

# Homestay Management System

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## Abstract

The study focus on a Homestay Management System designed for owners to effectively oversee their accommodations. This web-based system aims to streamline homestay operations, offering features like banner management, booking management, guest management, and overall system settings. The system provides a comprehensive platform focused on enhancing the guest experience and empowering the owner to manage everything of the homestay easily. The Homestay Management System serves as a valuable tool for hosts, centralizing tasks and facilitating efficient property management to maximize their property's potential.

## 1. Introduction

### 1.1 Project Background

The current homestay management process at Arissa Homestay in Taman Saujana Kluang is primarily manual, relying on physical logbooks and in-person interactions. This manual approach has led to challenges such as double bookings, difficulty in tracking guest preferences, and limited reporting capabilities, resulting in operational inefficiencies and potential revenue loss [1]. To address these issues, a proposed Homestay Management System aims to introduce a digital platform that streamlines reservation management, automates guest communication, and centralizes data storage [2]. This system will equip hosts with tools to efficiently manage bookings, track guest preferences, and enhance the overall guest experience. The goal is to improve operational efficiency, increase guest satisfaction, and ultimately boost revenue for homestay hosts.

### 1.2 Problem Statement

The implementation of the existing homestay management system poses significant challenges. Firstly, manual reservation management increases the risk of overlap booking and double bookings, potentially leading to guest dissatisfaction, negative reviews, and financial losses through refunds or compensation [3]. This issue jeopardizes the reputation of the homestay and can hinder its overall success.

Secondly, the reliance on manual processes results in inefficient record-keeping, making it difficult to accurately retrieve guest information and payment histories. This inefficiency may lead to confusion, missed opportunities for repeat business, and complications in addressing billing or legal disputes. Moreover, inadequate record-keeping can pose challenges for hosts in terms of tax reporting and compliance.

Lastly, the absence of a digital platform limits the homestay's marketing and visibility. Without an online presence, hosts may miss out on potential guests who search for accommodations on the internet. This limitation can result in low occupancy rates, reduced revenue, and missed opportunities to attract guests from various geographical locations. In a competitive digital marketplace, the homestay may struggle to effectively compete and reach a broader audience. Overall, the existing system's shortcomings have implications for guest satisfaction, financial stability, and the homestay's ability to thrive in the modern hospitality industry.

### 1.3 Objective

The objectives of this system are to:

1. To design a Homestay Management System that can help the owner to manage the homestay easily.
2. To develop a web-based system that can help the user and owner to access it anywhere.
3. To do alpha and beta testing on Homestay Management System.

### 1.4 Scope

The homestay management system encompasses several essential modules to ensure seamless and efficient operations. The authentication module includes user registration, login, and password management to verify and maintain user credentials securely. The booking module offers a calendar view for clients to manage reservations and availability, while administrators can oversee all bookings. The booking detail module allows clients to view and print their booking details in PDF format.

The user queries module provides a contact form for clients to submit questions and concerns, with administrative tools to manage these inquiries. The review module enables clients to leave reviews after reservations, and administrators can manage these reviews to prevent duplicates and inappropriate content. The user management module gives administrators control over user accounts, including registration, login, and profile management.

The price setting module allows administrators to adjust booking prices based on weekdays, weekends, and special offers. The facilities and features management module ensures property listings are detailed and accurate to enhance the booking experience for guests. The Banner Management Module enables administrators to manage marketing banners, highlighting special offers, announcements, and featured properties. Finally, the setting module allows administrators to manage site configurations and essential information, such as site name, contact details, and management team information. This comprehensive system ensures a smooth and efficient management experience for both clients and administrators in the homestay industry.

## 2. Related work

The three existing booking systems are studied and compared to the features of the proposed system. This includes the module contained in the Homestay Management System. Each system has its own set of advantages and disadvantages. The first system is Agoda. Agoda is an online travel agency and booking platform that provides a platform for users to book accommodations, flights, airport transfers, and various other travel-related services. The company was founded in 2005 in Singapore and has since become one of the major players in the online travel industry [4]. Agoda offers a wide range of options for travelers, including hotels, vacation rentals, hostels, and more. Users can search for accommodations based on their destination, travel dates, and preferences. The platform provides detailed information about each property, including photos, reviews from other travelers, and amenities.

The second system is Booking.com is a widely used and popular online travel agency that facilitates the booking of accommodations, flights, rental cars, and other travel-related services. Established in 1996 and headquartered in Amsterdam, Netherlands, Booking.com has grown into one of the largest and most recognized platforms in the online travel industry [5]. Booking.com has become a go-to platform for travellers seeking a convenient and comprehensive solution for planning and booking their trips. The company's extensive database of accommodations, coupled with user-friendly features and competitive pricing, has contributed to its widespread popularity in the travel industry.

The third system is Vrbo. VRBO, which stands for "Vacation Rentals by Owner," is an online marketplace that connects property owners with travelers seeking vacation rental accommodations. Established in 1995, VRBO has become a prominent platform in the vacation rental industry, offering a wide range of vacation homes, condos, cabins, and beach houses.[6]. Table 1 shows the system comparison of three system and the proposed system.

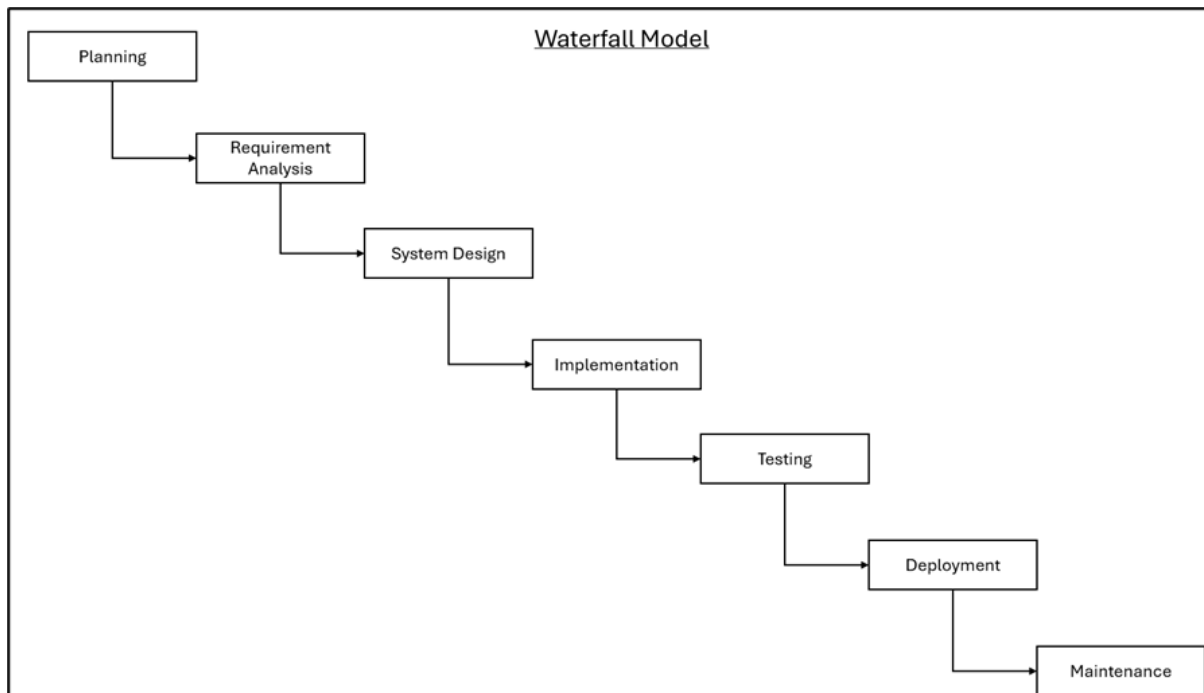
**Table 1** System's comparison

Features	Agoda Booking System	Booking.com	Vrbo Booking System	Homestay Management System
Target User	Guest	Guest	Guest	Owner, and Guest
User Authentication (Login, Log Out, Register)	✓	✓	✓	✓
Reservation	✓	✓	✓	✓
Connect to WhatsApp	X	X	X	✓
Booking Calendar	X	X	X	✓
User Information Confirmation	✓	✓	✓	✓
Update Inventory System	✓	✓	✓	✓
Database Required	✓	✓	✓	✓
Searching Function	✓	✓	✓	✓
Guest Detail Print Out	X	X	X	✓
Payment	✓	✓	✓	✓

