the chapter concludes with the deployment phase, explaining the hosting configuration using Hostinger’s HPanel. The setup ensured that the application was successfully uploaded online, making it accessible to real users on the internet.

Overall, this chapter reflects how the proposed system was translated from design to a working product, fulfilling both functional and non-functional requirements effectively.

Chapter 5: Testing

5.1 Introduction

This chapter will focus on the testing side of the *MyTukang: Home Renovation Client-Contractor System* which is crucial to ensure it meets its intended objectives and performs efficiently under various condition. The testing process is divided into two main categories, functional testing and non-functional testing.

Functional testing evaluates whether each feature works as expected, based on the system's requirement specification. Non-functional testing, on the other hand, focuses on attributes such as reliability, usability, and efficiency based on ISO9162 to ensure the system is not only functional but also user-friendly, stable, and efficient.

5.2 Functional Testing

Table 5.1: Register Module

Module Name: Register						
Test Case Description: Validate the register functionality for both valid and invalid input.						
Objectives: Ensure the user can register to the system without any error						
Remarks: For Client and Contractor						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-R01	Valid Credential	1. Go to https://mytukang.io/pages/register.php	Username: Aiman02 Password: Pass@123 Role: Client	Successfully registered	As expected	pass

F-R02	Invalid Credential (Existing Username)	2. Input the test data. 3. Submit	Username: Aiman02 Password: Word@123 Role: Client	Display a message “Username already Taken”	As expected	Pass
F-R02	Invalid Credential (7 Mixed Characters in Password)		Username: Test12 Password: Test12@ Role: Client	Display an error message	As expected	Pass
F-R03	Invalid Credential (No Special Character in Password)		Username: Test12 Password: Test1234 Role: Client	Display an error message	As expected	Pass
F-R04	Invalid Credential (No Numeric Character in Password)		Username: Test12 Password: Test@word Role: Client	Display an error message	As expected	Pass
F-R06	Invalid Credential (No Uppercase Character in Password)		Username: Test12 Password: test@1234 Role: Client	Display an error message	As expected	Pass
F-R07	Invalid Credential (No Lowercase Character in Password)		Username: Test12 Password: TEST@1234 Role: Client	Display an error message	As expected	Pass
F-R08	Invalid Credential (Unmatched Password with confirmed password)		Username: Test12 Password: test@1234 Confirmed Password: test@1235 Role: Client	Display an error message	As expected	Pass

Table 5.2: Login Module

Module Name: Login Test Case Description: Validate the login functionality for both valid and invalid input. Objectives: Ensure the user can register to the system without any error Remarks: For Client and Contractor						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-L01	Valid username and password	1. Go to https://mytukang.io/pages/login.php 2. Input the test data. 3. Submit	Username: Aiman02 Password: Pass@123	Successfully Login	As expected	Pass
F-L02	Empty Field		Username: Password: 	Display an error message	As expected	Pass
F-L03	Invalid Credential (7 Mixed Characters in Password)		Username: Aiman02 Password: Pass!12	Display an error message	As expected	Pass
F-L04	Invalid Credential (No Special Character in Password)		Username: Aiman02 Password: Pass1234	Display an error message	As expected	Pass
F-L05	Invalid Credential (No numeric Character in Password)		Username: Aiman02 Password: Pass@word	Display an error message	As expected	Pass

F-L06	Invalid Credential (No Uppercase Character in Password)		Username: Aiman02 Password: pass@123	Display an error message	As expected	Pass
F-L07	Invalid Credential (No Lowercase Character in Password)		Username: Aiman02 Password: PASS@123	Display an error message	As expected	Pass

Table 5.3: Request Quotation Module

Module Name: Request Quotation Test Case Description: Validate the request quotation functionality for both valid and invalid input. Objectives: Ensure the client users can submit a request through the system without any error Remarks: For Client						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-RQ01	Submit with all fields filled	1. Go to any company details. 2. Click the Request Quote button to start. 3. Fill in all the details. 4. Submit	Project Name: Project A Project Location Desa Ilmu, Kota Samarahan Project Description: Testing Purpose	Successfully Submitted	As Expected	pass
F-RQ02	Submit with all fields filled except Project Name		Project Name: - Project Location Desa Ilmu, Kota Samarahan Project Description: Testing Purpose	Prompt error message asking user to fill in the information.	As Expected	Pass
F-RQ03	Submit with all fields filled except Project Location		Project Name: Project A Project Location: - Project Description: Testing Purpose	Prompt error message asking user to fill in the information.	As Expected	Pass
F-RQ04	Submit with all fields filled except Project Description		Project Name: Project A Project Location Desa Ilmu, Kota Samarahan Project Description:	Prompt error message asking user to fill in the information.	As Expected	Pass

