

Kembang Sejati Chalet (KSC) Booking System

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Abstract

The hospitality industry's growth necessitates enhanced operational efficiency and customer experience, which Kembang Sejati Chalet (KSC) currently struggles with due to its manual booking system. This system leads to booking errors, lack of real-time availability updates, limited customer accessibility, and a time-consuming reservation process. To address these challenges, an agile methodology is employed to develop a web-based booking system featuring real-time availability updates, reservation tracking, and payment processing. Built using PHP and MySQL frameworks, the system ensures scalability and user-friendliness. Its implementation at KSC aims to eliminate manual errors, streamline operational processes, and enhance customer satisfaction. By providing a reliable platform for managing reservations, the system will improve service delivery, increase operational efficiency, and support the chalet's long-term growth and reputation in the competitive hospitality sector. The project underscores the importance of technological innovation in driving success in the industry.

1. Introduction

Kembang Sejati Chalet (KSC) is a hospitality company offering 12 rental houses which is four wooden, four small, and four large, each with a bathroom. It also rents a hall, BBQ facilities, and a karaoke set, making it ideal for private and group events. KSC aims to provide a relaxing getaway, but its manual booking system causes operational issues. Bookings are made via phone or in person, and admins track them using paper or spreadsheets. This manual process lacks real-time visibility, leading to booking conflicts and inefficiencies.

KSC's current system causes double bookings and delays, especially during peak seasons, frustrating customers and burdening staff. Manual handling is error-prone and inefficient, affecting customer satisfaction and business growth. Automation can reduce these issues [1]. Without online access to real-time availability, customers face inconvenience, and KSC risks losing bookings to competitors. A digital system can improve resource allocation and revenue management [2].

This project aims to build a web-based booking system using object-oriented principles to automate reservations. The system will provide real-time updates on house and add-on service availability, minimizing errors. It will be assessed based on its impact on efficiency, customer satisfaction, and error reduction.

The KSC Booking System will allow customers to make online reservations, check availability, and select accommodation types. Real-time data will prevent double bookings and improve accuracy [3]. A centralized database will store booking history and preferences, enabling personalization. The system will ensure data privacy, streamline operations, and generate reports for decision-making.

This digital platform will improve customer experience through convenience and efficiency. It will reduce admin workload, enhance resource management, and minimize booking errors. Upselling of add-on services like

the hall and BBQ rentals will be easier, increasing revenue and reflecting customer trends for integrated platforms [4]. Overall, the system will help attract more customers and boost occupancy and profits.

This page begins with Section 1, which outlines the challenges and goals related to the development of an automated booking system for Kembang Sejati Chalet, including addressing operational inefficiencies and improving customer satisfaction. Section 2 will delve into the Literature Review, exploring existing booking systems and relevant technological advancements. Section 3, Methodology, will detail the methods and tools used to develop the proposed system. Section 4, System Analysis and Design, will discuss the architecture, design principles, and modules of the system. Final section is about summarizing of the project.

2. Related Work

This section discusses the background of the study, the technologies used, and the results of the comparative analysis between existing applications.

2.1 Hospitality Booking System

Kembang Sejati Chalet (KSC) is a hospitality provider offering serene wooden chalets and additional services such as hall rentals, BBQ equipment, and karaoke sets. However, KSC currently relies on a manual booking system, where reservations are made via phone calls or in-person visits and logged in spreadsheets, leading to errors, inefficiencies, and delays. This traditional approach increases the risk of double bookings, limits house availability transparency, and makes managing reservations during peak periods labor-intensive for administrators. Customers also struggle to verify service availability, leading to frustration and missed revenue opportunities. The limitations of manual systems are well-documented in the hospitality industry, as they hinder operational efficiency and fail to meet the needs of tech-savvy customers who seek streamlined, self-service options [5]. A modern online booking system could address these issues by automating processes and providing real-time visibility into availability, improving operational management, and enhancing the customer experience.

2.2 Laravel Framework

The Kembang Sejati Chalet Booking System leverages a dynamic web-based platform built with PHP, HTML, Laravel, MySQL, and CSS. These technologies create an efficient and secure booking system with real-time updates and user interactivity. Laravel is the preeminent PHP framework that supports MVC patterns like Symfony, confirming clarity between presentation and logic. Fig. 1 shows how MVC functions for Laravel. PHP and Laravel handle the backend, ensuring smooth server-side operations and integration with the MySQL database that stores crucial booking and customer data. The front-end interface, designed with HTML, CSS, and JavaScript, provides a responsive and intuitive user experience on any device. Despite the challenges, the advantages of accessibility, real-time updates, and scalability make web-based booking systems a reliable solution for the hospitality industry [6].