### 3. Methodology/Framework

#### 3.1 Waterfall Model

In this case, the waterfall model is suitable for this project. The reason for choosing waterfall model as the methodology for this project is the requirement of the homestay management system is already well established and stable. Hence, waterfall model can sequential structure ensures a clear and predictable project timeline with distinct deliverables and milestones in each phase, facilitating effective project planning and management. The Gantt Chart of the system is shown in Appendix A. In the Waterfall model methodology, which encompasses seven phases from the prototype model, each stage is assigned specific tasks and outputs that must be generated throughout the entire project development process. Figure 1 shows waterfall model. Waterfall model consists of different phase, and all has its own responsibility.

**Fig. 1** Waterfall Model [7]

The planning phase in developing a homestay management system involves setting clear goals and defining the project's scope. This phase includes gathering requirements from stakeholders, assessing the feasibility of the project, and identifying potential risks. The activity involved consists of generate Idea, finding supervisor, confirm title, and generate proposal. In requirement analysis phase, the developer cooperates with stakeholders to collect and document all the requirements needed for the system. The activities involved consists of stakeholder identification, requirements elicitation, requirements documentation and requirements analysis. While the purpose of the system design phase is to transform the requirements gathered in the requirement analysis phase into a detailed blueprint that outlines the structure and behaviour of the homestay management system. The sub-activities involved consists of homestay module design, data management for homestays design, user interface for owners and guests, and wireframe design. The Implementation phase of the Homestay Management System involves transforming the detailed system design into a fully functional and operational software solution. The activities involved consists of coding modules, database integration, user interface implementation, testing and debugging.

The Testing phase for the Homestay Management System is crucial for ensuring the reliability, functionality, and security of the implemented software. The activities involved are unit testing, integration testing, system testing, and performance testing. The Deployment phase of the Homestay Management System marks the transition from development and testing to making the system available for actual use. The activities involved are deployment planning, testing and validation, and environment setup. Lastly, The Maintenance phase of the Homestay Management System is designed to sustain the system's optimal performance, address emerging issues, and incorporate enhancements over its operational lifecycle. The activities involved consist of bug fixes and issue resolution, performance monitoring and optimization, and feature enhancements. Table 2 shows the Software development activities and their task.

**Table 2** Software Development Activities and Their Task

Phase	Task	Output
Planning	<ul style="list-style-type: none"> <li>• Generate Idea</li> <li>• Finding Supervisor</li> <li>• Confirm Title</li> <li>• Generate Proposal</li> </ul>	<ul style="list-style-type: none"> <li>• Proposal</li> <li>• Gantt Chart</li> </ul>
Requirement analysis	<ul style="list-style-type: none"> <li>• Stakeholder Identification</li> <li>• Requirements Elicitation</li> <li>• Requirements Documentation</li> <li>• Requirements Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder list and roles</li> <li>• Documented requirements (functional and non-functional)</li> <li>• DFD, Context Diagram (CD), Data Flow Diagram</li> </ul>
System Design	<ul style="list-style-type: none"> <li>• Homestay Module Design</li> <li>• Data Management for Homestays Design</li> <li>• User Interface for Owners and Guests</li> <li>• Wireframe Design</li> </ul>	<ul style="list-style-type: none"> <li>• Module specifications</li> <li>• Database schema</li> <li>• Wireframe</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>• Coding Modules</li> <li>• Database Integration</li> <li>• User Interface Implementation</li> <li>• Testing and debugging</li> </ul>	<ul style="list-style-type: none"> <li>• Executable code for each module</li> <li>• Integrated database with populated data</li> <li>• Implemented user interfaces for owners and guests</li> </ul>
Testing	<ul style="list-style-type: none"> <li>• Unit Testing</li> <li>• Integration Testing</li> <li>• System Testing</li> <li>• Performance Testing</li> </ul>	<ul style="list-style-type: none"> <li>• Test plans and test cases</li> </ul>
Deployment	<ul style="list-style-type: none"> <li>• Deployment Planning</li> <li>• Testing and Validation</li> <li>• Environment Setup</li> </ul>	<ul style="list-style-type: none"> <li>• Deployment plan</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Bug Fixes and Issue Resolution</li> <li>• Performance Monitoring and Optimization</li> <li>• Feature Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>• Resolved bugs and documented solutions</li> <li>• Optimized system performance</li> </ul>

### 3.2 Functional and Non-functional Requirements

Functional requirement is used to define the operation of the system [8]. For example, functional requirement describes the specific behaviors and capabilities of the system, software application, or product that must meet the end-user's needs while non-functional requirements focus on how well the system can perform. Table 3 shows the functional requirements and Table 4 shows the non-functional requirements.

**Table 3** *Functional requirements*

Module	Functionalities
Authentication Module	<ul style="list-style-type: none"> <li>• Allows customer to create accounts on the homestay management system.</li> <li>• Verifies user credentials to allow access to the system.</li> <li>• Setting a new password during registration, changing an existing password, and resetting a forgotten password.</li> </ul>
Booking Module	<ul style="list-style-type: none"> <li>• Allows guests to browse available homestays, make reservations.</li> <li>• Allow administrator manage reservation requests.</li> </ul>
User Management Module	<ul style="list-style-type: none"> <li>• Allow administrator to manage users detail.</li> </ul>
Booking Detail Module	<ul style="list-style-type: none"> <li>• This module allow client to view their booking detail and print it as PDF format.</li> </ul>
User Queries Module (User Queries Management Module)	<ul style="list-style-type: none"> <li>• Allow users to submit their questions through the contact form.</li> <li>• Allow administrator to view and manage the user queries</li> </ul>
Review Module (Review Management Module)	<ul style="list-style-type: none"> <li>• Allow users to make a review after successfully making a reservation.</li> <li>• Allow administrator to view and manage all the review detail.</li> </ul>
Price Setting Module	<ul style="list-style-type: none"> <li>• Allow administrator to control the price of the reservation based on different condition.</li> </ul>
Facilities and Features Management Module	<ul style="list-style-type: none"> <li>• Allow administrator to update the inventories of the homestay</li> </ul>
Banner Management Module	<ul style="list-style-type: none"> <li>• Allow administrator to manage the banner of the system for different purpose.</li> </ul>
Setting Module	<ul style="list-style-type: none"> <li>• Allow administrator to manage the overall system such as website name, turn off the website, contact information and management team.</li> </ul>

**Table 4** *Non-functional requirements*

Requirements	Functionalities
Performance	<ul style="list-style-type: none"> <li>• Can be access anytime.</li> </ul>
Security	<ul style="list-style-type: none"> <li>• User passwords must be stored securely using encryption.</li> </ul>
Usability and User Experience	<ul style="list-style-type: none"> <li>• Allow the owner and users to view the report.</li> </ul>
Compatibility	<ul style="list-style-type: none"> <li>• The interface must be user friendly and easy to understand.</li> </ul>
Maintainability	<ul style="list-style-type: none"> <li>• The system should be compatible with the latest versions of common web browsers such as Chrome, and Firefox.</li> </ul>
Performance	<ul style="list-style-type: none"> <li>• Code of the system should be well-documented.</li> </ul>

## 4. Result and discussion

### 4.1 Data Flow Diagram

Data Flow Diagram (DFD) is a graphical representation that illustrates how data flows within a system. DFD always used in system analysis and design to represent the flow of data and processes, highlighting the interactions between different components of a system.