Table 5.4: Appointment Module

Module Name: Appointment Test Case Description: Validate the appointment functionality for both valid and invalid input. Objectives: Ensure the contractor can proposed a valid date(s) only through the system without any error Remarks: Focus on contractor						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-A01	Propose a single valid date	1. Login as contractor 2. Open job page 3. Propose dates for appointment card with Waiting Status	Date: 2025-06-28 Time: 10:00 AM	Appointment proposed successfully	As Expected	Pass
F-A02	Propose maximum 3 valid dates		Date: 2025-06-28 Time: 10:00 AM Date: 2025-06-28 Time: 04:00 PM Date: 2025-07-05 Time: 12:00 PM	All 3 slots saved and sent to client	As Expected	Pass
F-A03	Use time not ending in :00 or :30		Date: 2025-06-28 Time: 10:15 AM	System rejects input, shows error: "Time must end in :00 or :30"	As Expected	Pass
F-A04	Leave date or time field empty		Date: 2025-06-28 Time: empty Date: Empty Time: 10:00 AM	Error shown: "Date and time cannot be empty"	As Expected	Pass
F-A05	Propose date in the past		Date: 2025-06-28 Time: 10:30 AM	System should show validation error: "Date must be today or in the future"	As Expected	Pass
F-A06	Contractor edits proposed date before client accepts		Change existing date to Date: 2025-07-02 Time: 10:30 AM	Date updated successfully if still pending from client	As Expected	Pass

Table 5.5: Rating/Feedback Module

Module Name: Feedback Test Case Description: Validate the feedback functionality for both valid and invalid input. Objectives: Ensure both the client and contractor can review their partner through the system without any error Remarks: Involve Client and Contractor						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-B01	Submit feedback with valid rating and review	1. Login as Client 2. Navigate to 'Completed Project' 3. Click “Rate” button 4. Fill rating and comment 5. Submit feedback	Rating: 5 Comment: “Great service, very responsive and professional.”	Feedback submitted successfully. System displays it in contractor’s profile.	As Expected	Pass
F-B02	Submit feedback with rating only (no comment)	1. Login as Contractor 2. Go to appointment section 3. Click “Rate” 4. Set rating only 5. Submit	Rating: 4 Comment: *Empty*	Feedback submitted. Comment section remains empty, only stars appear.	As Expected	Pass

F-B03	Submit feedback with empty rating and comment	1. Login as Client 2. Navigate to completed project 3. Click “Rate” 4. Leave rating and comment empty 5. Submit	Rating: *Empty* Comment: *Empty*	Error message prompts user to fill at least the rating.	As Expected	Pass
F-B04	Submit feedback with invalid rating format	1. Login as Contractor 2. Go to completed jobs 3. Modify frontend to submit non-numeric rating (simulate tampering) 4. Submit	Rating: “Awesome!” Comment: “Loved the experience.”	System rejects input and displays validation error.	As Expected	Pass

F-B05	Prevent duplicate feedback for same project	1. Login as Client 2. Rate a contractor for a completed project 3. Attempt to rate again for the same job	Only able to edit review	System should allow to submit the feedback submission without creating new feedback	As Expected	Pass
F-B06	Ensure feedback is viewable in contractor profile	1. Login as different user 2. Search contractor 3. Open contractor profile 4. Scroll to Feedback section	Contractor: ID#102 Expected to have at least 1 feedback	Previously submitted feedback is displayed with correct username, date, rating, and comment	As Expected	Pass
F-B07	Validate feedback timestamp accuracy	1. Login as Client 2. Submit new feedback 3. Open contractor profile immediately 4. Check timestamp	Feedback just submitted	Timestamp shows current date and time,	As Expected	Pass

F-B08	Access control: only involved users can rate	1. Login as unrelated user 2. Navigate to contractor profile 3. Try to find rating button	User has no job record with contractor	System hides or disables rating functionality for users not related to the project	As Expected	Pass
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Table 5.6: Upload Image and Pdf Module

