UNIVERSITI TEKNOLOGI MARA

THE DEVELOPMENT OF HOMESTAY AND EVENT SPACE WEB-BASED BOOKING SYSTEM FOR EFZEE COTTAGE USING PERSONALIZED SERVICE APPROACH

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Thesis Proposal Submitted in Fulfilment of the Requirements for Bachelor of Information Systems (Hons.) Business Computing College of Computing, Informatics and Mathematics

16th January 2025

SUPERVISOR APPROVAL

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This proposal was prepared under the supervision of the project supervisor, Prof. Madya. Dr. Norjansalika Binti Janom. It was submitted to the College of Computing, Informatics, and Mathematics and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Information Systems (Hons.) Business Computing.

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Date: 16th January 2025

TABLE OF CONTENT

CHAPTER 1

INTRODUCTION

This chapter explains the background, problem statements, aim, objectives, scope, and the significance of a project entitled The Development of Homestay and Event Space Web-Based Booking System for Efzee Cottage Using Personalized Service Approach.

1.1 Background

1.1.1 Homestay Tourism in Malaysia: An Overview

Accommodation sector in Malaysia offers different types of lodgings, whether hotel, guesthouses, or homestay which is fundamental in accommodating tourists and traveler (Zamzuki, Lola, Aruchunan, Muthuvalu, Jubilee, Zainuddin, Hamid, Mokhtar, & Abdullah, 2023). Specifically, homestays which are part of the "Inap Desa" program, run by the Ministry of Tourism, Art and Culture to support rural tourism and provide visitors with the experience of local culture in homes (Zamzuki et al., 2023). Through service fees along with private partnerships as well as direct and indirect contributions to the local economies, the program has been the stimulus for sustainable growth area within Malaysia's tourism sector as it generates job opportunities, including administrators, analysts, and tourism officers (Zamzuki et al., 2023).

The registered homestay numbers reached 219 homestays with 4,210 participants offering 5,956 rooms for guests as registered at the end of December 2019 since the introduction to an ongoing 9th Malaysia Plan (2006–2010) 'Inap Desa' programme in the A-Zaybah district (Zamzuki et al., 2023). By 2019, the program produced RM29,662,211.60 (around USD6.5 million) in income, thus demonstrating its economic return (Zamzuki et al., 2023). Furthermore, the initiative gained international recognition when the United Nations World Tourism Organization sees an increasing number of foreign

travelers who active in the Malaysian homestays which approximate 32% rise within the years of 2009 to 2012 with 161,561 participants in 2009 and 213,263 participants in 2012 (Zamzuki et al., 2023).

1.1.2 Digital Transformation in Malaysian Homestays

Under the homestay program in Malaysia, accredited participating host families or host communities (Yong, Tam, Shak, Kamlun, Lada, Chekima, Ansar, & Fook, 2024) open their homes to guests who want to experience the local way of life while living with them. For example, in Sabah, the homestay program has expanded considerably from 184 operators in 2010 to 441 in 2023, with revenue worth RM 57.54 million, being the second highest revenue contributor to Malaysia's homestay sector (Yong et al., 2024). Sabah, with its abundant natural resources, such as extensive biodiversity, attracts tourists, both domestic and inbound, which contributes to the economy and rural employment through tourism jobs (Yong et al.,2024).

Initiatives such as the Knowledge Transfer Program (KTP) are working towards empowering homestay entrepreneurs through digital marketing and AI-driven tools to address these problems of marketing and entrepreneurship (Yong et al., 2024). The collaboration project (KTP) under SLB 2263 grant was hosted by Universiti Malaysia Sabah (UMS) and managed by the Sabah Homestay Association, where knowledge transfer and community development can be practiced but more importantly partnerships are needed for sustainable development under Sustainable Development Goal 17 (SDG 17) (Yong et al., 2024). Aspiring homestay entrepreneurs embrace digital knowledge through the programme improving their homestay management skills and implementing AI-assisted copywriting, social media marketing and storytelling techniques, with their initiatives to harmonize with contemporary booking systems and online platform to widen the availability of guests to them (Yong et al, 2024).

Similarly, Jaden (2024) also find that stakeholders and entrepreneurs need to leverage more technology, as it has become the primary medium for booking homestays, especially for tourists today. Embracing modern technology not only streamlines the reservation process but also enhances the overall customer experience and operational efficiency. More specifically, the shift towards digital competence and AI integration is expected to make homestays run smoother with help from agency assistance, pushing for online booking systems for accessible and more organized reservations.

Customization and personalization play a crucial role in enhancing the guest experience, particularly in the homestay industry, where unique and authentic experiences are highly valued (Kandampully, Zhang, & Jaakkola, 2017). According to Kandampully et al. (2017), personalization in service industries involves tailoring offerings to meet individual customer preferences, leading to increased satisfaction and loyalty. In the digital transformation of Malaysian homestays, AI-driven tools and data analytics enable operators to understand guest preferences, such as preferred room types, meal options, and activity interests (Kandampully et al., 2017). This allows homestay providers to offer a more personalized experience, such as customized itineraries, cultural immersion activities, or even personalized welcome messages (Kandampully et al., 2017). By leveraging technology for customization, homestay businesses can create memorable experiences that differentiate them from competitors and encourage repeat visits (Kandampully et al., 2017).

Jedin (2020) examined that the internet and its applications have revolutionized the travel industry as tourist can find any such information in just a few clicks and steps without any difficulty as well as reservation of any accommodation can be done through online. Online, it is easy to publish large amounts of information, and relatively low-cost. This indicates that consumers increasingly rely on the internet for information, purchasing products, and making reservations (Jedin, 2020). A homestay like Efzee Cottage and Event Space founded by Mr. Fadzil bin Mohamad located in Batu Pahat, Johor sorts out bookings online using WhatsApp application to communicate with their

customers. This indicates he now use a low-tech level of booking management. Currently, there is one available house Efzee Cottage consists of four rooms, two bathrooms, a swimming pool, and a large parking area. Depending on the customer, this wide area for parking is also an event space for a wedding or other events.

Personalized features refer to the adaptation of products, services, and experiences to meet the unique preferences and expectations of individual users, which has become a key strategy in various industries, including tourism and hospitality (Kandampully, Zhang, & Jaakkola, 2017). Personalization is driven by data analytics, artificial intelligence, and machine learning, which allow businesses to predict customer behaviors and offer tailored recommendations (Kandampully et al., 2017). In the hospitality industry, personalized features include customized room settings, tailored travel recommendations, AI-powered chatbots for instant assistance, and dynamic pricing models based on user preferences and browsing history (Kandampully et al., 2017). Digital platforms such as Airbnb and Booking.com leverage personalization to enhance customer satisfaction by offering curated travel experiences based on past searches, reviews, and demographic data (Kandampully et al., 2017). As technology continues to evolve, personalization is expected to become even more sophisticated, fostering deeper customer engagement and brand loyalty in the tourism and homestay sector (Kandampully et al., 2017).