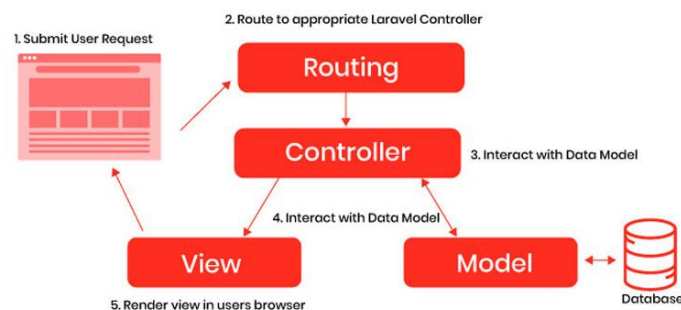


Fig. 1 How MVC function in Laravel

2.3 Comparative analysis

Online booking platforms are vital for hospitality businesses, offering convenience to customers and property owners. This review examines three major systems which is Airbnb [7], Booking.com [8], and Agoda[9]. Airbnb features a user-friendly interface with real-time availability, secure payments, pricing tools, and reviews. It suits small to mid-sized businesses but lacks advanced dynamic pricing and scalability. Booking.com provides broad reach and seamless customer experiences, though it charges high commissions and offers limited customization. Agoda is known for competitive pricing and travel packages but has a complex interface and limited branding options, making it less suitable for small providers like Kembang Sejati Chalet (KSC).

These systems offer key insights into current booking solutions. Airbnb is simple but needs better scalability. Booking.com is customer-focused but costly for small businesses. Agoda offers deals but complicates user experience and lacks personalization. For KSC, understanding these pros and cons supports the development of a more tailored, cost-effective booking system. Table 1 compares these systems, while Fig.2 show their main pages.

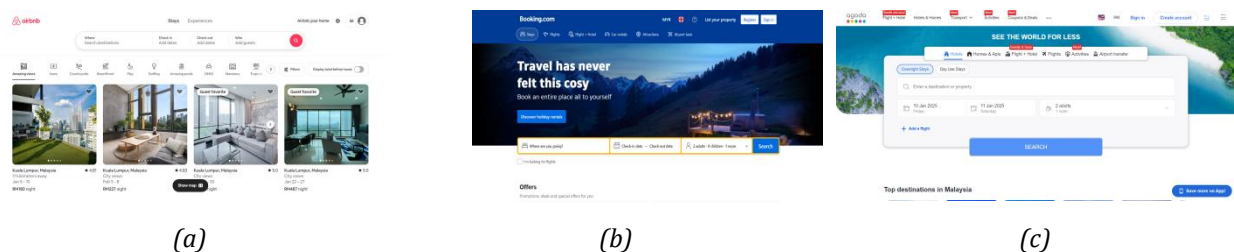


Fig.2 The main pages of existing website (a)Airbnb; (b)Booking.com; (c)Agoda

Table 1 Comparison Between Similar System

Features	A	B	C	D
Locations Guide module	Not Available	Available	Not Available	Available
Add-On Services	Not Available	Not Available	Available	Available
Notifications	Available	Available	Available	Available
Programming Language	JavaScript	JAVA	PHP	PHP
Database	NoSQL	Relational DB	MongoDB	MySQL
Custom Reporting Module	Not Available	Available	Not Available	Available

A : Airbnb

B : Booking.com

C : Agoda

D : Kembang Sejati Chalet (KSC)

3. Methodology

A methodology provides a structured approach for planning, developing, and implementing a project, ensuring that it meets its goals efficiently while minimizing potential risks. In the context of software development, choosing an appropriate methodology is crucial, as it influences how tasks are prioritized, how development cycles are managed, and how solutions are delivered to end-users. A well-defined methodology also provides clear guidelines, roles, and processes that help teams maintain consistency, improve collaboration, and adapt to change especially through iterative models used in Agile with cross-functional, self-organizing teams[10]. It also aids in managing resources effectively, tracking progress, and ensuring quality assurance. Whether following traditional models like Waterfall or more adaptive approaches like Agile, the selected methodology plays a vital role in shaping the overall success and sustainability of the software project.

3.1 Agile Method Phase

The Agile methodology was chosen for this project because it supports flexibility and adaptability throughout the development process. Fig. 3 shows the agile methodology. It allows the development to work in short cycles known as sprints, typically lasting a few weeks. Each sprint focuses on specific features or objectives, which helps ensure that the system evolves incrementally. This approach also encourages regular feedback from stakeholders, allowing the project to continuously adapt to changing requirements, user feedback, and business needs. By breaking the project into smaller, manageable portions, the team can more easily track progress and make adjustments as necessary. Fig.A.1 and Fig.A.2 show the Gantt Chart in running the project.



Fig. 3 Phase in agile model

The process begins with the Planning phase, where the team gathers detailed requirements from stakeholders. During this phase, user stories and feature prioritization techniques are used to define the project scope and establish clear goals. In the Design phase, the system's architecture and user interface are developed using wireframes and prototypes. These designs are shared with stakeholders for feedback and refinement. The Development and Testing phases focus on delivering functional modules incrementally. Each phase includes regular reviews and testing, ensuring the system's continuous improvement and alignment with user expectations [11]. Afterward, the Review phase ensures all functionalities meet the initial requirements and stakeholders' expectations, followed by the Deployment phase to transition the system to live operation. This approach allowed for focused, iterative development while maintaining flexibility to adapt to changing requirements. Each sprint was designed to deliver specific features or improvements to the system, with a comprehensive review at the end to evaluate progress, identify challenges, and plan for the next phase [12].

3.2 System Requirement Analysis

System Requirement Analysis is a process used to determine and document the functional, non-functional, and technical requirements of a system. It involves identifying what the system should do, how it should perform under specific conditions, and any constraints or limitations. This phase ensures that the system aligns with user needs and business objectives, often involving stakeholders, end-users, and technical teams. The analysis provides a clear foundation for design and development by defining features, performance criteria, and integration requirements, helping to prevent misunderstandings or costly changes later in the project lifecycle.