Module Name: Upload Image and Pdf Module Test Case Description: Validate the appointment functionality for both valid and invalid input. Objectives: Ensure both users can upload the image and pdf without trigger any error Remarks: Involve in “Edit Profile, Edit Company Details, Send Quotation Section”						
Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
F-UP01	Upload valid image	1. Head to Edit Profile 2. Click the Edit Profile Photo button. 3. Select the test data. 4. Upload	Image.png (under 2MB)	Successfully update the profile photo	As Expected	Pass
F- UP02	Upload unsupported file type		Image.webp	Display an error message to only update an image with format jpeg, jpg or png.	As Expected	Pass
F- UP03	Upload image exceeding file size		Image.png (3MB)		As Expected	Pass
F-UP02	Upload valid PDF	1. Head to Job Page as a contractor. 2. Click the Send Quotation button under the card with status Pending. 3. Select the test data. 4. Upload	Quotation.pdf	Successfully update the quotation photo	As Expected	Pass
F- UP04	Upload without selecting a file		Empty	The form cannot be submitted	As Expected	
F- UP05	Simulate network interruption	Begin upload, then disconnect the internet halfway	Quotation.pdf and Image.png (1.5MB)	Failed to upload. When reconnected, Refresh the page will reupload the uploaded file	As Expected	Pass

5.3 Non-Functional Testing

5.3.1 Reliability Testing

Reliability is defined as an attribute that relates to the ability of the software to maintain a specified level of performance under given conditions and for a specified time of period. There are few key aspects according to ISO9126 of reliability which is maturity, fault tolerance and recoverability.

Table 5.7: Reliability Testing

Testing Type: Reliability						
Objectives: To ensure the system operates consistently under expected and unexpected conditions without failure or data loss.						
Test ID	Test Scenario	Description	Expected Result	Actual Result	Remarks	Status
R-01	System stability during common usage	Repeated login/logout, browsing, and submitting forms	System functions normally without crashing or errors	As Expected		Pass
R-02	Database connection reliability	Test CRUD operations repeatedly and simulate temporary disconnection	System maintains integrity or gracefully handles disconnect	As Expected		Pass
R-03	GitHub version rollback test	Test reverting to an earlier version of codebase using Git	Project reverts smoothly to a previous working version	As Expected		Pass
R-04	Data integrity after refresh	Submit form, then refresh browser	No duplicate submissions or data corruption	As Expected	Focus on quotation	
R-05	Database connection loss	Simulate temporary DB disconnection during form submission	System displays an error message to the screen	As Expected	Tested using XAMPP	

R-06	Hosting downtime recovery	Simulate Hostinger downtime or refresh during upload	System should recover or show appropriate fail state.	As Expected	Display default image (Hard Coded)	
R-07	Git Auto-Deployment from GitHub	Test whether code pushed to GitHub is automatically pulled by Hostinger	Code changes on GitHub are reflected live on the server.	As Expected	Use GIT features in Hostinger	
R-08	Deployment rollback availability	Check if previous version can be restored in case of deployment failure	Able to manually revert changes or redeploy previous Git commit.	As Expected	Use GitHub commits/Hostinger	

5.3.2 Usability Testing

According to ISO 9126 software quality standard, usability is defined as the degree to which a software product can be used by specified users to achieved specified objectives with effectiveness, efficiency and satisfaction in a particular context of use.

Table 5.8 Usability Testing

Testing Type: Usability						
Objectives: To ensure the system is intuitive, accessible, and easy to use for all user roles (Client & Contractor).						
Test ID	Test Scenario	Description	Expected Result	Actual Result	Remarks	Status
U-01	Navigation and user task completion	Users complete typical tasks (login, request quote, review contractor)	Users' complete tasks without needing guidance	As Expected	Tested by few volunteers	Pass
U-02	Responsive layout check	Open system on mobile, tablet, desktop	Interface adjusts smoothly to all screen sizes	As Expected	Bootstrap 5 responsive design used	Pass

U-03	Form feedback and validation	Enter invalid form data (e.g. empty fields, wrong email)	Clear and helpful error messages are displayed	As Expected	Applies to login/register /quote	Pass
U-04	Navigation clarity	Check whether users can easily navigate from login to key modules (dashboard, quotation, etc.)	Users can navigate without guidance or confusion.		Tested with both user role volunteers	Pass
U-05	Font and icon clarity	Check legibility of text and clarity of Font Awesome icons	Fonts and icons are clear and not overlapping	As Expected		Pass
U-06	Upload feedback	Check whether file uploads give user notification or respond	Clear feedback (e.g., upload complete or failed) is shown	As Expected		Pass

5.3.3 Efficiency Testing

According to ISO 9126, efficiency refers to the software's ability to deliver appropriate performance while using minimal resources under specified conditions. It includes three sub-characteristics of time behaviour, which measures the response and processing time of the system.