1.2 Problem Statement

A preliminary interview was conducted on October 26, 2024, with the owner of Efzee Cottage and Event Space, Mr. Fadzil bin Mohamad. The interview requirement collects the current challenges faced by Effzee Cottage and the solutions they put forth. Each of the issues raised by the owner is discussed in detail below.

Currently, Efzee Cottage manages reservations manually through the WhatsApp application, with bookings recorded in a physical logbook. This method can lead to redundancy in customer messages and communication challenges. Besides, using WhatsApp application is prone to human mistakes, from missed or lost reservations in situations when the book is lost or damaged. Additionally, when someone wants to check availability during times of high demand like the holidays consumers always have a hard time, because there is no system available for checking open dates. This results in customers reaching out several times, and with lots of messages coming in, some of the questions will go unanswered, others will be responded to with a delay. Customers also often inquire about the same date but are unable to view which dates are available for booking. This results in repeated questions that stakeholders need to address, which can become tiresome during peak times.

Furthermore, the lack of personalization in the current reservation process limits the overall customer experience and operational efficiency. Without a personalized booking system, Efzee Cottage is unable to tailor recommendations, special offers, or customized services based on individual customer preferences and past stays. According to Kandampully, Zhang, and Jaakkola (2017), personalization enhances customer satisfaction by providing tailored experiences that meet specific needs and expectations. Without this feature, customers may feel disconnected from the service, leading to lower engagement and a decreased likelihood of repeat bookings. Additionally, the absence of personalized features makes it challenging to offer targeted promotions, loyalty rewards, or automated reminders, reducing the potential for

customer retention. A non-personalized system also results in a one-size-fits-all approach, making it difficult to cater to different types of guests, such as families, event organizers, or corporate clients, who may have distinct requirements. This lack of customization could lead to missed business opportunities and customer dissatisfaction, ultimately affecting the homestay's revenue and reputation in the long run.

The new homestay and event space booking system, incorporating more personalized features compared to other booking platforms, such as real-time availability checks, can help minimize routine inquiries and simplify the booking process. Generating invoices and receipts is currently a manual and time-consuming process. The new booking system will include personalized features, such as automated invoice and receipt generation, which helps save time.

Another unique feature that sets this homestay booking system apart from other online booking platforms is the virtual tour function. This allows customers to explore the property in detail, including the bedrooms, living room, event spaces, pool, and more. The virtual experience helps customers get a feel for the size, aesthetics, and warmth of the space, increasing interest in booking a stay. Including this feature is vital as it enhances customer confidence and reduces uncertainty, especially for first-time visitors. As highlighted by Kandampully, Zhang, and Jaakkola (2017), offering interactive and transparent features significantly impacts customer trust and satisfaction, leading to better engagement and loyalty.

There is no doubt that the Efzee Cottage needs a better system to manage its bookings, answering customer queries, sending invoices and Virtual tour video. Having a digital booking system will drastically cut down on human error, streamline the operation process and offer a better experience for customers.

The current challenges faced by Efzee Cottage highlight the need for a personalized service approach to enhance efficiency and customer satisfaction. A standardized booking system without customization fails to address the unique needs of different guests, leading to a less engaging and impersonal experience. By implementing personalized features such as customer profiles, tailored promotions, and automated recommendations, the booking system can provide a more seamless and user-friendly experience. For example, returning guests could receive special discounts or suggested add-ons based on their previous stays, creating a sense of exclusivity and appreciation. Additionally, personalized reminders for check-in, check-out, and event preparations can improve communication and operational coordination. As emphasized by Kandampully, Zhang, and Jaakkola (2017), a customer-centric approach that integrates personalization fosters stronger relationships, enhances trust, and increases the likelihood of repeat bookings. Without such features, Efzee Cottage risks losing potential customers to competitors with more advanced and customer-focused booking systems.

1.3 Project Aim

The purpose of this project is to develop a homestay and event space booking and virtual touring web-based system that will enhance the homestay's operational efficiency, customer convenience, booking accuracy, streamlined communication, and overall customer satisfaction.

1.4 Project Objectives

- To identify the requirements for a web-based booking system for Efzee Cottage with personalized service features.
- To design a web-based booking system for Efzee Cottage with personalized service features.
- To develop Efzee Cottage web-based booking system personalized service features.

1.5 Project Scope

Personalized Booking Experience – A web-based booking system with Calendar Booking System Checking (CBSC), allowing stakeholders to update and manage reservations in real-time. Customers can independently check availability, reducing double bookings and minimizing repetitive inquiries. With a personalized service approach, the system will remember user preferences, suggest suitable booking dates, and offer tailored promotions based on previous stays, ensuring a seamless and engaging experience.

VHT – Virtual Homestay Tour with Personalized Recommendations – A specialized module providing an immersive virtual walkthrough of Efzee Cottage. Customers can explore key areas, including bedrooms, the living room, event spaces, and the pool, through high-quality video. With a personalized service approach, the system can highlight specific areas of interest based on customer preferences and previous inquiries, helping them make more informed booking decisions and increasing confidence in their stay.

Automated Invoice & Receipt Generation with Personalized Details – The system will have a personalized invoicing system, where invoices and receipts are automatically generated with customer details. This personalized service approach ensures that invoices reflect any applicable discounts, loyalty rewards, or special requests made by the customer, streamlining financial transactions while enhancing customer satisfaction.

Loyalty & Special Offers through Personalized Rewards – A personalized service approach will be applied to loyalty programs, where repeat customers receive exclusive discounts, tailored packages, and special promotions based on their past stays and preferences. This feature enhances customer retention and encourages long-term engagement by providing guests with unique incentives that align with their interests.

1.6 Project Significance

The significance of this project lies in the researcher's efforts to develop and design a homestay and event space web-based booking system to address the challenges faced by Efzee Cottage. The proposed system will provide tools including real-time availability checks, automated invoice and receipt generation and a virtual tour function — all of which should streamline operations and create an improved customer experience. Virtual tours are just some of the features which will help to eliminate mistakes from human-based processes, reduce response times to queries, and allow customers to make more informed decisions when it comes to booking on whether to stay.

This research is particularly important for stakeholders as it offers a customized solution to their present-day operational challenges, including repeated queries, manual booking systems, and excessive delays in communication. Interviews and Requirements Analysis with stakeholders & surveys will performed as part of the systems personalized service approach to ensure the design adheres to the needs of Efzee Cottage. Moreover, the virtual tour feature sets the system apart by enabling potential customers to take a look at the property's rooms, event spaces, and amenities, helping them feel assured and interested in making a booking.

Furthermore, the element of personalized service plays a crucial role in this project by improving the overall customer experience and meeting their expectations. Features like tailored recommendations, personalized offers, and loyalty rewards create a more meaningful connection between Efzee Cottage and its guests. Personalization ensures that customers feel valued and understood, as the system remembers their preferences and past stays. This approach encourages repeat visits, enhances customer satisfaction, and helps build loyalty. By offering a more customized experience, the system sets Efzee Cottage apart from competitors and supports long-term success. Additionally, personalized service reduces the number of inquiries and administrative tasks, making operations more efficient and sustainable.