### 4.2 Context Diagram

The DFD start with Context Diagram (CD), CD is the highest-level of DFD, used to provides an overview of the entire system. In this case, this system consists of two entities which are administrator and customer. As the administrator are allowed to manage most of the data consists of banner detail, setting detail, features and facilities detail, and price detail while for customer will provide the data such as customer detail, booking detail, review detail, and user queries detail, in which the data provided by customer will also be manage by the administrator. Figure 2 shows the context diagram (CD).

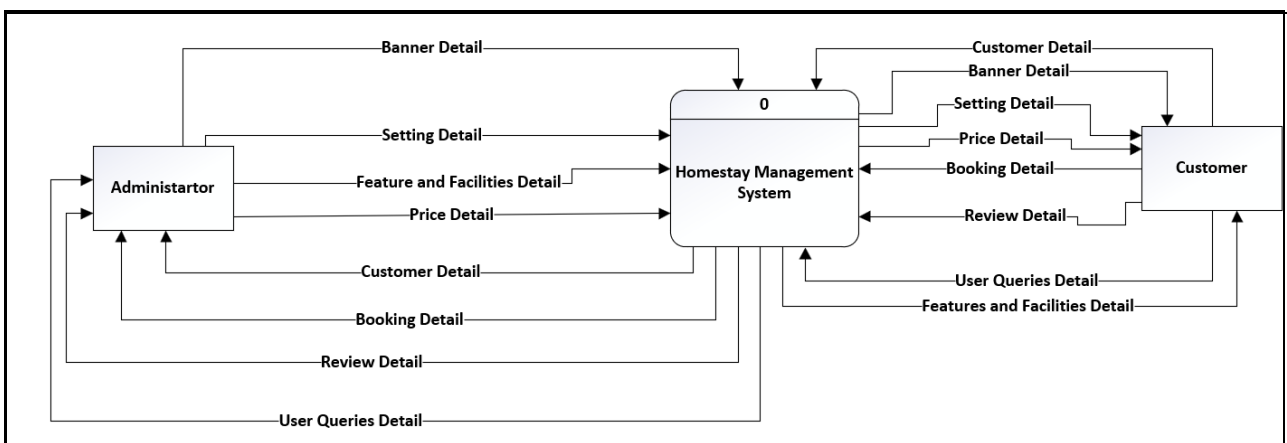


Fig. 2 Context Diagram (CD)

### 4.3 DFD Level 0

DFD Level 0 provides a more detailed view of the system's processes and data flows compared to the context diagram. DFD level 0 breaks down the processes in the context diagram into subprocesses and illustrates how data flows between them. Appendix B shows the Data Flow Diagram Level 0.

### 4.4 Entity Relationship Diagram (ERD)

Entity-Relationship Diagram (ERD) is used to display the data model that explains the relationship between different entities within the system. ERD acts as visual representation of the relationship. Figure 3 shows the ERD which consists of twelve entities which are admin\_cred, banner, booking, contact\_details, facilities, features, price, review, settings, team\_details, users, and user\_queries. which describes the important component required in the proposed system and the relationship between the entities.

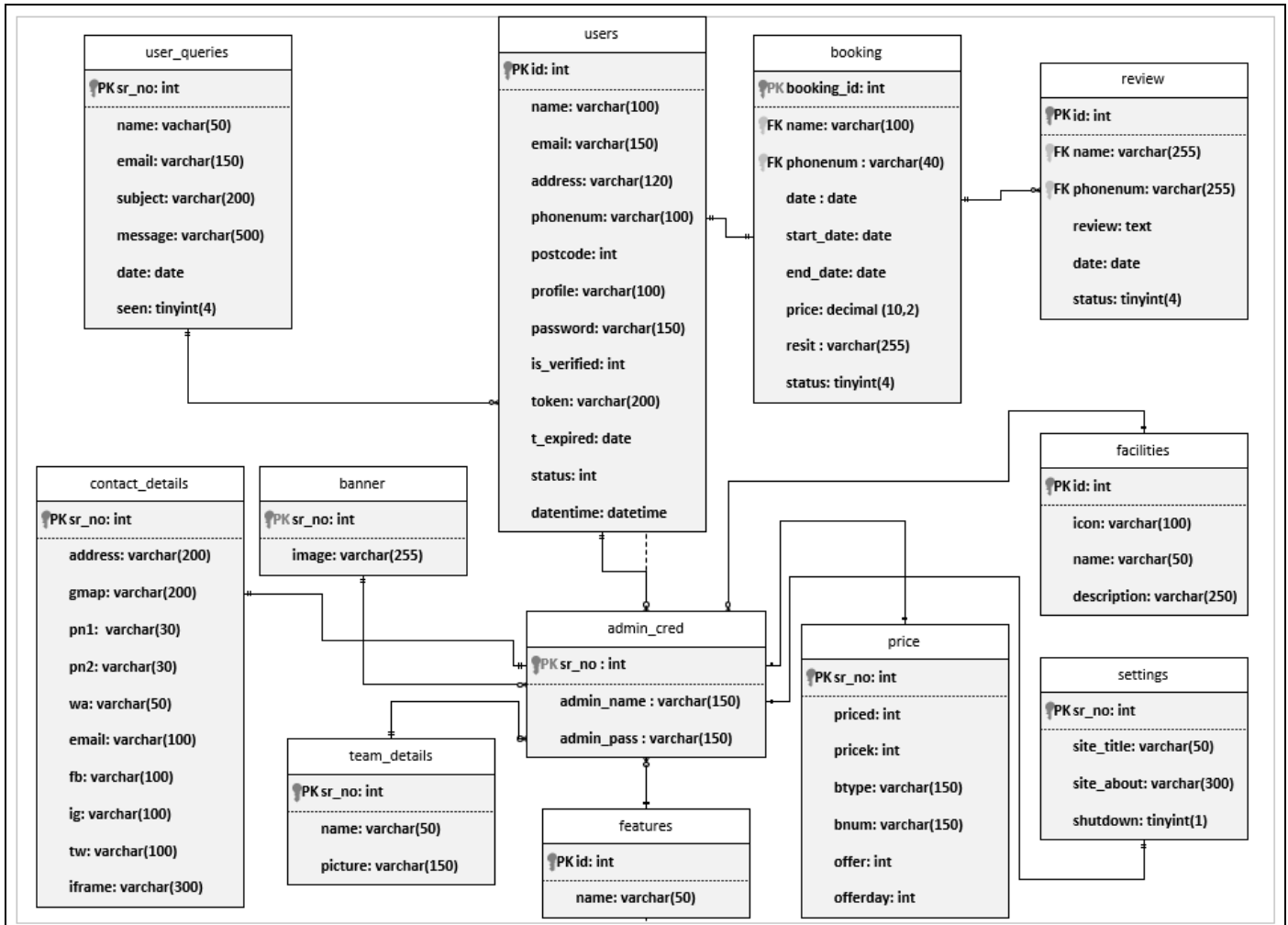


Fig. 3 Entity Relation Diagram (ERD)

## 5. IMPLEMENTATION AND TESTING

### 5.1 IMPLEMENTATION

There are several modules discussed in this section, including client side which are booking module, authentication module, user queries module, review module and booking detail module while for administration side which consists of user management module, user queries management module, booking management module, review management module, payment settings module, features and facilities management module, banner management module, and settings module.