Table 5.9 Efficiency Testing

Testing Type: Efficiency						
Objectives: To ensure the system performs optimally in terms of load time, server response, and resource usage.						
Test ID	Test Scenario	Description	Expected Result	Actual Result	Remarks	Status
E-01	Page load speed	Load key pages like homepage, login, and company profile	Pages load within 2–3 seconds	1.5–2.2 sec	Tested via browser dev tools	Pass
E-02	Concurrent users test	Simulate 5–10 users accessing at the same time	System remains responsive without major delays	As expected	Light load simulation	Pass

E-03	Code and asset optimization	Evaluate JS, CSS, image sizes and loading behaviour	Resources are optimized; no large or unused files	As expected	Bootstrap, Font Awesome, Google Fonts	Pass
E-04	GitHub repository management	Assess GitHub repo cleanliness and efficiency	Project is organized, commits are meaningful, no bloated code	As expected	GitHub version control	Pass
E-05	Hostinger hosting efficiency	Assess how well Hostinger handles real deployment (load & server response time)	System runs smoothly; no excessive load time or hosting bottlenecks	As expected	Shared hosting environment	Pass
	File compression check	Upload and preview image, verify whether optimized for web (small file size without quality loss)	Images auto-compressed, PDFs not bloated		Use dev tools to check	
	GitHub versioning performance	Test performance of pull/push to/from GitHub under average connection	Git responds quickly with no corruption		Good for version control logs	

5.5 Summary

This chapter outline the comprehensive testing process for the MyTukang: Home Renovation Client-Contractor System to ensure it meets both functional and non-functional requirements. Functional testing verified the correctness and reliability of core modules such as registration, login, request quotation, appointment scheduling, feedback submission, and file uploads. Each test case, whether for valid or invalid input, was carefully executed to confirm the system's behaviour aligns with expectations.

Non-functional testing, guided by the ISO 9126 software quality standard, evaluated the system's reliability, usability, and efficiency. The application demonstrated stable performance under common and unexpected scenarios, user-friendly interfaces across devices, responsive navigation, and optimal load time even in a shared hosting environment.

Additionally, Git integration with Hostinger was validated to ensure real-time code deployment and version rollback capabilities, reinforcing system maintainability. The results confirmed that the system is robust, intuitive, and efficient, ready for real-world usage by both clients and contractors.

Chapter 6: Conclusion and Future Work

6.1 Introduction

This chapter will conclude everything that has been done from the first chapter until now to make the system, MyTukang Home Renovation system successfully developed. This chapter will discuss the project achievement which is by comparing the objectives of the project in Chapter 1: Introduction and the project limitations that I faced during the development phase. The future work and a conclusion will also be discussed here.

6.2 Project Achievement

As mentioned in **Chapter 1: Introduction**, the main focus of this project is to provide an alternative design for Malaysia's home renovation industry. The current norm of using Facebook and Telegram is flawed mainly because the contractors can delete negative reviews, mislead clients and create an imbalance of power.

This platform introduces *verified reviews, ratings*, and *contractor credentials*- helps clients make informed decisions while maintaining contractor accountability. This system is also built to be *transparent, trustworthy, and user-friendly*. The objectives of the project are described in table 6.2.1.

Table 6.1: Table of objectives and Achievement of the project

Objectives	Achievement
Build a centralized web platform that promotes fairness for both clients & contractors	A functional web-based platform was successfully developed. It includes a two-way rating and review system where both clients and contractors can evaluate each other. This promotes accountability and helps future users make informed decisions.

Enable mutual rating & reviews with admin moderation	Users can leave ratings and reviews after a job is completed. Although admin moderation is not fully implemented, the system architecture supports the potential for report flagging or moderation in future work.
Ensure contractor verification with proper documentation	The system includes contractor registration with the ability to store the data like education background, Company registration number and CIDB license number which will be displayed to the public. However, auto-validation or manual admin verification will to be added in the future versions.

6.4 Project Limitations

Since the project is only covered Home Renovation Industry around Kuching and Kota Samarahan, Sarawak, it contributes some limitation to this project. The project duration also gives a significant effect on this section. Hence, there are several limitations were identified during the development and testing process:

- **Limited Scope for Contractor Categories:** Currently, all contractors are grouped together without specialization tags (e.g., plumbing, electrical, tiling).
- **No Real-Time Communication:** The system lacks features such as live chat or instant messaging between users.
- **Manual Quotation Process:** Quotation handling still relies on file uploads rather than dynamic, form-based or templated entries.

- **No Admin Dashboard:** There's no backend admin interface to manage users, reports, or system health monitoring due to the lack of time.
- **No Payment Gateway Integration:** Transactions are not handled in-system, requiring offline handling for job confirmation or deposits.
- **Lack of AI/Smart Recommendations:** The system doesn't suggest contractors based on location, rating, or past preferences.