Finally, this project will help as a good starting point for further development. In addition, the prototype and requirement analyses will serve as a clear guide for future development teams by capturing stakeholder expectations, documenting user-specific service integration, and examining the scalability of the booking system. This flexibility allows for the addition of new features, like advanced booking systems or enhanced virtual tour capabilities, as necessary, so the system continues to meet the evolving needs of both stakeholders and customers.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter explains on the service and Hospitality industry, homestay service industry in Malaysia, business model, types of system platforms, system development methodology, and similar systems or related works. Each subtopic will be explained in detail based on a literature analysis of existing research and related scholarly papers. This literature review is specialized to help in the development of homestay and event space web-based booking system for Efzee Cottage using personalized service approach.

2.2 Small Medium Enterprise, Service and Hospitality in Malaysia

2.2.1 Small and Medium Enterprise in Malaysia

Small and Medium Enterprises (SMEs) are an important part of the Malaysian economy, accounting for significant portions of employment, and Gross Domestic Product (GDP). They account for over 98% of all businesses, hire more than 7 million people, and generate over 40% of the nation's GDP (Chelliah, Sulaiman, & Yusoff, 2023). These businesses are at the core of innovation, job creation, and economic development (Chelliah et al., 2023). SMEs in Malaysia: Significance and Government Initiatives SME Go Malaysia Malaysia places great importance on small- and medium-sized enterprises (SMEs) and has participated in many initiatives to develop SMEs. These various forms of governmental support include financial assistance, tax

incentives, and programmes designed to strengthen SMEs' competitiveness, predominantly in international marketplaces (Chelliah et al., 2023). This has led to the wide adoption of digital technology such as mobile applications for SME retention to maintain its competitiveness in the global market where consumer behavior is changing.

SDGs and its 2030 agenda are developed in line with the increasing pace of globalization and internationalization on a domestic level, Malaysian SMEs are considered a catalyst for economic development as they have now started to look beyond borders and towards international opportunities especially in manufacturing. Government policies focus on creating such a production and business environment that encourages SMEs to produce high-value-added products and modern technology to improve productivity and competitiveness (Chelliah et al., 2023). The government of Malaysia has committed a considerable number of resources towards aiding SME overseas expansion, like the RM3. 2 billion development programs, the stated purpose of which is to improve infrastructure, capacity & access to finance (Chelliah et al., 2023). Armed with this support, significant contributors to the country's exports and overall economic engine, the SMEs in Malaysia are ready to stand out in the global markets. Besides manufacturing, the service industry also emerges as an important sector for Malaysian SMEs whereby sectors such as tourism, logistics and professional services are embracing digitalisation and innovation to improve their competitiveness and reach global sales.

2.2.2 Service Industry

The service sector or tertiary sector contributes significantly to Malaysia's economic growth and is the largest contributor to gross domestic product (GDP). In 2019, SMEs operating in the service sector represented 63.3% of the national GDP, showing that service is an important intermediary in the exchange between production and consumption activities (Kamaruddin & Shamsudin, 2021).

Among them, homestays are an important part of tourism and hospitality subsector and provide opportunities for local entrepreneurs, allowing tourists to experience local lifestyles (Voon et al., 2022). Not only do they play a role in rural economic development, but also in the preservation of cultural heritage, making them an integral part of sustainable tourism initiatives.The COVID-19 pandemic impacted greatly service sector around the world, including a reduction in tourism revenue in homestays (Kamaruddin & Shamsudin, 2021) due to travel restrictions. Digital transformation and government support, however, have helped spur recovery efforts.

Today, the hospitality sector, which is closely linked to the service sector, is an important component of helping to support Malaysia's economy of tourism. It includes hotel, resort and homestay accommodations, each of which are important catalysts for economic activity and cultural exchange. As noted by Kansakar et al. (2019) high technologies including virtual tours, online booking systems, and customer-centric platforms have been adopted by the businesses to enhance services and meet changing consumer demands. Innovations not pursue augmented customer experience but placed the service and hospitality industries as cornerstones of economic growth and resilience in the post-pandemic era.

2.2.3 Hospitality Industry in Malaysia

One of the essential industries in the Malaysian economy is the hospitality industry that consists of accommodation, food and beverage service and experience program like homestay which are all of them are also contribute the tourist side (Voon, Jee, Joseph, Hamzah, Jussem, & Teo, 2022). Moreover, a segment of the service industry specialized in lodging provision, food and beverage service, and other services that improve the visitor experience (Voon et al., 2022) As a service-driven market, this sector operates on the basis of customer experiences determined by dimensions such as hygiene, accessibility, service quality and cultural authenticity (Voon et al., 2022). From luxury resorts to homestays, accommodations in the tourism industry offer opportunities for cultural and environmental engagement to enrich the tourism experience (Voon et al., 2022). Moreover, the food and beverage sector is prominently influencing tourism based on Malaysia's cooking traditions and visitors' needs (Voon et al., 2022).

As COVID-19-ravaged nations and with travel restrictions and increased health concerns, the hospitality sector saw a sharp decline in international tourism arrivals and a devastating impact on its operations (Voon et al., 2022). Nonetheless, a large number of companies in the industry shown resilience, through innovative measures like improved health protocols, digital marketing, and sustainable practices to sustain their business and customers (Voon et al., 2022). According to the study by Geysen et al. (2021), digital transformation played a vital role in ensuring businesses could continue operating. By adopting online booking systems, virtual tours, and personalized messaging, businesses were able to stay connected with their customers, improving customer engagement and service delivery. With its emphasis on personalized service and sustainable tourism, Malaysia's hospitality industry is pivotal to economic development and cultural preservation (Voon et al., 2022), and as it continues to recover, Malaysia has much to offer enthusiasts across the globe. Furthermore, homestay services have become popular with travelers looking

for authentic, immersive experiences that enable them to participate in local customs while including more individual and familiar accommodation experience (Tan et al, 2021). As a significant part of the hospitality domain, the homestay service sector plays a crucial role in supporting local enterprises and providing unique cultural experiences for travelers, and its development directly affects the trend of tourism and growth of the economy in Malaysia. As noted by Abdullah et al. (2020), homestay enterprise expansion encourages rural growth, an even greater understanding of the diversity of culture and heritage of Malaysia.

Also, the homestay service industry is a sub sector of hospitality Industry and also plays an important role in Malaysia's tourism sector, where it has the potential to provide tourists with unique cultural experiences (Voon, Jee, Joseph, Hamzah, Jussem, & Teo, 2022). Unlike traditional hotels, homestays enable tourists to take part in local traditions, like cooking, handicrafts, and cultural performances (Voon et al., 2022). Factors which play a vital role in contributing to tourist satisfaction include cleanliness, accessibility and quiet natural environments, in addition to personalized companionship services, all of which enhance the experience (Voon et al., 2022). The homestay sector consequently faced limitations due to the outbreak of the COVID-19 pandemic but managed to follow health protocols and employ digital platforms in order to continue functioning (Voon et al., 2022). The sector has emitted a significant role in enhancing sustainable tourism and contributing towards the local economic for Malaysia.