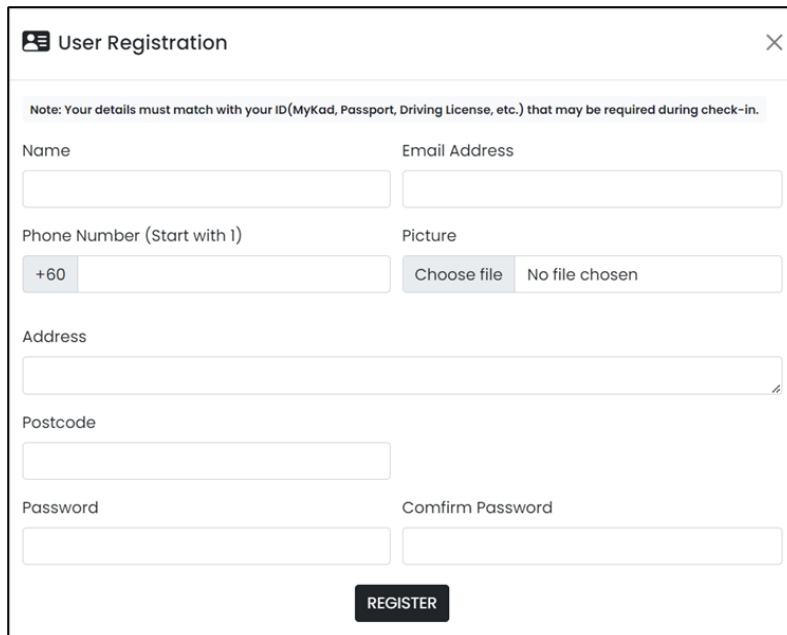
### 5.2 Client Side

The homestay management system has been carefully designed with various sections to cater to the diverse needs and objectives of its users. Each section is crafted to provide a tailored experience, allowing users on the client-side to easily navigate to the area's most relevant to them. For instance, there are sections dedicated to listing and managing homestay properties, guest-facing sections enable users to browse, search, and book suitable homestay accommodations based on their preferences and travel plans.

#### 5.2.1 Authentication Module

The authentication module of the system offers two core functionalities which are login and register. For the login process, users simply need to enter their email or phone number along with their password to access their account. Conversely, the registration process entails a more comprehensive set of details, including the user's name, email address, phone number, profile picture, address, postcode, and chosen password. Upon completion of registration, users will receive a verification email to confirm their identity. Once verification is successfully completed, users gain access to their account and can proceed with login. However, if the verification process is

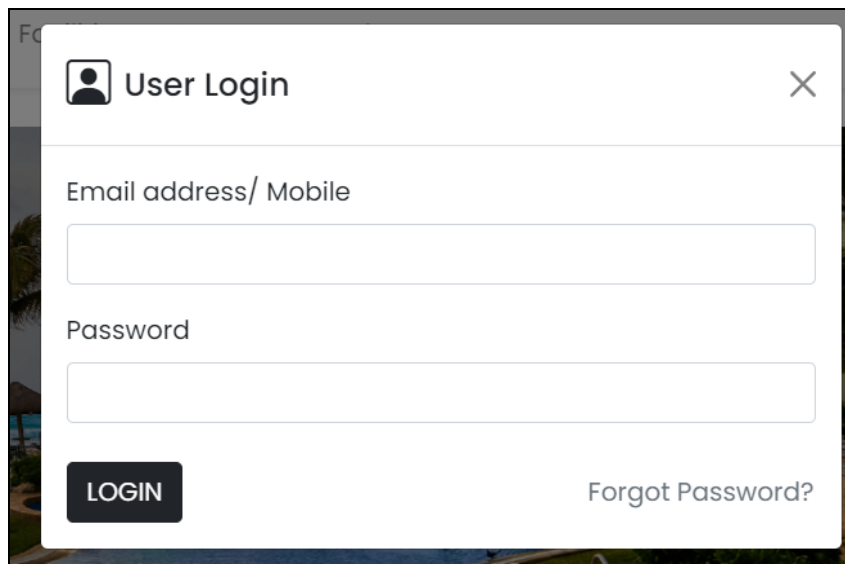
not completed, access to the account will be restricted until verification is finalized. This robust authentication mechanism ensures the security and integrity of user accounts while providing a seamless registration and login experience. Figure 4, Figure 5 and Figure 6 show the interface of registration module, login module, and validation email respectively.



The registration form is titled "User Registration" and includes a note: "Note: Your details must match with your ID(MyKad, Passport, Driving License, etc.) that may be required during check-in." The form contains the following fields and controls:

- Name:
- Email Address:
- Phone Number (Start with 1):
- Picture:
- Address:
- Postcode:
- Password:
- Comfirm Password:
- 

**Fig. 4** Registration Module



The login form is titled "User Login" and includes the following fields and controls:

- Email address/ Mobile:
- Password:
- 
- [Forgot Password?](#)

**Fig.5** Login Module

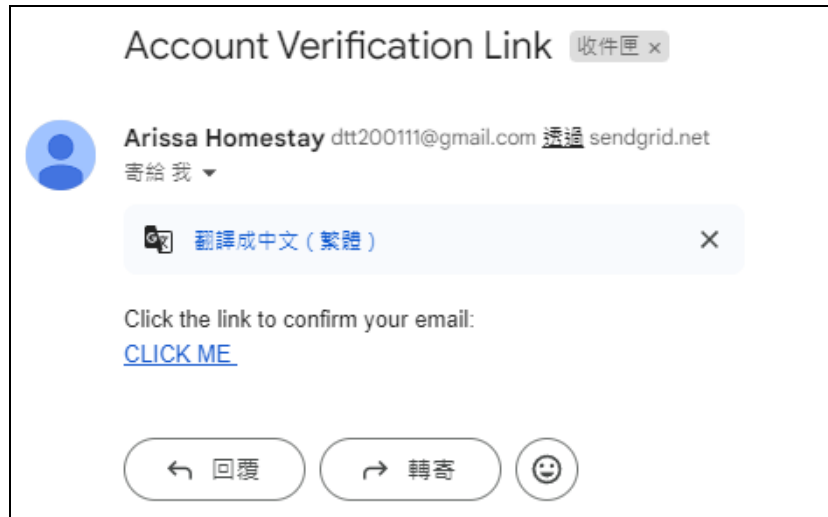


Fig.6 Validation Email

### 5.2.2 User Queries Module

This user queries module empowers guests to submit inquiries effortlessly by providing essential details such as name, email, subject, and message. Once submitted, this information is efficiently relayed to the administrator interface for prompt review and response. Figure 7 shows the user queries module.