6.5 Future Work

To improve this platform further in the future and align it with real-world operational standards, several enhancements will be considered for future implementation. Below is the list of recommendations of new features of this project.

- **Live Chat Integration:** Adding a real-time chat feature for better and faster communication between users.
- **Specialization Tags & Filters:** Allow contractors to tag their specialties and let users filter based on services offered.
- **Dynamic Quotation Generator:** Replace static PDF uploads with a dynamic form system that auto-generates professional quotations.
- **Admin Panel Implementation:** A backend admin interface for platform moderation, flagging suspicious activity, and managing reports.
- **Payment Integration:** Include a secure payment gateway (e.g., Stripe, FPX) for in-platform transactions such as deposits or full payments.
- **Smart Matching Algorithm:** Use user location, rating, and service history to suggest suitable contractors for each project.
- **Mobile App Development:** A cross-platform mobile app version (using React Native or Flutter) for increased accessibility and adoption.

These additions will not only make *MyTukang* more competitive in the renovation tech landscape but also significantly enhance the user experience.

6.6 Conclusion

In conclusion, the *MyTukang: Home Renovation Client-Contractor System* demonstrates a practical and scalable solution for simplifying renovation-related service engagements. Through a user-friendly interface, structured workflows, and efficient validation processes, the system lays a solid foundation for digital transformation in the home improvement sector. Although there are areas that need enhancement, especially in automation, communication, and scalability, the core system is stable, functional, and ready for real-world piloting. With further development and real-user feedback, *MyTukang* can evolve into a comprehensive platform that empowers homeowners and contractors alike.

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Appendix

Appendix A: Interview Questions

Interview Questions for Clients

1. General Background

- How often do you require home renovation services?
- What type of renovation projects have you undertaken in the past (e.g., small repairs, major renovations)?

2. Current Practices

- How do you usually find contractors for your renovation needs?
- What factors do you consider when selecting a contractor? (e.g., cost, reputation, recommendations)
- Have you faced any difficulties when looking for or working with contractors? If so, what were they?

3. Expectations

- What features would you find helpful in an online platform for finding contractors?
(e.g., contractor profiles, ratings/reviews, legal qualification verification)
- Do you prefer to compare multiple contractors before making a decision? Why or why not?
- How important is it for you to communicate directly with contractors through the platform?

Preferences

- Do you prioritize contractors with legal qualifications or licenses?
- Would you prefer to see past project portfolios before hiring a contractor?

4. Suggestions

- What additional features or services would you like to see in a system like MyTukang?

Figure A.1: Interview question for client

Interview Questions for Contractors

1. General Background

- How long have you been working as a home renovation contractor?
- What types of projects do you specialize in?

2. Current Practices

- How do you currently find clients for your services?
- Do you rely on online platforms, social media, or personal networks for client acquisition?
- Have you encountered any challenges when dealing with clients? If yes, can you explain?

3. Experience with Platforms

- Have you used any platforms to promote your services or find clients? If yes, what was your experience?
- What challenges do you face when using such platforms? (e.g., unfair reviews, competition, unclear project scopes)

4. Expectations

- What features would you like in a system that connects contractors with clients?
(e.g., project requests, client reviews, scheduling tools)
- Would you prefer a feature to showcase your past work or portfolio?
- Do you think a feature verifying contractors' licenses or qualifications would benefit you or your clients?

5. Suggestions

- What additional features or tools would make a platform like MyTukang useful for your work?
- Are there any aspects you would want to avoid in such a platform?

Figure A.2: Interview question for contractor

Appendix B: Questionnaire Questions

General

General - Role Selection

This section identifies whether you are a client or a contractor to tailor the questions to your role.

Bahagian ini mengenal pasti sama ada anda seorang pelanggan atau kontraktor untuk menyesuaikan soalan berdasarkan peranan anda.

Which one best describes you? *

Mana satu yang paling sesuai untuk menggambarkan anda?

☐ Client / Pelanggan

☐ Home Renovation Contractor / Kontraktor ubah suai rumah

Figure B.1: General Section (Determine Role)

Client Part

Client Section A: Finding Contractors (Current Practices & Preferences)

This section explores how clients currently find contractors and the benefits of their chosen methods.

Bahagian ini meneroka bagaimana pelanggan mencari kontraktor pada masa ini dan kelebihan kaedah yang mereka gunakan.