2.2.4 Digital Transformation in Hospitality Industry

The hospitality functions in the business environment embracing delivery of service and stayover experiences that will remain unforgettable for guests through venues of accommodation and dining and lifestyle businesses. Furthermore, the hospitality sector has recently undergone changes due to digital transformation by improving service delivery and guest experiences (Kansakar et al., 2019). The innovative technologies like IoT, mobile application and automated systems have made significant changes to the industry leading it towards a digitalized and user-friendly platform (Kansakar et al., 2019). For example, IoT integration enables hotels to enhance guest experience through smart room control, allowing guests to manage their own room lighting and temperature through mobile applications (Kansakar et al., 2019). Technology also helps simplify guests' interaction by Integrating automated check-in and keyless entry as shown in (Kansakar et al., 2019).

Additionally, guided tours and local attraction recommendations can be facilitated by digital platforms, improving the quality of services to the guest (Kansakar et al., 2019). Digital tools that integrate back-of-house management systems also help in improving operational efficiency through automating housekeeping and maintenance roles that contributes to higher revenue per available room (Kansakar et al., 2019). Interactive experiences, like digital guides and restaurant previews, are provided through augmented reality (AR) and beacon technologies, which include innovative hospitality services while integrating technology (Kansakar et al., 2019). Such advances tell us how hospitality is now evolved with this trend where a digital transformation is redefining the challenges.

2.3 Hospitality features for customer experience

Despite the prevailing practices of corporate strategies, hospitality experiences are an essential component of the customer experience (Kandampully, Zhang, & Jaakkola, 2017). Service personalization, which focuses on the practice of customizing service to meet the specific needs of the customer, is shown to improve service satisfaction (Kandampully et al., 2017). When products and services are tailored according to customers' expectations, it leads to an increase in customer loyalty and retention (Kandampully et al. 2017). In addition, the researchers state that in order for staff to respond positively to customers, they must be competent, engaged, and emotionally present to effectively meet customers' needs (Kandampully et al. 2017). These hospitality characteristics (e.g., responsiveness, empathy, and affirmation) have been demonstrated to meet and exceed customer expectations (Kandampully et al., 2017). Hence, incorporating these types of features helps not only in instant gratification but also in sustaining customer relationships, leading to high levels of customer satisfaction and loyalty.

In addition to the work of Kandampully et al. (2017), several other studies emphasize the importance of personalized service in enhancing customer experience. For instance, Homburg et al. (2017) argue that personalization drives customer satisfaction by providing tailored interactions that make customers feel valued and understood. Furthermore, according to Pappas (2016), personalized service is critical in fostering emotional connections with customers, which can increase trust and lead to greater loyalty. Similarly, McColl-Kennedy et al. (2015) highlight that a personalized approach to service is directly linked to improved customer engagement and the development of long-term relationships. These findings collectively support the notion that personalization not only satisfies immediate customer needs but also plays a key role in building lasting loyalty.

As seen in the Research framework figure 2.1 below, staff competencies, emotional engagement and effective communication have been identified as other main components of customer experience in addition to personalization. According to Kandampully et al. (2017), customers expect customer service employees to be knowledgeable, responsive, and empathetic in order to meet their needs. This deep, emotional engagement facilitates the development of trust and rapport between the customer and the service provider, which is a powerful driver behind customer loyalty. The researchers elaborate on how staff who can effectively deal with customer queries and complaints alongside positive demeanour contribute to the overall experience (Kandampully et al., 2017). Thus, investing in staff training centering around emotional intelligence and problem-solving skills is a universal action every hospitality business must take to enhance customer experience.

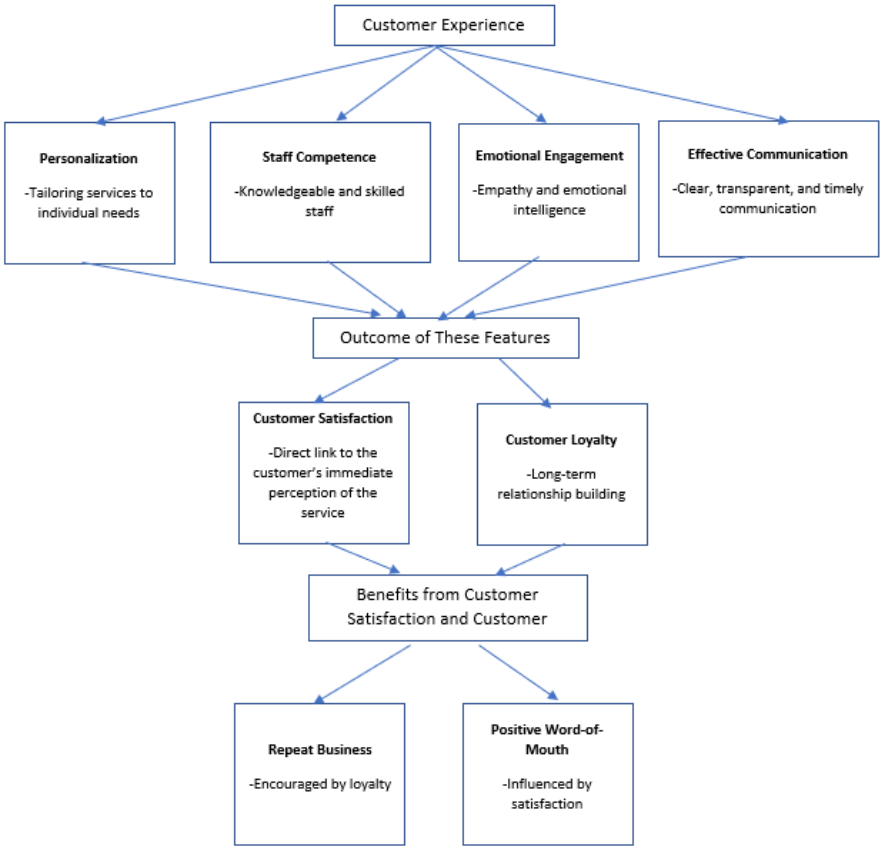

Figure 2.1 Research framework

(Source: Kandampully, Zhang, & Jaakkola, 2017).

The researcher selected one pillar of Customer Experience, Personalization, for their study (Kandampully et al., 2017), in the figure 2.2 personalized service research framework below. It is a new direction in the service process that allows to provide and adjust services to the individual needs of each customer, therefore, making a huge impact on the performance measures such as Customer Satisfaction and Customer Loyalty (Kandampully et al., 2017). As a consequence, these results are responsible for the advantages of Repeat Business and Positive Word-of-Mouth, vital for the success and growth of the companies in the hospitality industry (Kandampully et al., 2017). This design allows the researcher to address the direct impact of just this feature on improvement of customer experiences and long-term relationship building juxtaposed with the other features (Kandampully et al., 2017). Hence, one model that the researcher will focus is the personalized service that leads to the adapted research framework as in Figure 2.2 below.