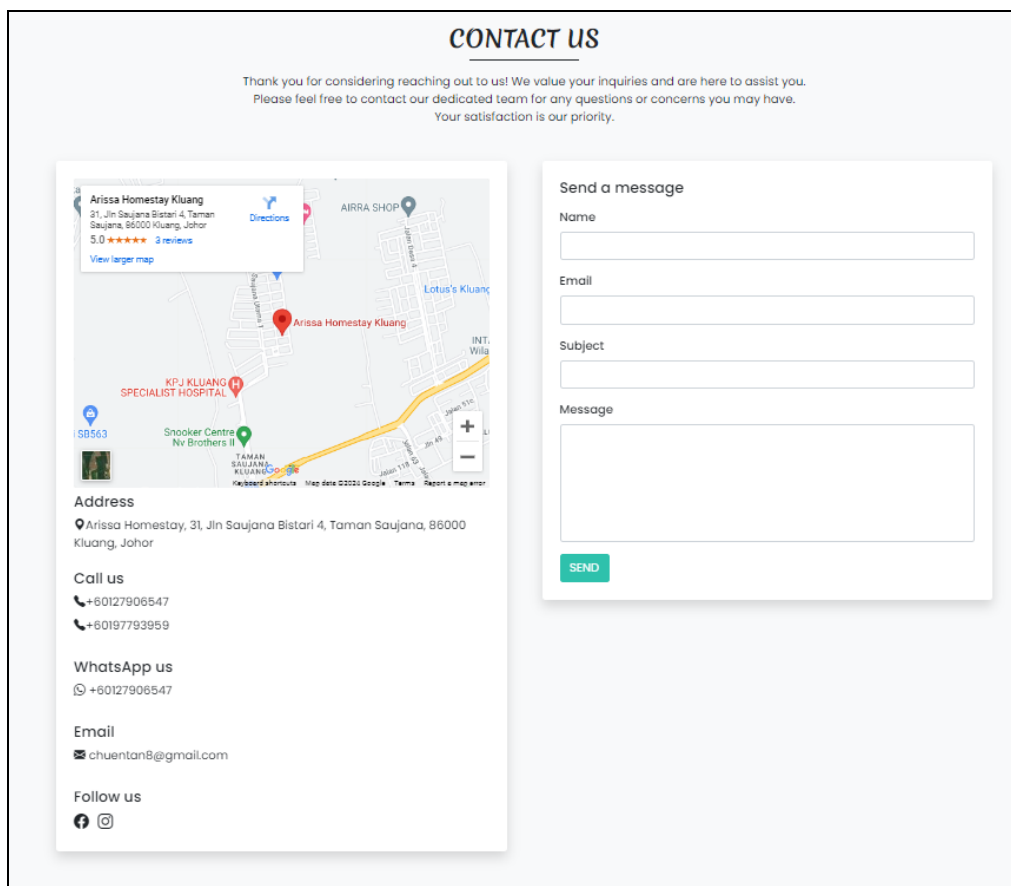


Fig.7 User Queries Module

### 5.2.3 Booking Module

The booking module of the system offers a seamless experience for users, integrating a calendar and date selector to facilitate their booking process. Upon selecting a date, the corresponding date will be highlighted in

blue, indicating the date was selected. Conversely, dates already booked will be marked in red, providing users with clear visual cues. Figure 8 shows the booking module.

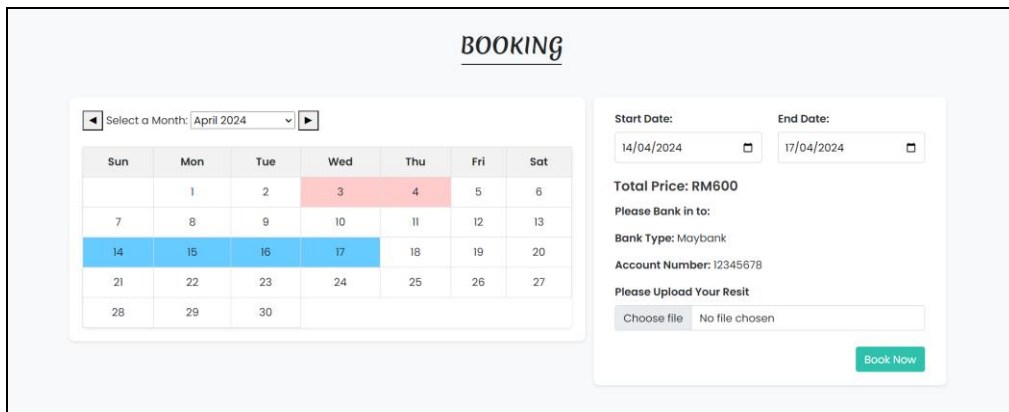


Fig.8 Booking Module

### 5.2.4 Booking Detail Module

The booking detail module in the homestay management system offers users a convenient and user-friendly interface to view crucial information about their homestay reservations. It presents essential details such as the start and end dates of their stay, empowering users with a clear understanding of their booking duration. Figure 9 shows booking detail module.

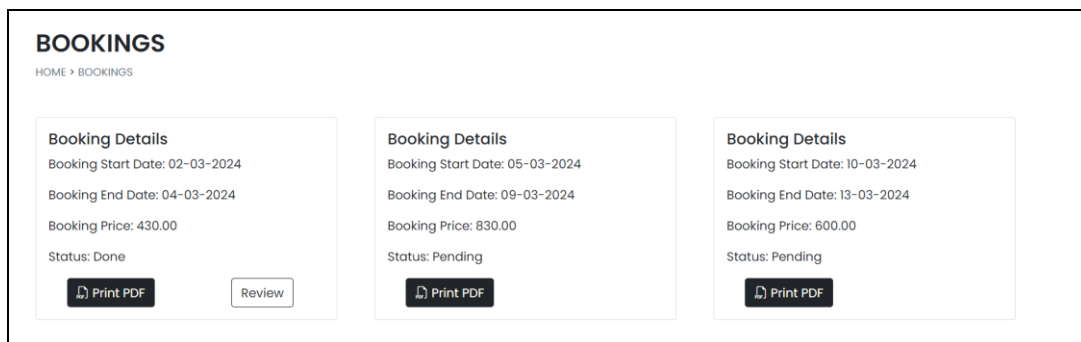


Fig.9 Booking Detail Module

### 5.2.5 Review Module

The homestay management system includes a review module that enhances the guest experience. Once the payment is verified by the admin, a review button becomes available to the guest, inviting them to share their feedback on their stay. This review module provides guests with an opportunity to express their thoughts and opinions, helping future visitors make informed decisions about their accommodation. Figure 10 shows the review module.

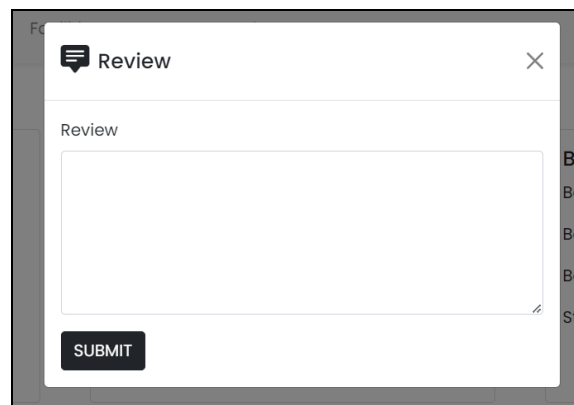


Fig.10 Review Module



**BOOKING**

Type to search

#	Name	Phone Number	Booking date	Start_date	End_date	Price	Resit	Status	Action
1	Tan Yong Chuen	0127906547	31-03-2024	2024-04-03	2024-04-04	RM 200.00	View	Pending...	
2	Tan Yong Chuen	0127906547	22-03-2024	2024-03-24	2024-03-25	RM 200.00	View	Done	
3	testing	60127906547	21-03-2024	2024-03-28	2024-03-31	RM 660.00	View	Done	
4	Tan Yong Chuen	0127906547	03-03-2024	2024-03-14	2024-03-16	RM 430.00	View	Done	
5	Tan Yong Chuen	0127906547	02-03-2024	2024-03-10	2024-03-13	RM 600.00	View	Pending...	
6	Tan Yong Chuen	0127906547	02-03-2024	2024-03-05	2024-03-09	RM 830.00	View	Pending...	
7	Tan Yong Chuen	0127906547	02-03-2024	2024-03-02	2024-03-04	RM 430.00	View	Done	

Fig.13 Booking Management Module

### 5.3.4 Review Management Module

The review module empowers administrators to effectively manage system reviews, maintaining a transparent and reliable feedback system for users. It records essential details such as the user's name, phone number, review date, and the review itself. Figure 14 shows the review management module.