3.2.1 Functional Requirements

The functional requirements define the essential tasks that the KSC Booking System must perform to meet its goals. These include enabling features like booking management, user authentication, and dashboard functionalities for administrators. They describe what the system should do to ensure that users can interact with it effectively, such as allowing customers to make reservations in real time, sending notifications, and supporting multilingual users. By specifying these requirements, the system's design can be tailored to achieve a seamless and user-focused experience [13]. Table 2 shows the functional requirements to develop the KSC Booking System.

Table 2 Functional Requirement Table

Function	Functionalities
Login	● This function allows the administrator to log into the system using username and password. Only the verified username and password can access the system ● This function allows the customer to log into the system using email and password .

Table 2 (cont)

Dashboard	● This function allows the Administrator to view number of houses available, new booking, cash payment pending, number of check in and check out, weekly sales and notification
Booking	● This function allows the administrator to view booking list, approve cancellation request and change payment status ● This function allows the customers to choose a specific house type and select check-in and check-out dates based on real-time availability and can add services like hall rental ,BBQ set or karaoke set to the booking, depending on availability
Customer Support & Service Requests	● This function allows the administrator to receive the request from the customer ● This function allows customers to contact the admin directly to request additional services, report facility damages, or any other issues.
House Details	This function allows customers to view detailed descriptions and images of the 3 types of house
Payment	This function allows customers to do the payment transaction
My Booking List	This function allows customer to view the house type, add on services, check in and check out dates, payment status, receipt and action (cancel request)
Location guide	This function allows customer to view what is the attractive place and restaurant near the chalet

3.2.2 Non-Functional Requirements

Incorporating non-functional requirements into the development process is crucial for delivering high-quality software systems. As noted by Jarzkebowicz and Weichbroth [14], understanding the elicitation of non-functional requirements is essential, as it can impact the entire execution of software development. Additionally, Olsson et al. [15] highlight the need for studies that validate research in academia to deliver answers consistent with the reality of the industry, underscoring the importance of aligning non-functional requirements with industry practices. Table 3 presents the non-functional requirements for developing the system, reflecting the considerations discussed above.

Table 3 Non Functional Requirement Table

Type of requirement	Explanations
Performance	The system must handle up to 500 concurrent users with minimal latency
Security	Data encryption and secure login mechanisms to protect user information.

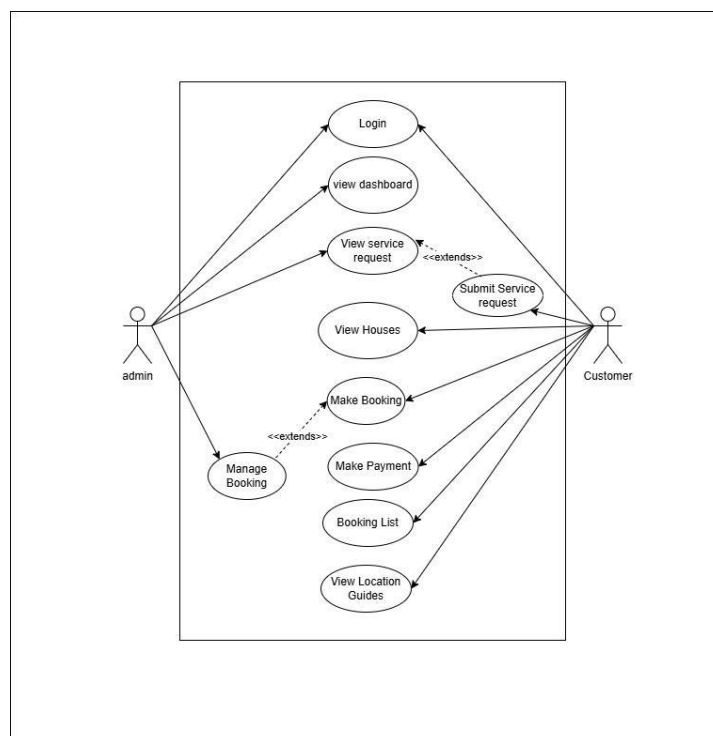
Table 3 (cont)

Usability	Intuitive and user-friendly interfaces for both administrators and customers.
Scalability	The system must support future expansions, such as adding new chalets or services.
Availability	The system should have a 99.9% uptime to ensure reliability.

3.2.3 Use Case Diagram

A use case describes how a system behaves in response to specific user interactions, outlining the steps taken by an "actor" to achieve a goal. It defines functional requirements, covering primary, alternative, and exception flows [16]. In software development, use case diagrams help gather requirements, identify influences, and present the system's external view especially useful in large, complex projects [17]. Use cases also aid in analyzing and specifying requirements, improving communication among stakeholders, and minimizing faults that could impact software quality [18].

Fig. 4 shows the system's use case diagram. The use case diagram illustrates the interactions between two main actors which is admin and the customer. Both users begin by logging into the system. Once logged in, the admin has access to features such as viewing the dashboard, viewing service requests submitted by customers, and managing bookings. On the other hand, the customer can perform actions such as viewing available houses, making bookings, making payments, viewing their booking list, and exploring location guides around the chalet area. Additionally, the customer can submit service requests, which is an extension of the "View Service Request" use case, indicating that the admin will handle or respond to requests submitted by customers. The diagram ensures that each actor is associated with only the functions relevant to their role, helping define the system's structure and responsibilities clearly. Overall, this use case diagram provides a high-level view of the essential features available to both admins and customers in the Kembang Sejati Chalet Booking System.