A specific field of study (Kandampully et al., 2017) determined personalization, a subfield of Customer Experience, as an essential part of the Hospitality Industry's ability to curate customer satisfaction and loyalty. A study by Smith and Johnson (2021 note that the integration of personalization into service delivery models is a necessity to deliver unique customer experiences that lead to customer retention and advocacy. The supportive results are in accordance with the findings provided by Kandampully et al. (2017), where the creation of personalized services positively influence the level of satisfaction, customer retention, and word-of-mouth. Kandampully's model was also recently adapted by Smith and Johnson (2021) in an assessment of the influence of personalized service on customer behaviors in the hospitality industry, adding additional contextual evidence of the model's applicability.

Additionally, a study by Liu and Mattila (2020) reinforces the importance of personalized service in the hospitality sector, highlighting those tailored experiences not only meet customer expectations but also create emotional connections that drive customer loyalty. Their research suggests that personalization is a key factor in enhancing the overall customer experience,

which directly influences repeat visits and customer advocacy. Similarly, research by Lee and Kim (2019) demonstrates that personalization in service delivery fosters customer trust and increases satisfaction, ultimately contributing to positive word-of-mouth and long-term customer relationships. These studies further support the notion that incorporating personalized service is crucial for businesses seeking to build stronger customer bonds and improve retention, as also emphasized in the work of Kandampully et al. (2017).

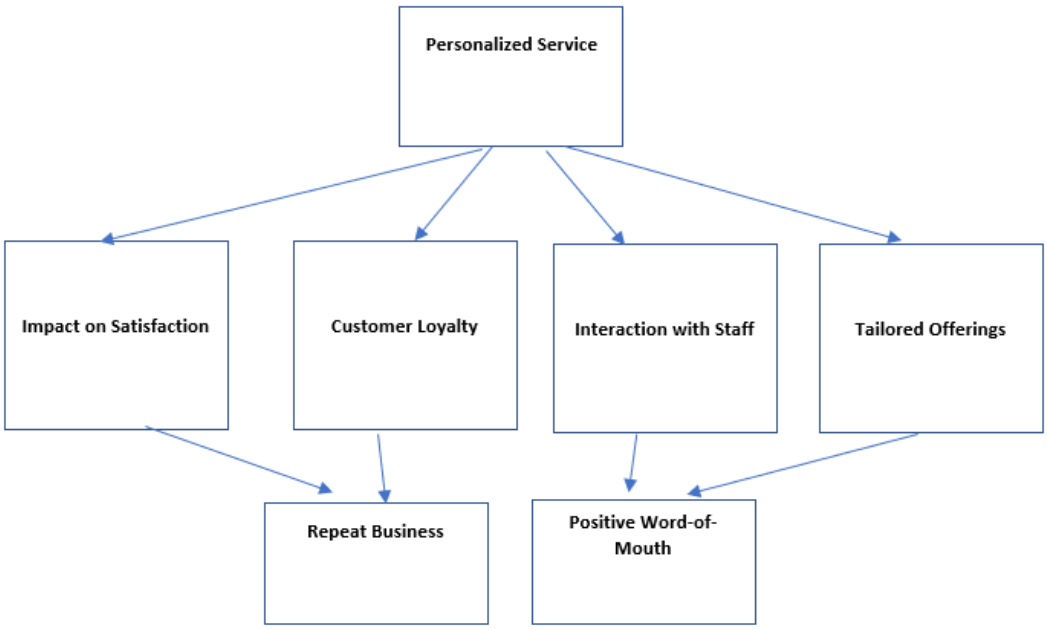

Figure 2.2 Personalized Service Research Framework

(Source: Kandampully, Zhang, & Jaakkola, 2017).

Personalized Service as a hospitality feature is important because it directly affects customer satisfaction and retention, which is part of the focus area of the Efzee Cottage Booking System. Moreover, the system enables customers to set appointments according to their own convenience which adds flexibility on the part of the customer and improves the overall user experience in the booking process. By fulfilling the concept of Personalized Service, the development of homestay and event space web-based booking system for efzee cottage using personalized service approach aims to meet customer

expectations, providing convenience and satisfaction in every interaction. Below is the table detailed on personalization in the hospitality features including the description, outcomes and benefits that are incorporated into the project.

In addition, in line with personalised in the hospitality features, a virtual tour is one of the important key elements. So, with the presence of the virtual tour, it will impact and enhance customer satisfaction, customer loyalty, interaction with the staff, and tailored offers due to its interactive features. Table 2.1 shows examples of hospitality features, such as personalization, influencing customer experience, including the virtual tour feature, which is based on Kandampully's framework.

Table 2.1 Hospitality Features such as personalization Influencing Customer Experience

(Source: Kandampully, Zhang, & Jaakkola, 2017).

Hospitality Features	Description	Outcomes	Benefits
Personalization	Tailoring services to individual customer needs	Customer Satisfaction	Repeat Business
Tailored Offerings	Customized packages to suit guests' needs	Enhanced Customer Comfort	Increased Bookings
Customized Preferences	Adjusting room setups, amenities, and services based on requests	Improved Customer Experience	Customer Retention
Interaction with Staff	Ensuring friendly and professional communication	Strong Customer Engagement	Positive Reviews
Dynamic Pricing	Adjusting pricing based on demand and occupancy	Optimized Revenue	Competitive Advantage
Customer Loyalty Programs	Rewarding repeat customers with discounts and perks	Customer Loyalty	Long-term Partnerships

In-System Video Tour	Virtual tours showcasing rooms, pool, and event spaces	Improved Transparency	Higher Customer Trust
Timely Notifications	Sending automated updates about bookings and offers	Faster Communication	Customer Convenience

Personalized service in the hospitality features play a crucial role in enhancing customer experience, particularly with the introduction of innovative tools like the In-System Video Tour**.** This feature, as part of personalized services, allows customers to virtually explore the property, including bedrooms, living spaces, event areas, and pool facilities, providing a transparent and immersive view of the homestay. By tailoring the booking experience to individual needs, customers can make informed decisions, leading to increased trust and satisfaction. Such personalized tools not only create a sense of connection with the property but also improve customer engagement, ultimately resulting in higher bookings, repeat business, and stronger loyalty to the brand. Research by Verhoef et al. (2021) highlights that personalized tool, such as virtual tours, enhance customer engagement by providing a more tailored and interactive experience. This, in turn, strengthens customer trust and satisfaction, which are crucial drivers of loyalty and repeat business. Additionally, a study by Sigala (2020) emphasizes that the use of personalized features, including virtual walkthroughs, significantly influences customer perceptions and decision-making processes, leading to higher conversion rates and positive customer feedback. These findings support the idea that incorporating personalized service features, such as the In-System Video Tour, not only improves customer experience but also contributes to the overall success of hospitality businesses by fostering customer loyalty and increasing bookings.

2.4 Online Booking Platform

2.4.1 General Features

The literature suggests that the design of an online booking system, specifically for novice admin users with limited technical skills, should focus on usability and efficiency (Gustafsson, 2019). Some of these key features include intuitive user interfaces which minimize information overload, ensure easy learning, guide users through visual transitions (Gustafsson, 2019) Also, for increased transparency for both customers and admins, the system has to provide real availability quotes, simple booking confirmations and personalized user experiences (Gustafsson, 2019). Thus, implementation of the solution will include pre-emptive measures against mistakes such as overbookings; the objective to provide a simple, user-friendly navigation experience a critical part of the overall efficiency of the system (Gustafsson, 2019). By incorporating these features, the system can aid novice users while providing seamless, efficient booking processes.