**REVIEW**

Type to search

#	Name	Phone Number	Date	Review	Status	Action
1	Tan Yong Chuen	0127906547	19-03-2024	hi	Active	
2	Tan Yong Chuen	0127906547	19-03-2024	GOOD	Active	
3	Tan Yong Chuen	0127906547	19-03-2024	This is the best homestay	Active	
4	Tan Yong Chuen	0127906547	19-03-2024	hi	Active	
5	Tan Yong Chuen	0127906547	19-03-2024	testing	Inactive	

Fig.14 Review Management Module

### 5.3.5 Price Settings Module

In the price setting module, administrators can effortlessly adjust prices for both weekends and weekdays, catering to fluctuating demand patterns. Additionally, administrators have the flexibility to set special offer prices for customers who book for an extended duration, encouraging longer stays. Figure 15 shows the price setting module.

**PRICE SETTINGS**

Price Settings Edit

Price (Weekdays) 200      Price (Weekends) 230

Offer Percentage 53%      Offer Day (Booking more than this day will get offer) 2

---

Bank Settings Edit

Bank Type Maybank

Account Number 12345678

Fig.15 Price Setting Module

### 5.3.6 Features and Facilities Management Module

Features and facilities management module empowers administrators to dynamically update the features and facilities available at the homestay. Administrators can effortlessly add new features or facilities that the homestay offers, ensuring that users are well-informed about the amenities available during their stay. Figure 16 shows the features and facilities management module.

FEATURES & FACILITIES				
Features <span style="float: right;">⊕ Add</span>				
#	Name	Action		
1	kitchen	<span style="color: red;">Delete</span>		
2	bedroom	<span style="color: red;">Delete</span>		
Facilities <span style="float: right;">⊕ Add</span>				
#	Icon	Name	Description	Action
1	📶	Wifi	Support 5G	<span style="color: red;">Delete</span>
2	🚰	Water Heater	The newest water heater	<span style="color: red;">Delete</span>
3	🌬️	Air Conditioner	Acson newest air conditioner	<span style="color: red;">Delete</span>
4	📺	Television	Consists of Astro and Netflix	<span style="color: red;">Delete</span>
5	🧺	Washing Machine	Consists of drying function	<span style="color: red;">Delete</span>

Fig.16 Features and Facilities Management Module

### 5.3.7 Banner Management Module

The banner management module offers administrators the ability to curate promotional content and announcements for users. This module enables administrators to seamlessly upload images showcasing promotions, events, or any other relevant information directly to the user interface. Figure 17 shows the banner management module.

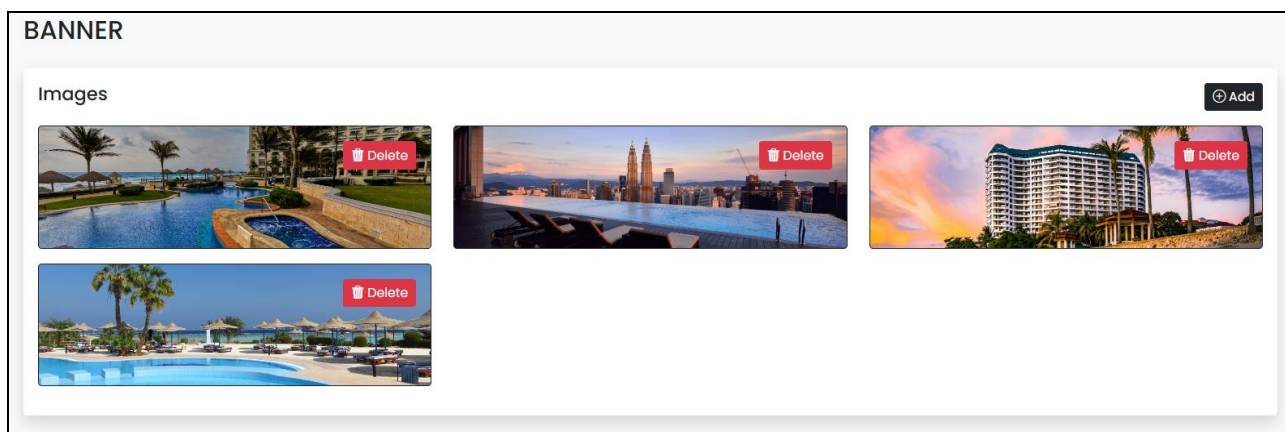


Fig.17 Banner Management Module

### 5.3.8 Settings Module

The General Setting section offers administrators the flexibility to modify fundamental details such as the homestay name and the About Us section, enabling them to keep the information relevant and up to date. In the Shutdown part, administrators have the option to temporarily disable booking functionality with the click of a button, providing control over booking availability. The Contact Setting section allows for comprehensive management of contact details, including the homestay address, Google Maps link, phone numbers, WhatsApp contact, email addresses, social media links, and embedding map iframes for enhanced visibility and accessibility. Lastly, the Management Team part facilitates the administration of the management team's

information, including their pictures and names, with the ability to add or remove team members as needed, ensuring transparency and effective communication with users. Figure 18 shows the settings module.

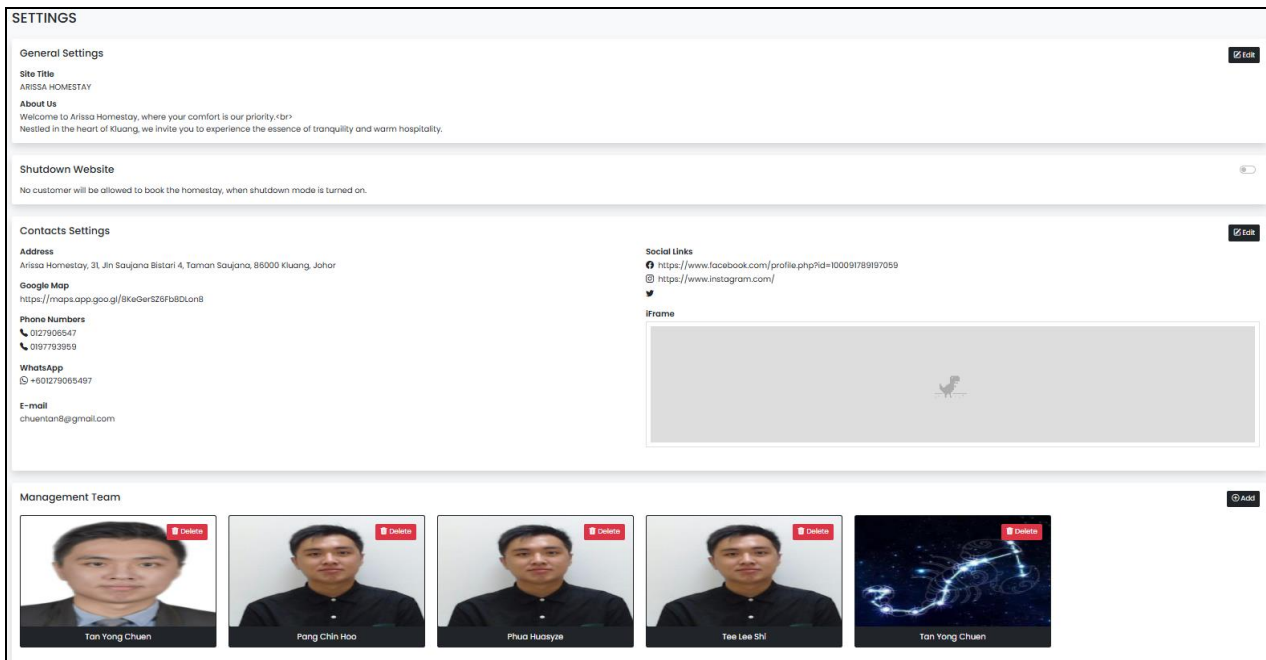


Fig.18 Settings Module

## 5.4 Testing

### 5.4.1 Test Cases

The test cases are to evaluate the system’s functionality, performance, security, and usability. This includes setting up the test environment, designing comprehensive test cases and executing tests to ensure new changes do not impact existing features, assessing performance under varying loads, testing security measures, and involving end-users in acceptance testing to validate the system's readiness for deployment. Table 5 shows the test cases of the module.