**Fig. 4 Use Case Diagram for KSC**

4. Results and Discussion

This section presents the implementation and testing phase of the developed Kembang Sejati Chalet Booking System. The system was developed using PHP for the back-end, supported by the Laravel framework to streamline web application development. MySQL was used as the database management system to handle data storage and retrieval. Tailwind CSS was applied for the front-end design, enhancing the system's user interface. Testing and development were conducted in a local development environment, and the system was later deployed to Hostinger for production use.

4.1 System Implementation

In this section, the implementation phase of the developed Kembang Sejati Chalet Booking System is detailed. The system was developed using the PHP programming language for the back-end, supported by the Laravel framework to build a robust web application. This combination enables efficient development, seamless integration with databases, and rapid deployment of the system.

4.1.1 Login Module

Fig. 5 (a) show interface for login to allow customer to get into Kembang Sejati Chalet website. The customer need to enter email and password that has been created. Fig. 5 (b) show interface for login to allow admin to get into Kembang Sejati Chalet Admin website. The admin need to enter username and password to get into the website page.

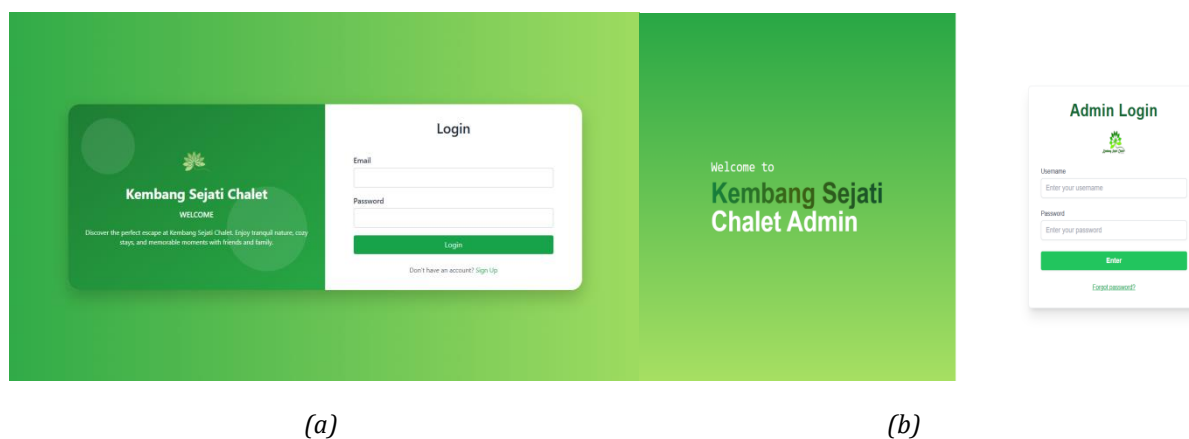


Fig.5 Interface of Login Page (a)Customer Login Page;(b) Administrator Login Page

4.1.2 Dashboard Module

Fig. 6 show the Dashboard page for the admin who has been login to the admin page. This page contain a lot of information that needed for admin which is Houses Available Today, New Bookings Today, Cash Payment Pending, Check-ins Today, Check-outs Today, weekly sales and notification (new booking, cancellation request, service request).

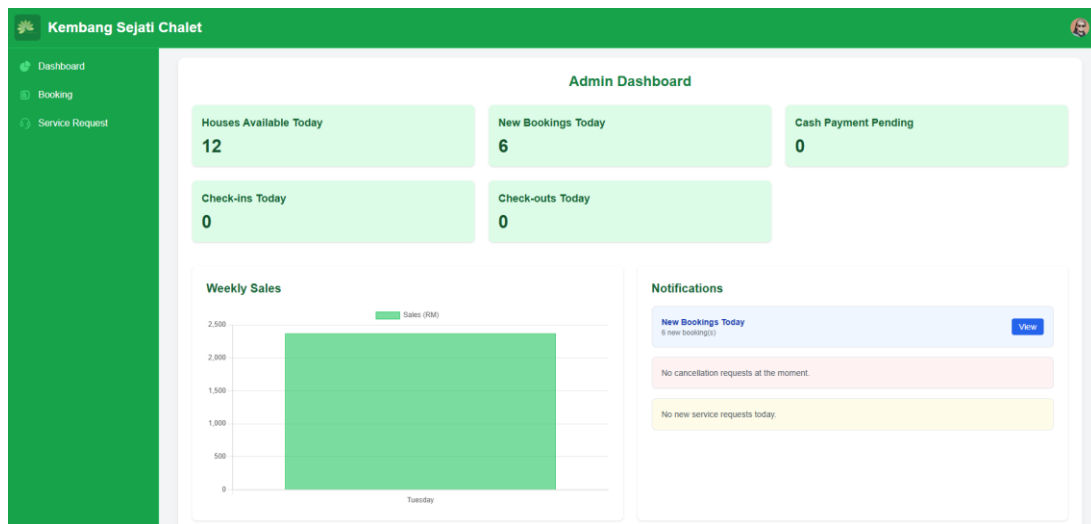


Fig. 6 Admin Dashboard page

4.1.3 Booking Module

Fig. 7(a) shows the interface of the booking form that customer need to submit which have name, telephone number, and email that are fix and also check in and check out dates, house type and its availability, and lastly rental service that customer want. Fig. 7(b) shows the interface for booking admin page which contain the booking list of the customer and all the booking details. Its also have payment status and cancellation request which is from customer.