How have you found a home renovation contractor before? *

Bagaimanakah anda pernah menemui kontraktor ubah suai rumah sebelum ini?

☐ Media Social- Facebook, Instagram etc

☐ Close Contact // Kontak rapat (Kenalan)

☐ Recommended by others // Dicapangkan oleh orang lain

☐ Lain-lain: _____

Based on your answer above, what are the advantages of getting a contractor through this method? *

Berdasarkan jawapan anda di atas, apakah kelebihan mendapatkan kontraktor melalui cara tersebut?

☐ Save Time // Jimat Masa

☐ Cheaper // Lebih Murah

☐ Trusted // Boleh Dipercayai

☐ Lain-lain: _____

Do you care if the contractor has legal qualifications such as licenses or education certificates? *

Adakah anda mengambil berat jika kontraktor mempunyai kelayakan undang-undang seperti lesen atau sijil pendidikan?

☐ Yes // Ya

☐ No // Tidak

☐ I'm not sure // Saya tidak pasti

Will you take experienced contractor even they do not have any valid qualification? *

Adakah anda akan mengambil kontraktor berpengalaman walaupun mereka tidak mempunyai sebarang kelayakan yang sah?

☐ Yes // Ya

☐ No // Tidak

☐ I'm not sure // Saya tidak pasti

Figure B.2: Client Section A

Client Section B: Experience with Existing Platforms

This section gathers feedback on the strengths and weaknesses of current platforms used to find contractors.
Bahagian ini mengumpul maklum balas mengenai kekuatan dan kelemahan platform sedia ada yang digunakan untuk mencari kontraktor.

Have you used any online platform to search for home renovation contractors? *

Pernakah anda menggunakan mana-mana platform dalam talian untuk mencari kontraktor pengubahsuaian rumah?

☐ Yes // Ya

☐ No // Tidak

If yes, which platforms have you used? (Select all that apply)

Jika ya, platform yang manakah telah anda gunakan? (Pilih semua yang berkenaan)

☐ Facebook

☐ Recommend.my

☐ Atap.co

☐ Instagram

☐ Lain-lain:

Based on your experience, how would you rate the following features of the platform(s)? (1 = Very Poor, 5 = Excellent)

Berdasarkan pengalaman anda, bagaimanakah anda menilai ciri-ciri platform berikut? (1 = Sangat Lemah, 5 = Cemerlang)

	1	2	3	4	5
Search and Filtering Options // Pilihan Carian dan Penapisan	☐	☐	☐	☐	☐
Contractor Reviews and Ratings // Semakan dan Penarafan Kontraktor	☐	☐	☐	☐	☐
User Interface and Navigation // Rupa dan Navigasi	☐	☐	☐	☐	☐

Figure B.3: Client Section B

Client Section C: Feedback on Proposed System (MyTukang)

This section aims to understand what features and functionalities clients value most in a platform like MyTukang.
Bahagian ini bertujuan memahami ciri dan fungsi yang paling dihargai oleh pelanggan dalam platform seperti MyTukang.

Would you be interested in a platform that offers all the above features in one place? *

Adakah anda berminat dengan platform yang menawarkan semua ciri di atas dalam satu tempat?

☐ Yes // Ya

☐ No // Tidak

☐ Maybe // Mungkin

What additional features would you like to see in the MyTukang platform?

Apakah ciri tambahan yang anda ingin lihat dalam platform MyTukang?

Jawapan anda

How important are the following features for you when searching for a contractor? (1 = Not Important, 5 = Very Important) *

Betapa penting ciri-ciri berikut bagi anda semasa mencari kontraktor?

	1	2	3	4	5
Reliable Ratings and Reviews // Penilaian dan Ulasan yang Boleh Dipercaya	☐	☐	☐	☐	☐
Advanced Search and Filtering Options // Pilihan Carian dan Penapisan Lanjutan	☐	☐	☐	☐	☐
Verified Contractor Profiles // Profil Kontraktor yang Disahkan	☐	☐	☐	☐	☐
Contractor Portfolio // Hasil Kerja Lampau Kontraktor	☐	☐	☐	☐	☐

Figure B.4: Client Section C

Contractor Part

Contractor Section A: Current Practices and Preferences

This section collects information about contractors' current methods of finding clients and their opinions on existing platforms.

Bahagian ini mengumpul maklumat tentang kaedah semasa kontraktor mencari pelanggan dan pandangan mereka terhadap platform sedia ada.

How do you usually find clients for your renovation services? (Select all that apply) *

Bagaimana anda biasanya mencari pelanggan untuk perkhidmatan pengubahsuaian anda?