2.4.1.1 Scheduling and Booking Process

Accommodation service scheduling and booking platforms like homestays, hotels, or Airbnb face challenges regarding optimizing service resources and reducing customer waiting times (Ala & Chen, 2022). This is influenced by a number of factors of which service time, patient or guest preferences, and unpredictable arrival patterns may be other factors (Ala & Chen, 2022). To find a solution, recent years have proposed advanced methods like mathematical optimization, simulation pertain models, artificial intelligent, etc., so that the book process can reduce untouched period, match resources optimally and serve customers better (Ala & Chen, 2022). Booking. Online platforms, etc. com, Airbnb and the like, are essential in making this process easier, as they permit users to quickly verify the availability of the accommodation and optimize the booking process and thus improve service efficiency and customer experience (Ala & Chen, 2022).

2.4.1.2 Virtual Tour Process

Virtual tours have gained popularity as a presentation element in the tourism industry as they provide a 'try-before-you-buy' experience (Rosli, Johar, Zaki, & Fernandez, 2023) where potential customers can feel immersed in the location or accommodation without physically being present. Especially applicable to homestays, hotels and Airbnb reservations, in which consumers can tour the property and its facilities and explore the environment in which the property is located, [VR] helps to provide users with the information they need for selecting accommodation (Rosli et al., 2023). The incorporation of VR technology has also improved the immersive experience, encouraged users' interest and encouraged their behavioral intention (Rosli et al., 2023). The virtual tour industry is also growing rapidly in the tourism and hospitality market, and is expected to reach $6.5 billion by 2030, (Rosli et al., 2023), making this technology an affordable alternative for businesses and guest maps around the world. Yet due to the extensive use of virtual tours, studies evaluating their effectiveness and influence on the motivation of tourism decisions are still at the embryonic stages, stressing the need for additional significance and exploration in this area (Rosli et al., 2023).

2.4.2 Service Quality Features

One of the factors that is important especially in spa destination hotels (Seočanac & Čelić, 2019) for guest´s satisfaction is the quality of the service in terms of hospitality where guests decide to come back or recommend the hotel. Essential features of service quality comprise reliability, in which hotels guarantee consistent delivery of service and assistance, responsiveness, or the ability of staff to promptly assist guests, assurance, or competence and courtesy of employees that generates customer confidence, and empathy, or the undivided care given to each guest (Seočanac & Čelić, 2019). Tangible Factors – Tangibles are another important aspect of service quality that helps shape guest perceptions of the quality of their service experience, including the physical appearance of the hotel and any associated amenities (Seočanac &

Čelić, 2019). In addition, websites such as Booking. Portal 2023 Showings.com can also be a useful tool in evaluating service quality, as it reflects guest satisfaction and can help point to areas for future improvement (Seočanac & Čelić, 2019). As the use of social networks and online booking systems continues to grow, the contribution of information and communication technologies (ICT) in increasing service quality and customer experience is starting to play an even more significant role (Seočanac & Čelić, 2019) Superior service quality not only improves guest satisfaction levels but also is the backbone of customer loyalty, as satisfied guests are more likely to become repeat customers and recommend the hotel to others.

Service quality, especially in spa tourism, impacts guest satisfaction and return and recommendation intentions (Seočanac & Čelić, 2019), hence being essential in determining the overall quality of hotels. There are certain attributes of service quality which includes reliability, responsiveness, assurance, empathy, and tangibles etc., that influence guest perception and satisfaction (Seočanac & Čelić, 2019). Moreover, comments on Booking. com tools for analyzing service quality and detecting errors (Seočanac & Čelić, 2019)

2.4.2.1 Service quality towards repeating customer

According to the review, service quality dimensions like reliability, responsiveness, assurance, empathy, and tangibles are vital to providing a guest with a memorable experience. An important factor in customer loyalty is service quality, and this is particularly the case for the hospitality sector since customer retention is crucial for the long-term sustainability of business operations (Belver-Delgado, San-Martín & Hernández-Maestro, 2021). The aforementioned study confirmed that top-notch service minimizes uncertainty and, at the same time, strongly increases customer satisfaction and encourages positive behavioral intentions such as returning to the provider (Belver-Delgado et al., 2021). On the other hand, elements such as how easy it is to employ, how secured it is, and how detailed information is on booking platforms are the main drivers for repeat customer behavior (Belver-Delgado et al., 2021). Moreover,

customers who notice less risk in the booking process are more likely to come back, which places importance on the necessity to reach a level of trust made possible by a fluid and trustworthy digital interface (Belver-Delgado et al., 2021). Hence, consistent service quality is fundamental in creating repeat customers relationships.

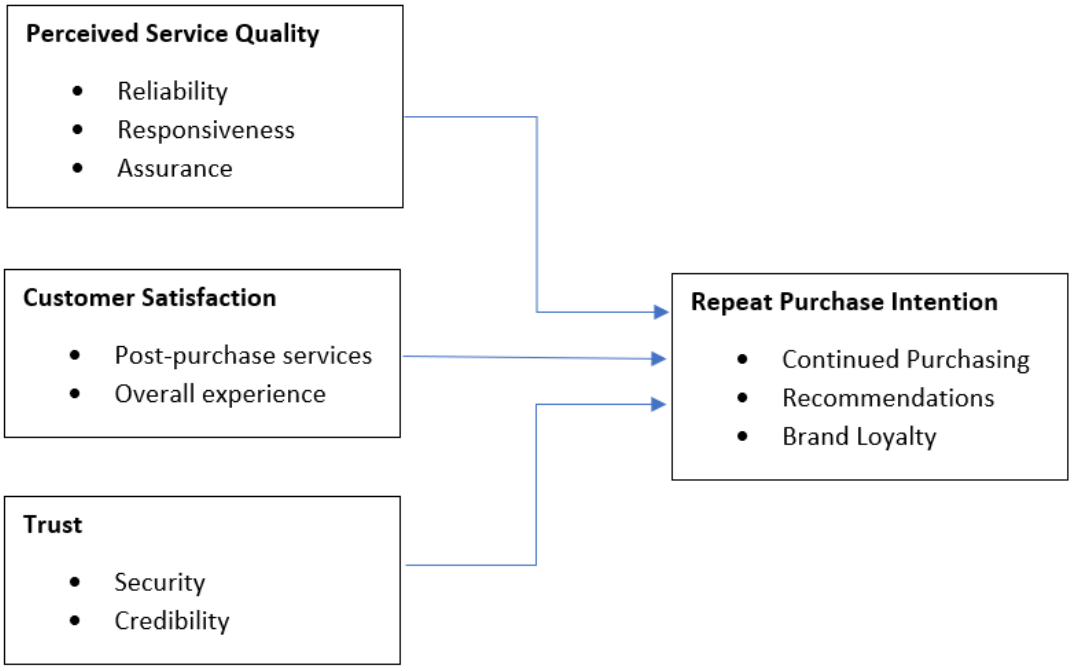

Figure 2.3 Framework of Factors Influencing Repeat Purchase Intention

(Source: Linge, Singh, Singh, and Kakde 2022)