Booking Form

Name: faiz

Telephone Number: 0123954067

Email: faizuddinrosly5@gmail.com

Check-in date: 24/06/2025

Check-out date: 27/06/2025

Check Availability

Select House Type & Rentals

Available House Types

- ☐ Wooden House (1 available) -- Select Quantity --
- ☐ Small House (1 available) -- Select Quantity --
- ☐ Large House (2 available) -- Select Quantity --

Rental Services (optional)

- ☐ BBQ Set
- ☐ Karaoke Set
- ☐ Hall Rental

Confirm Booking

Kembang Sejati Chalet

Booking List

No.	Name	Tel. Number	Booking Details	Add-on Services	Payment Status	Cancellation request
1	rolay	0193720296	• Date: 2025-05-15 until 2025-05-18 • House type: Wooden House (x3)	• No Add-on Services	Paid	No Request
2	Hasbullah	01156235013	• Date: 2026-05-29 until 2026-05-31 • House type: Small House (x1)	• No Add-on Services	Paid	No Request
3	rolay	0193720296	• Date: 2025-06-21 until 2025-06-23 • House type: Large House (x1)	• No Add-on Services	Paid	No Request
4	rolay	0193720296	• Date: 2025-06-21 until 2025-06-22 • House type: Large House (x3), Small House (x2), Wooden House (x2)	• BBQ Set (2 sets) • Karaoke Set • Hall Rental • People: 100 • Event: family day	Paid	No Request
5	faiz	0123954067	• Date: 2025-06-25 until 2025-06-28 • House type: Small House (x3)	• No Add-on Services	Paid	Agreed Reject
6	faiz	0123954067	• Date: 2025-06-24 until 2025-06-26 • House type: Large House (x2), Wooden House (x2)	• BBQ Set (2 sets) • Karaoke Set • Hall Rental • People: 30 • Event: company vacation	Pending	No Request

(a)

(b)

Fig.7 Interface of Booking Page (a)Customer Booking Page;(b) Administrator Booking Page

4.1.4 Customer Support & Service Requests Module

Fig. 8(a) and (b) show the interface of the Customer Support & Service Requests page for customer . Fig. 8 (a) is for verify all the booking of the customer either they are in period of check in and check out dates and for Fig.8 (b) is to submit information of the Customer Support & Service Requests form which the information is house type, house name and service type. Fig. 8(c) show the interface of the Customer Support & Service Requests page for admin. its show the service request list and also the status of the service. Admin also can update the service request after the service done.

(a)

(b)

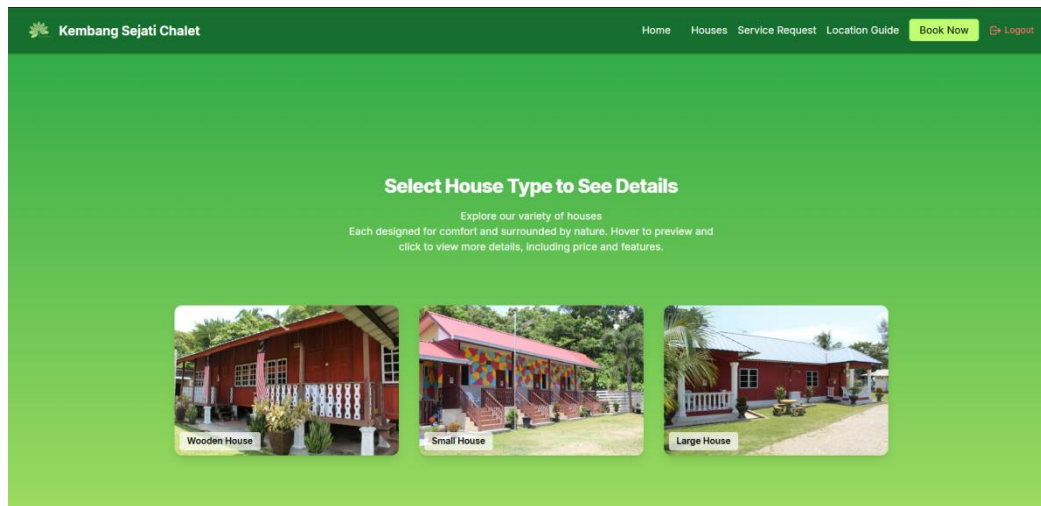
No	House Name	Service Type	Quantity	Other Details	Status	Action
1	Kenanga	add_pillow	2		Pending	Pending - Update
2	Kenanga	leaking_roof			In Progress	Pending - Update

(c)