Table 5 Test Cases of the Module

No.	Test Cases	Expected Outcome	Output
<b>Authentication Module</b>			
1.	Users enter all the required information to register the new account.	Successfully send a verification link through the users’ email and users successfully registered the new account.	Passed
2.	Users enter the email or phone number to login to the system.	Successfully log in to the system and if the password was wrong, an error message will come out and users need to enter the password again.	Passed
3.	Users forgot the password and want to reset the password.	Successfully send password reset link through the users’ email and users allow to reset the password through the link.	Passed
4.	Users enter all the required information to register the new account.	Successfully send a verification link through the users’ email and users successfully registered the new account.	Passed
<b>Booking Module (Booking Management Module)</b>			
<b>Client-Side Testing</b>			
5.	Users can view the booking date and select the booking date wanted.	Successfully display a red color highlight on the booking calendar for booked date, and a blue color highlight for selected date.	Passed
6.	Users make a booking.	Successfully make a booking	Passed
7.	Users can view the booking detail.	Successfully display the bookings detail for the users.	Passed
8.	Send the payment receipt into the system.	Successfully send the payment receipt into the system and wait for administrator to approve.	Passed

**Table 5** Test Cases of the Module (cont.)

<b>Admin-Side Testing</b>			
9.	Administrator can view and manage all the booking.	Successfully display all the booking detail in admin panel and change the status from pending to done after checking the receipt and successfully remove any booking.	Passed
<b>Review Module (Review Management Module)</b>			
<b>Client-Side Testing</b>			
10.	Users can make a review after the success booking.	Successfully make a review.	Passed
11.	Activated review will display to the user.	Successfully show the active review on the client side.	Passed
<b>Admin-Side Testing</b>			
12.	Administrator can view all the review and manage the review.	Successfully display all the reviews change the status of the review from active to deactivate and successfully removed any review.in admin panel.	Passed
<b>User Queries Module (User Queries Management Module)</b>			
<b>Client-Side Testing</b>			
13.	Users enter all the required information to ask for something.	Successfully send the user queries into the system.	Passed
<b>Admin-Side Testing</b>			
14.	Administrator can view all the user queries	Successfully display all the user queries in admin panel.	Passed
15.	Administrator manages the user queries.	Successfully mark the user queries as read if the problem solves and successfully remove the user queries.	Passed
<b>User Management Module</b>			
16.	Administrator can view the user account manage the user account.	Successfully display all the user account information and activate the user account or remove the unverified user account.	Passed
<b>Price Setting Module</b>			
17.	Administrator can modify prices for weekdays and weekends	Successfully adjust the booking price of the homestay in weekend and weekdays.	Passed
18.	Administrator can apply the percentage-based discounts.	Successfully to modify the offer percentage for the user.	Passed
19.	Administrator can manage the bank detail.	Successfully change the bank account number and bank type.	Passed
<b>Feature and Facilities Management Module</b>			
<b>Features Management</b>			
20.	Administrator can add a new feature and remove outdated feature.	Successfully add or remove the feature.	Passed
<b>Facilities Management</b>			
21.	Administrator can manage facilities detail by adding new facilities, select suitable icon, name, and description.	Successfully add a new facility and display on admin panel and remove the outdated facilities.	Passed
<b>Banner Management Module</b>			
22.	Administrator can modify the banner detail.	Successfully remove the unwanted banner by clicking the remove button or add a new banner into the system.	Passed
<b>Setting Module</b>			
23.	Administrator can modify the site title and about and manage the contact detail.	Successfully change the website title, about and control all the contact detail through the admin panel.	Passed
24.	Administrator can shut down the website.	Successfully close the website due to some condition.	Passed
25.	Administrator can modify the management team.	Successfully add or delete the management team member.	Passed

## 6. Conclusion

### 6.1 Achievement of the Overall Objectives

#### 6.1.1 System Advantages

The Homestay Management System offers several advantages that enhance the experience for both administrators and customers. It ensures efficiency in booking management by automating the booking process, thereby reducing manual workload and minimizing errors. The user-friendly interface enhances the user experience, allowing both administrators and customers to navigate the system with ease, making the booking and management process straightforward. Improved communication is facilitated through an integrated messaging feature, ensuring clear and timely interactions between administrators and customers via WhatsApp. Additionally, the system centralizes all relevant information, such as user details, booking history, and payment status, making it easily accessible for administrators. Designed for scalability, the system can accommodate an increasing number of users and bookings, ensuring long-term usability and growth potential.

#### 6.1.2 System Disadvantages

Despite its many benefits, the Homestay Management System has a few drawbacks that need to be addressed. The initial setup of the system can be complex and time-consuming, often requiring technical assistance. The system's heavy reliance on a stable internet connection can be a limitation in areas with poor connectivity. Additionally, some users may find the customization options limited, which may not meet the specific needs of all homestay operations. There are inherent security risks associated with any online platform, necessitating continual management to protect user data. Furthermore, the system currently only allows users to upload payment receipts, requiring manual verification by hosts. This process can be time-consuming and prone to errors, potentially delaying booking confirmations.

#### 6.1.3 Recommendations

To enhance the Homestay Management System, several comprehensive recommendations have been proposed. Simplifying the setup process with an intuitive setup wizard and detailed documentation will improve user experience, particularly for new users. Introducing offline capabilities will increase reliability and usability in areas with inconsistent internet connectivity, allowing for continuous operation in booking management, guest check-in and check-out, and housekeeping schedules. Expanding customization options will cater to diverse requirements, including customizable booking forms, personalized communication templates, and adjustable pricing models. Enhancing security measures with advanced protocols such as end-to-end encryption, multi-factor authentication, and regular updates will protect user data and maintain trust. Incorporating a secure payment gateway for automated payment processing will streamline transactions, reduce manual workload, and minimize errors. Establishing robust customer support with multiple channels, a comprehensive knowledge base, and community forums will ensure users can easily find help, improving satisfaction and fostering loyalty. Implementing these recommendations will significantly enhance the system's functionality, user experience, and reliability, contributing to the success and growth of homestay operations.

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## Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