☐ Media Social- Facebook, Instagram etc

☐ Close Contact // Kontak rapat (Kenalan)

☐ Recommended by others // Dicapangkan oleh orang lain

☐ Lain-lain: _____

Based on your answer above, what are the advantages of finding clients through this method? *

Berdasarkan jawapan anda di atas, apakah kelebihan mencari pelanggan melalui cara tersebut?

☐ Save Time // Jimat Masa

☐ Cost-effective // Kos Rendah

☐ Build Trust // Membina Kepercayaan

☐ Lain-lain: _____

Do you believe having legal qualifications such as licenses or education certificates helps gain client trust? *

Adakah anda percaya bahawa mempunyai kelayakan sah seperti lesen atau sijil pendidikan membantu membina kepercayaan pelanggan?

☐ Yes // Ya

☐ No // Tidak

☐ Maybe // Mungkin

Figure B.5: Contractor Section A

Contractor Section B: Experience with Existing Platforms

This section gathers feedback on the strengths and weaknesses of current platforms used to promote services or find clients?

Bahagian ini mengumpul maklum balas mengenai kekuatan dan kelemahan platform sedia ada yang digunakan untuk mempromosikan perkhidmatan atau mencari pelanggan.

Have you used any online platform promote your services or find clients? *

Pernahkah anda menggunakan mana-mana platform dalam talian untuk mempromosikan perkhidmatan atau mencari pelanggan?

☐ Yes // Ya

☐ No // Tidak

If yes, which platforms have you used? (Select all that apply)

Jika ya, platform manakah yang anda gunakan?

☐ Facebook

☐ Recommend.my

☐ Atap.co

☐ Instagram

☐ Lain-lain: _____

Based on your experience, how would you rate the following features of the platform(s)? (1 = Very Poor, 5 = Excellent)

Berdasarkan pengalaman anda, bagaimana anda menilai aspek berikut pada platform tersebut? (1 = Sangat Teruk, 5 = Sangat Baik)

	1	2	3	4	5
Ease of Creating a Profile // Kemudahan Mencipta Profil	☐	☐	☐	☐	☐
Visibility to Potential Clients // Kebolehlihatan kepada Pelanggan Berpotensi	☐	☐	☐	☐	☐
Communication with Clients // Komunikasi dengan Pelanggan	☐	☐	☐	☐	☐

Figure B.6: Contractor Section B

Contractor Section C: Feedback on Proposed System (MyTukang)

This section focuses on what contractors expect from a platform like MyTukang and features that can enhance their experience.

Bahagian ini memberi tumpuan kepada jangkaan kontraktor terhadap platform seperti MyTukang dan ciri-ciri yang boleh meningkatkan pengalaman mereka.

Would you be interested in a platform that offers all the above features in one place? *

Adakah anda berminat dengan platform yang menawarkan semua ciri di atas dalam satu tempat?

☐ Yes // Ya
☐ No // Tidak
☐ Maybe // Mungkin

What additional features would you like to see in the MyTukang platform?

Apakah ciri tambahan yang anda ingin lihat dalam platform MyTukang?

Jawapan anda _____

How important are the following features for you as a contractor? (1 = Not Important, 5 = Very Important) *

Berapa penting ciri-ciri berikut bagi anda sebagai kontraktor? (1 = Sangat Tidak Penting, 5 = Sangat Penting)

	1	2	3	4	5
Verified Client Requests // Permintaan Pelanggan yang Disahkan	☐	☐	☐	☐	☐
Ratings and Reviews from Clients // Penilaian dan Ulasan daripada Pelanggan	☐	☐	☐	☐	☐
Ability to Filter Client Requests by Budget or Location // Keupayaan Menapis Permintaan Pelanggan berdasarkan Bajet atau Lokasi	☐	☐	☐	☐	☐
Ability to Rate and Review Client // Kebolehan untuk menilai dan mengulas pelanggan	☐	☐	☐	☐	☐

Figure B.7: Contractor Section C

Appendix C: Turnitin Submission for FYP1

	Submission Title	Turnitin Paper ID	Submitted	Similarity	Grade	Overall Grade
View Digital Receipt	FYP REPORT (81126)	2565723368	17/01/25, 11:51	2%	--	--
					Submit Paper	

Figure C.1: Percentage of Turnitin submission (FYP1)