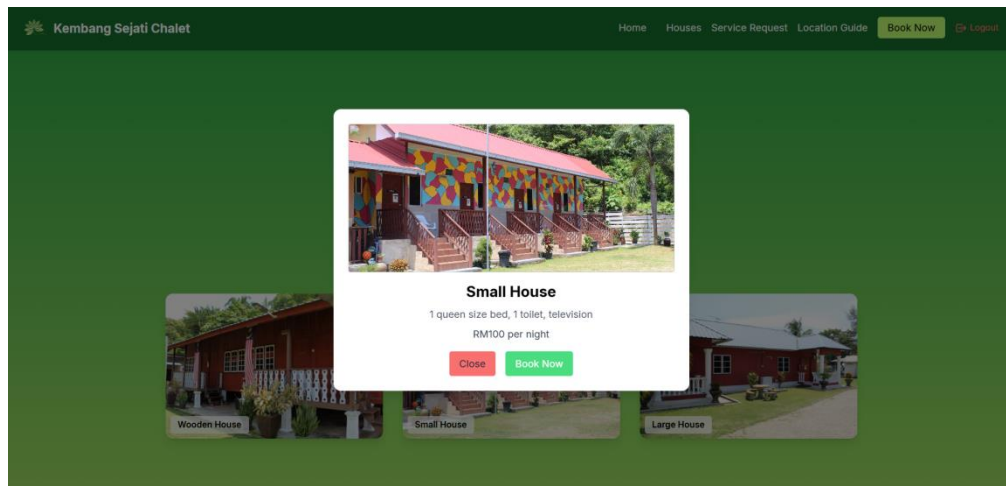
Fig.8 Interface of Customer Support & Service Requests Page (a)Verify Service Request Page;(b) Submit Service Request Page;(c) Administrator Service Request Page

4.1.5 House Details Module

Fig.9 (a) show the interface of the House details page which content the image and the name of the type of house that available in Kembang Sejati Chalet. For Fig.9 (b) show the details for that house type that customer choose and its price, its also have book now button which will navigate customer to the booking form page.



(a)



(b)

Fig.9 Interface of House Details Page (a) House Details Page; (b) House Details Card

4.1.6 Payment Module

For the payment module, Fig. 10(a) show the payment form that customer need to submit to make a payment for their booking. The information needed is email and payment method either want to pay cash at chalet which the payment status will be pending or want to pay with paypal which after user click it will go to the paypal payment gateway that show in Fig. 10(b)

Complete Your Payment

Price: RM 600

Email
faizuddinrosley5@gmail.com

Payment Method
PayPal

[Pay with PayPal](#)

(a)

PayPal

Dengan akaun PayPal, anda layak untuk Perlindungan Pembelian dan Garangan.

E-mel atau nombor telefon mudah alih
faizuddinrosley5@gmail.com

Kata laluan

Terlupa kata laluan?

[Log Masuk](#)

atau

[Bayar dengan Kad Debit atau Kredit](#)

(b)

Fig.10 Interface of Payment Page (a)Payment Page;(b) PayPal Gateway Page

4.1.7 My Booking Module

Fig. 11 show the interface of the My Booking page. This page contain the booking list that has been made by the customer and its also have an information of the booking such as house type, add on services, check in and check out dates, and also payment status. Its also have a cancellation request button at the action column which will notified admin to make cancellation for that booking. At the top right corner of My Booking list has a button “+ new booking” which will navigate customer to the booking form page.

My Bookings [+ New Booking](#)

No.	House Type	Add-On Services	Check-in	Check-Out	Payment	Receipt	Action
1	Small House (x3), Wooden House (x2)	• No Add-on Services	2025-06-11	2025-06-14	Pay Now	N/A	Cannot cancel within 3 days
2	Small House (x3)	• No Add-on Services	2025-06-25	2025-06-28	Paid	Print	Waiting for approval
3	Large House (x2), Wooden House (x3)	• BBQ Set (2 sets) • Karaoke Set • Hall Rental • People: 30 • Event: company vacation	2025-06-24	2025-06-28	Pay Now	N/A	Cancel Request

Fig. 11 My Booking page

4.1.8 Location guide Module

Fig. 12 show the interface of the location guide page. This page contain filter by category which is All, attraction, and restaurant, this filter is connected with map that show in Fig. 12. The map show the location of the Kembang Sejati Chalet and also the location of the attractive place and restaurant nearby. Under the map have a description of all the attractive place and restaurant that have inside the map.