The framework identifies the main components that influence repeat purchase intentions such as perceived service quality, customer satisfaction, and trust according to (Linge, Singh, Singh, & Kakde, 2022). Attributes such as reliability, responsiveness, and assurance directly trigger customer experience, positing perceived service quality (Linge et al., 2022). While customer satisfaction measures the post-purchase services and the overall delivery of service, it is an important predictor of customer loyalty (Linge et al., 2022). The current research borrows components with heavy focus on perceived service quality and customer satisfaction, to assess their effects on particular repeat purchase behaviors (Linge et al., 2022). Thisfocus is in line with the main goal

of the study, which targets customer retentionenhancement as a result of improved service quality and satisfaction

2.4.2.2 Comparison Features between Service Quality, Hospitality Services and Online Booking

Table 2.2 Comparison Features between Service Quality, Hospitality Services and Online Booking

Features	**Service Quality**	**Hospitality Services (Personalized Service)**	**Online Booking**
Reliability	Available	Available	Available
Responsiveness	Available	Available	Available
Assurance	Available	Available	Available
Post-purchase Services	Available	Available	Available
Customer Support	Available	Available	Available
Multi-language Support	Not Available	Available	Available
Real-time Availability	Not Available	Available	Available
Promotional Codes and Discounts	Available	Available	Not Available
Payment Gateway Integration	Not Available	Available	Available
Leave/Edit Customer Information	Available	Available	Available
Add-on Services	Not Available	Available	Available
Personalization	Not Available	Available	Limited
Staff Competence	Not Applicable	Available	Not Applicable
Emotional Engagement	Not Applicable	Available	Not Applicable
Effective Communication	Available	Available	Limited

Table 2.2 shows the comparison features between Service Quality, Hospitality Services, and Online Booking. The features under Service Quality include reliability, responsiveness, assurance, post-purchase services, customer support, promotional codes and discounts, and effective communication. Hospitality Services: multi-language support, real-time availability, add-on services, personalization, staff competence, emotional engagement, effective communication. If we think about basic aspects of an Online Booking system then it's all about reliability, response time, real time availability, promotional codes & discounts (dynamic), payment gateway, enable/disable customer information, add-on services, behaviour pattern, limited channels for effective conversation.

In comparing these categories, Service Quality certainly leans more towards direct customer fulfilment through aspects like reliability, assurance, and communication. Conversely, Hospitality Services are experienced in human interaction elements like emotional engagement and employee expertise, which delivers customers a customized experience. Online Booking systems use automation and convenience features, real-time availability, payment integration, and leave/edit client details. In contrast, Online Booking systems lack emotional engagement and have a limited communication spectrum which makes this uninfluential and distant in comparison to Hospitality Services. This overall comparison gives a fundamental idea of the advantages and disadvantages of different agents in catering to various customer requirements.

Based on your system requirements, I suggest developing some service quality components to supplement the satisfaction of your clients. The system must provide reliability with real-time availability updates, responsiveness through automated support and timely notifications, and assurance through clear communication throughout the process. This will mean not only treating customers well before to, during, and immediately after the sale, including things like check-in reminders and feedback requests, but also offering

customer service via a range of channels. Things like providing personalized experiences to remember guest preferences, promotional codes, and discounts can help to work toward this. And with these features, we will build a seamless, effective system focused deeply on customer satisfaction and loyalty.

2.4.2.3 Customization and Personalization in Service Quality

Customization and personalization are pivotal in elevating service quality, especially in the hospitality industry, where meeting the specific needs of each customer can significantly enhance their experience. Personalized services allow businesses to tailor their offerings according to individual preferences, thereby improving customer satisfaction and loyalty. According to Kandampully et al. (2017), personalized services foster stronger emotional connections with customers, resulting in increased satisfaction and higher retention rates. This approach helps businesses differentiate themselves in a competitive market by offering unique and memorable experiences that cater to the customer's desires and expectations. Additionally, personalized services such as room preferences, customized offers, and loyalty rewards contribute to fostering long-term relationships between businesses and their clients, leading to positive word-of-mouth recommendations (Smith & Johnson, 2021).

The integration of personalization into service delivery models has also been recognized for its impact on customer loyalty. Personalization enables businesses to deliver services that resonate with customers on a deeper level, meeting their specific needs and preferences, which, in turn, encourages repeat visits and advocacy (Geysen et al., 2021). Moreover, recent studies highlight the importance of technologies like real-time data analytics, which enable businesses to track customer behavior and predict preferences for future interactions (Chen et al., 2021). As the hospitality sector continues to embrace digital transformation, the role of personalized services is expected to grow, offering substantial advantages in terms of customer satisfaction, loyalty, and retention (Sharma, 2020).

2.5 Types of System Platform

This subtopic focuses on exploring and comparing Web-based Applications and Responsive Web Design to highlight the differences between these two platforms. A comparison will be made using various criteria to provide the researcher with a clearer understanding for the project.

2.5.1 Web based Online Booking System

Today, an online booking system has become everyday use for businesses, helping customers book services online (Nabil, Mosad, & Hefny, 2011) Such systems that are online and available for access from any device with an Internet connection is increasingly becoming popular in industries such as tourism, healthcare, and retail (Nabil et al., 2011). According to Nabil, Mosad, and Hefny (2011), Web-based booking systems facilitate the completion of reservations without requiring users to download or install software. It also helps in less dependency on specific platforms/devices that make it more ablative to a vast number of user needs (Nabil et al., 2011) This allows for easier access and reduces the dependence on certain platforms or devices, making it more versatile to a larger variety of user needs. Moreover, web-based booking systems are beneficial for business because they do not need the layers and maintenance associated with mobile or desktop applications (Nabil et al., 2011).

Moreover, as the dependence on the web grows, the quality of web-based application (WBA) should also be at a certain level to keep the users satisfied (Nabil et al., 2011). Nabil et al. (2011) notes that is challenging to create web-based applications to quality standards, since these systems require end user basis and different technological needs revision. Usability, efficacy, and security for instance are widely crucial for an adequate user experience whenever customers have to enter previously entered information including payment information for their booking (Nabil et al., 2011). Hence, organizations

should focus on these quality attributes to cultivate such trust and confidence within its users (Nabil et al., 2011).

Additionally, businesses need to align the concerns of online booking systems with stakeholders' perspectives, such as developers, users, and business owners (Nabil et al., 2011). As Nabil et al. have pointed out (2011), visitors, developers, and business owners all have different expectations for a web-based system, for example visitors expect ease of use, developers expect performance and scalability, and business owners expect profitability and market reach. Dashed with these vows, a well-crafted quality model can help in red solving these these issues further extending the radius of the booking system to offer trusted consumers ending up being customers (Nabil et al., 2011). So, a well-fitted web-based online booking system can bring such operational efficaciousness and it also enhances customer loyalty (Nabil et al., 2011).