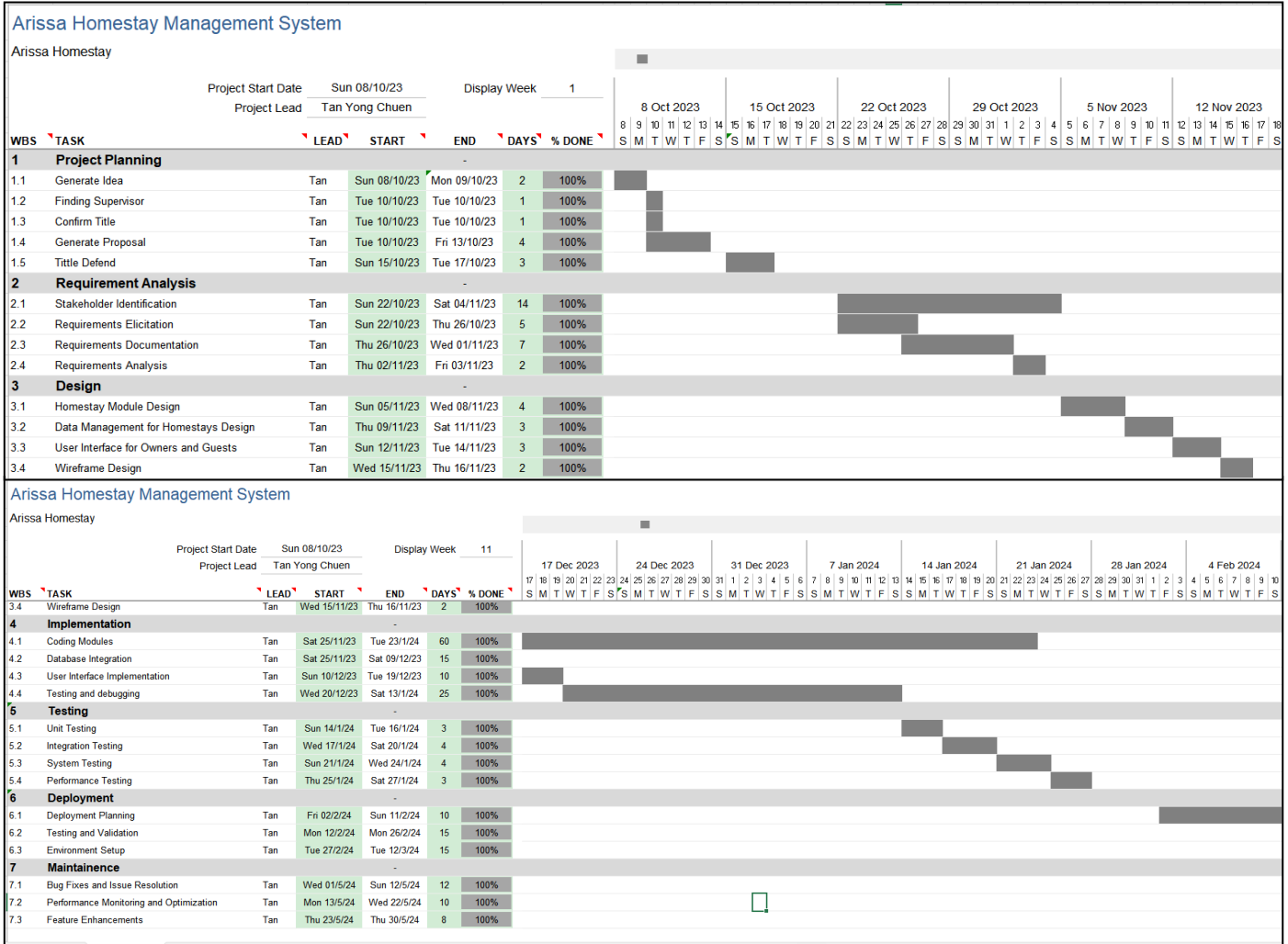
## Author Contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** Tan Yong Chuen, Noryusliza binti Abdullah; **data collection:** Tan Yong Chuen, Noryusliza binti Abdullah; **analysis and interpretation of results:** Tan Yong Chuen, Noryusliza binti Abdullah; **draft manuscript preparation:** Tan Yong Chuen, Noryusliza binti Abdullah. All authors reviewed the results and approved the final version of the manuscript.*

## Reference

- [1] P. B. N. De Silva, "Web Site & Web Based Hotel Reservation Management System For Sky Lodge Hotel," Doctoral dissertation, 2017.
- [2] Y. B. W. Sugandi, S. A. Paturusi, and A. S. Wiranatha, "Community Based Homestay Management in The Village Tourism of Tete Batu, Lombok," *E-Journal of Tourism*, vol. 7, no. 2, pp. 369-383, 2020.
- [3] Y. M. Lim and T. H. Lee, "Operating issues and challenges: the case of pachitan homestay from 2017 to 2019," *Journal of Marketing Advance and Practices*, vol. 2, no. 1, pp. 1-25, 2020.
- [4] Agoda.com. [Online]. Available: <https://www.agoda.com/?cid=1844104&ds=AiYhVwHxlnJEV>. [Accessed: 12-Jun-2024].
- [5] Booking.com. The largest selection of hotels, homes, and holiday rentals. [Online]. Available: [https://www.booking.com/index.en-gb.html?aid=2311236%3Blabel&gclid=CjwKCAjwyJqzBhBaEiwAWDRJVNVTpxBc5K7ZXt9bNBNdVFh9Q2BM7d63S-FCehd7dWi9W7SIRJu0mxoCfPMQAvD\\_BwE](https://www.booking.com/index.en-gb.html?aid=2311236%3Blabel&gclid=CjwKCAjwyJqzBhBaEiwAWDRJVNVTpxBc5K7ZXt9bNBNdVFh9Q2BM7d63S-FCehd7dWi9W7SIRJu0mxoCfPMQAvD_BwE). [Accessed: 12-Jun-2024].
- [6] Vrbo: Book your vacation home rentals: Beach houses, cabins, condos & more. vrbo.com. [Online]. Available: [https://www.vrbo.com/?gad\\_source=1&gclid=CjwKCAjwyJqzBhBaEiwAWDRJVOpPTAX47WFLD7uRxb8jT20Wbe22ug1BebHbLvRhde5D3YCLFA09FhoCgJoQAvD\\_BwE&pwaDialog=customer-notification-centered-sheet-dialog&semcid=VRBO-US.B.GOOGLE.BT-c-EN.GT&semddl=a118251470063.b1143344724364.g1kwd-13405466.e1c.m1CjwKCAjwyJqzBhBaEiwAWDRJVOpPTAX47WFLD7uRxb8jT20Wbe22ug1BebHbLvRhde5D3YCLFA09FhoCgJoQAvD\\_BwE.r1f93a4dcb7c02264bd3739d114942afae1904e4b888a9765600dc378f0c4ff713.c15zPAfinrC7K5dJqRXT2GPA.j19066665.k1.d1624923022179.h1e.i1.l1.n1.o1.p1.q1.s1.t1.x1.f1.u1.v1.w1](https://www.vrbo.com/?gad_source=1&gclid=CjwKCAjwyJqzBhBaEiwAWDRJVOpPTAX47WFLD7uRxb8jT20Wbe22ug1BebHbLvRhde5D3YCLFA09FhoCgJoQAvD_BwE&pwaDialog=customer-notification-centered-sheet-dialog&semcid=VRBO-US.B.GOOGLE.BT-c-EN.GT&semddl=a118251470063.b1143344724364.g1kwd-13405466.e1c.m1CjwKCAjwyJqzBhBaEiwAWDRJVOpPTAX47WFLD7uRxb8jT20Wbe22ug1BebHbLvRhde5D3YCLFA09FhoCgJoQAvD_BwE.r1f93a4dcb7c02264bd3739d114942afae1904e4b888a9765600dc378f0c4ff713.c15zPAfinrC7K5dJqRXT2GPA.j19066665.k1.d1624923022179.h1e.i1.l1.n1.o1.p1.q1.s1.t1.x1.f1.u1.v1.w1). [Accessed: 12-Jun-2024].
- [7] N. Hidayati and S. Sismadi, "Application of Waterfall Model In Development of Work Training Acceptance System," *INTENSIF: Jurnal Ilmiah Penelitian Dan Penerapan Teknologi Sistem Informasi*, vol. 4, no. 1, pp. 75-89, 2020.
- [8] Jama Software, "Functional requirements examples and templates," Jul. 20, 2023. [Online]. Available: <https://www.jamasoftware.com/requirements-management-guide/writing-requirements/functional-requirements-examples-and-templates#:~:text=A%20functional%20requirement%20is%20a,details%20of%20the%20product's%20features>. [Accessed: 12-Jun-2024].

## Appendix A: Gantt Chart



### Appendix B: Data Flow Diagram Level 0 (DFD 0)