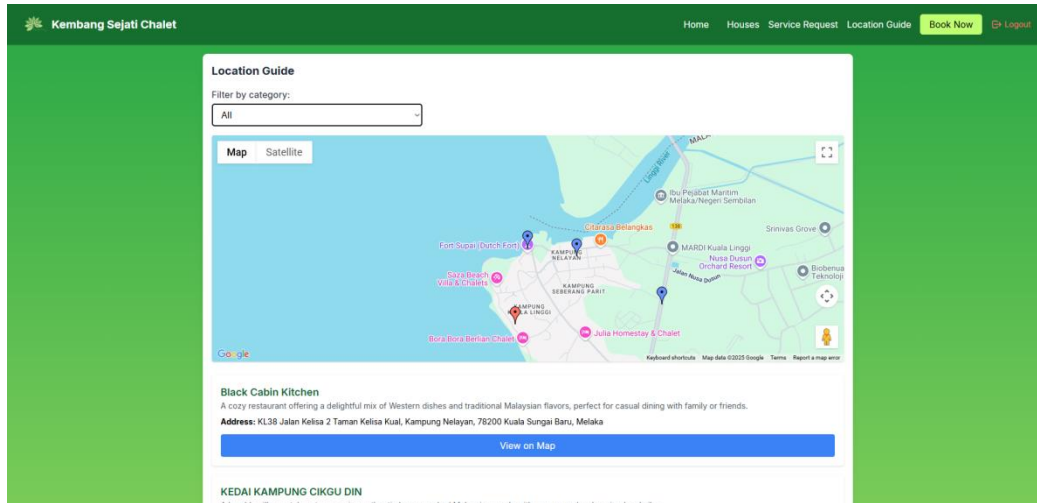
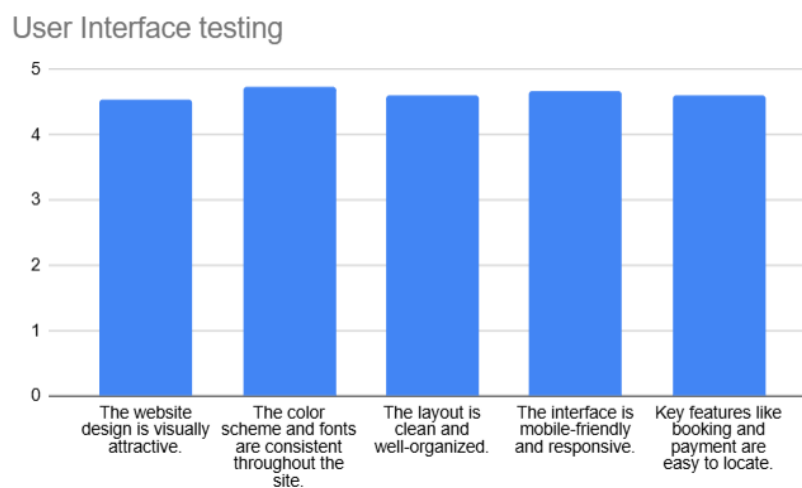


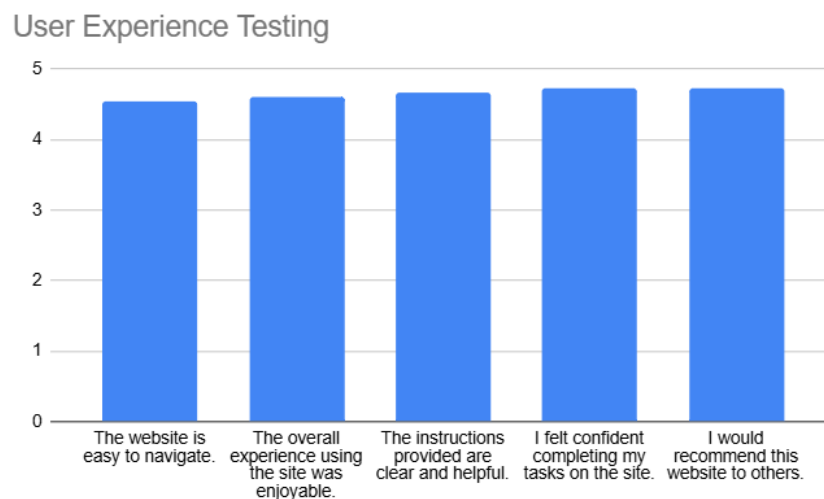
Fig. 12 Location Guide page

4.2 System Testing (User Acceptance Test)

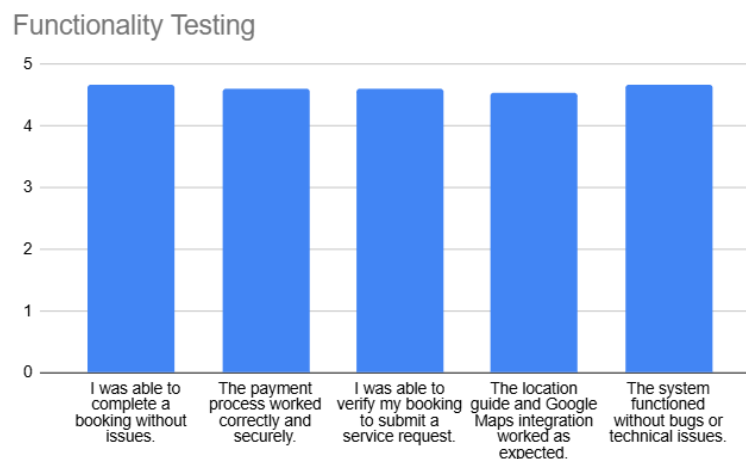
A User Acceptance Test (UAT) was conducted to ensure the system meets user expectations and requirements. It involved 15 participants, mainly representing the customer base. Data was collected using a Google Form with 15 questions divided into three sections: User Interface, User Experience, and Functionality Testing. Participants used the system in realistic scenarios and gave feedback through the form. Their responses helped identify usability issues, bugs, and areas for improvement. The results, shown in Fig. 13 (a), (b), and (c), summarize user satisfaction and common feedback themes. Ratings ranged from 1 (strongly disagree/very poor) to 5 (strongly agree/excellent).