Appendix D: The analytics of the web hosting

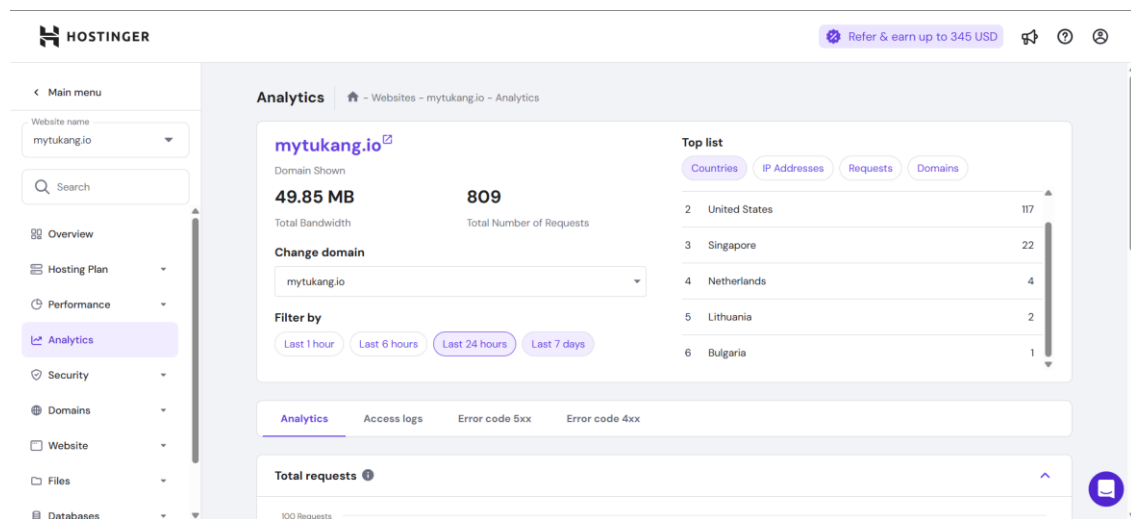


Figure D: The analytics of the web hosting

Appendix E: GitHub Repository Overview

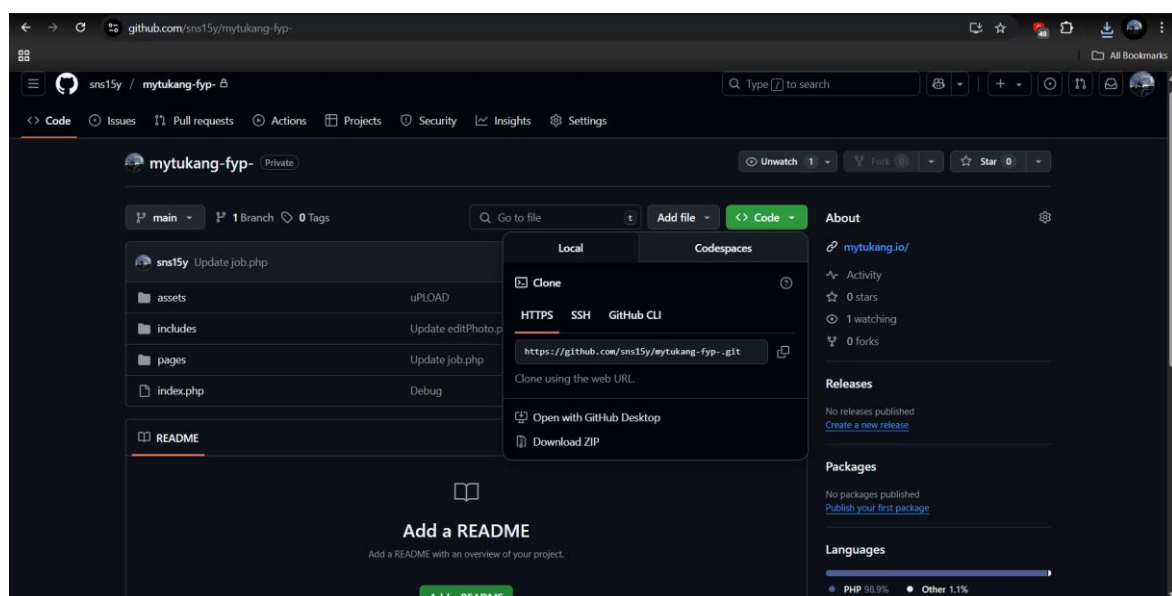


Figure E: GitHub Repository Overview

Appendix F: Turnitin Submission for FYP2

	Submission Title	Turnitin Paper ID	Submitted	Similarity	Grade	Overall Grade	
View Digital Receipt	FYP2_Final Report_81126	2720727441	26/07/25, 17:13	2% 	--	--	Submit Paper   --

Figure F.1: Percentage of Turnitin submission (FYP2)