(a)



(b)



(c)

Fig.13 UAT Testing Graph (a)User Interface Testing Graph;(b)User Experienced Testing Graph; (c) Functionality Testing Graph

The UAT outcomes demonstrate a positive reception of the system across all three testing dimensions. In the User Interface Testing, over 85% of respondents rated the interface as intuitive and visually appealing. For User Experience, users reported smooth navigation and overall satisfaction with the booking process. Lastly, the Functionality Testing results show that core features such as booking, payment, and service request modules worked reliably under realistic usage conditions. These results validate that the system meets key user expectations and is ready for deployment with minimal adjustments.

5. Conclusion

In conclusion, the development of an automated booking system for Kembang Sejati Chalet (KSC) addresses the significant challenges posed by its manual reservation process, including booking errors, inefficiencies, and limited customer convenience. By leveraging object-oriented principles and implementing a web-based platform, the proposed system aims to streamline operations, enhance customer satisfaction, and optimize resource management. Real-time updates on house availability and add-on services will minimize errors and maximize booking accuracy, while a centralized database will support personalized services and informed decision-making. This digital solution not only reduces administrative workloads but also provides a user-friendly experience, encouraging customer loyalty and driving business growth. Ultimately, the new booking system is expected to

transform KSC's operations, offering a seamless and efficient reservation process that aligns with modern hospitality standards.

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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:** Faizuddin Shah Roslay, Mohd Zanes Sahid; **data collection:** Faizuddin Shah Roslay **analysis and interpretation of results:** Faizuddin Shah Roslay, Mohd Zanes Sahid; **draft manuscript preparation:** Faizuddin Shah Roslay, Mohd Zanes Sahid. All authors reviewed the results and approved the final version of the manuscript.*

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Appendix A: Gantt Chart

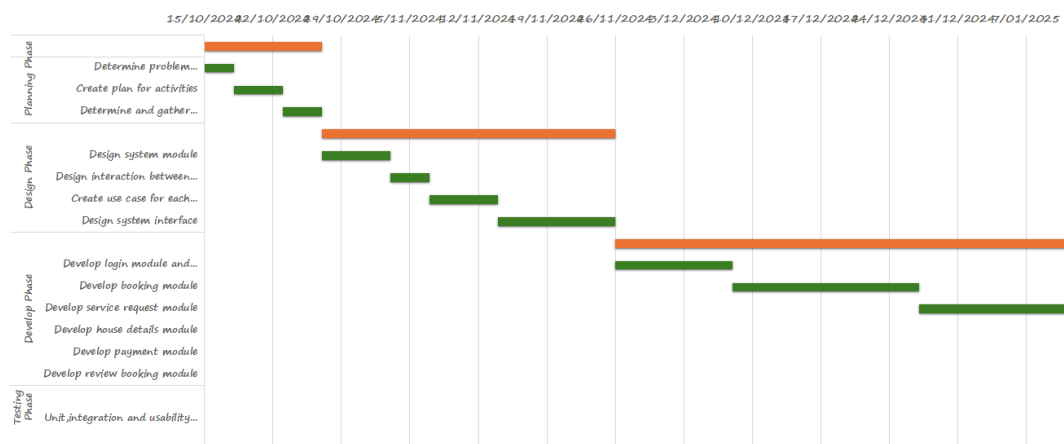


Fig.A.1 Gantt Chart (1)

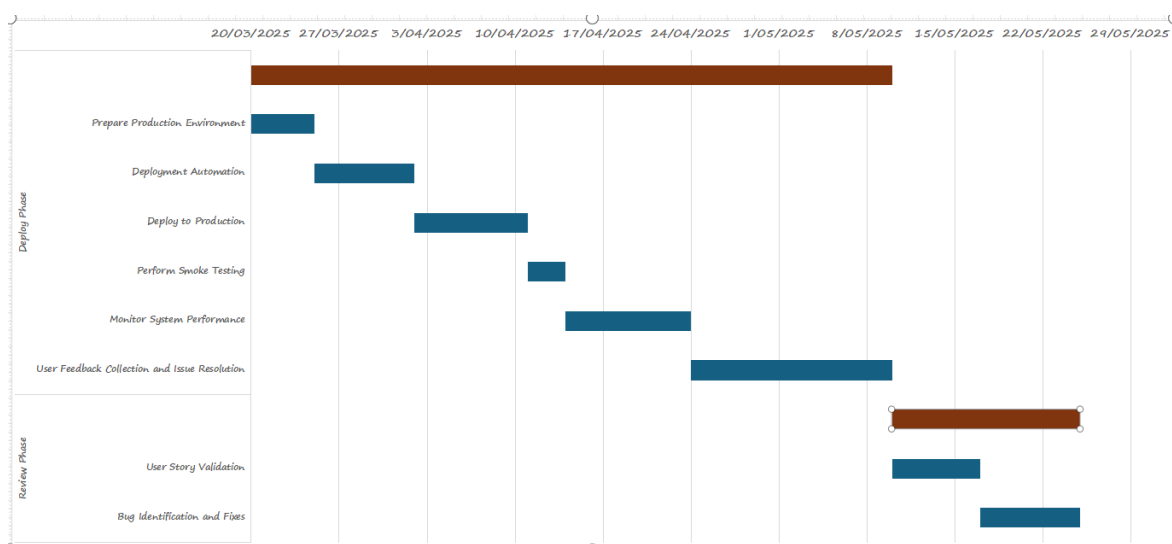


Fig.A.2 Gantt Chart (2)