A recent study indicates that web-based online booking systems deliver flexibility and cost-effective solutions for business, offering real-time updates, etc. These systems also provide seamless blockchain-agnostic integration with other digital services, enhancing operational efficiency and customer engagement (Smith & Johnson, 2022). Chang et al. (2020) speaks about ensuring usability, efficiency, and security, particularly when dealing with sensitive customer data. Similarly, Kumar and Gupta (2021) emphasize the balancing act of stakeholder expectations (e.g., ease of use for customers, performance for developers, and scalability for business owners) to ultimately achieve a system that addresses varying needs of these users. Adding these components into a smartly built system can improve user experience, bring more amazing consumer satisfaction and create more extended commitment.

2.5.2 Responsive Website Design

Responsive Web Design (RWD) is the set of web design techniques described by Marcotte (2010) to make a website automatically configurable for all screen dimensions, pixel density or devices so that all resources can be used on a mobile phone, tablet or desktop (Bhanarkar, Paul & Mehta, 2023). Responsive web design (RWD) is an approach to crafting html in a way that ensures webpages render nicely on a variety of devices and window or screen sizes. According to Bhanarkar et al. (2023) ensure that content is optimally displayed across devices, thus enhancing both accessibility and usability in web applications through a design approach.

With the proliferation of responsive web design, there is a rising demand for RWD-skilled web developers due to the increasing importance of mobile-friendly websites (Bhanarkar et al., 2023). In contrast to traditional websites that have separate mobile versions with different URLs (e.g., m.googleapis. com, m.facebook. By definition, responsive websites (as prescribed here (www.dynamicdrive. It ultimately saves time for developers and ensures a cohesive experience for users, as content is reserved over devices with this routine process.

RWD also greatly improves search engine optimization (SEO) since only one URL and HTML structure applies to all platforms, making it easier for search engines to crawl and index the site (Bhanarkar et al., 2023). Moreover, as it does not need any device-specific URLs or redirects, RWD also boosts the speed and performance of the site (Bhanarkar et al., 2023). All these advantages make responsive web design the most sought after method of web design since it allows website management to get easier and ensures a compatible website and better SEO performance.

For instance, a study published recently indicates that Responsive Web Design (RWD in short) is ever more relevant to the current state of the art for the design of websites. Bhanarkar et al. (2023) state that RWD makes certain that sites are

adjusted to various screen shapes, upgrading access and use between cell phones, tablets, and work areas. It is also better for RWD needs no duplicate content, a separate URL, and HTML structure, so SEO is simplified and it helps increase performance on the website. This also means there is no need for different device-based urls or redirects, making site speed even faster (Bhanarkar et al., 2023). RWD therefore comes with these benefits, and consequently becomes the design approach of choice to ensure users experience the best of your site, while you benefit from a site which is easier to manage and is performant.

This project proposes the application of a web-based booking system for EFZEE Cottage and Event Space along with a customized service approach to provide solutions to the current problems faced by the business. Customers will be able to easily book services online, learn detailed information about the property, check out details like the In-System Video Tour for a transparent and immersive experience. As a web-based platform, it can be accessed from any device with internet connectivity, avoiding the unnecessary installation of software.

2.5.3 Comparison of the Existing Booking Systems

The purpose of this section is to compare five existing booking platforms like Booking. com, Airbnb. com, Agoda. com, Traveloka. com, and Homestay. Focused only on the hospitality services, you can check out its existence on YARDS.com. This comparison takes into account service quality and convenience, as well as features to book homestays, hotels, and vacation rentals online, and how easy each of the sites makes it to book accommodations. It takes into account factors such as ease of use, features offered, customer support, and overall service delivery by these platforms, intending to shed light on the strengths and weaknesses of each platform in providing users with a smooth and gratifying booking experience.

2.5.3.1 Booking.com

First, Booking.com was established in 1996, and has become one of the global leading online travel agencies. Besides, Booking. com simply on how it generally works and operates as an online travel agency. It serves as a jet booking and accommodations site for flying and reserving automobiles. Booking.com is focused on a different demographic. com covers the leisure business and business travellers. The user selects the destination, check-in, check-out dates, and total rooms to be booked. Then they can filter the available properties by price, location and customer ratings. Then the customer has to fill in his personal and payment information and finally book the reservation.

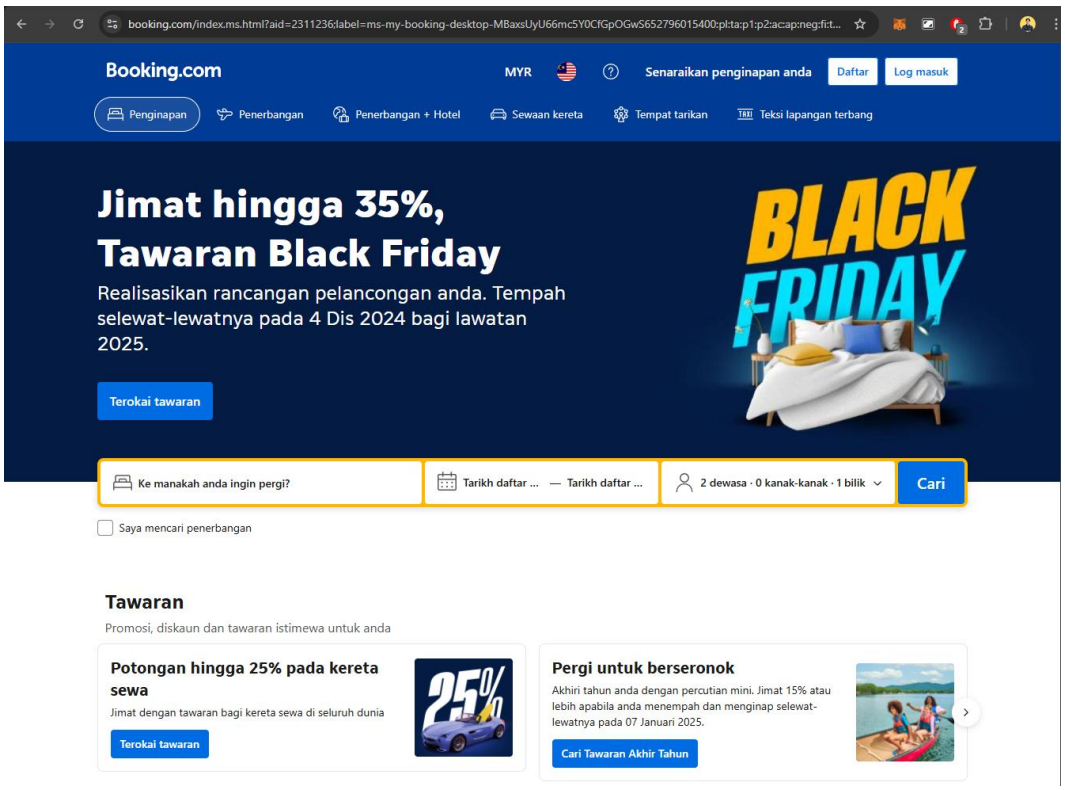

Figure 2.4 Booking.com Website

(Source: https://www.booking.com/)

2.5.3.2 AirBnb.com

Second, Airbnb was founded in 2008 and is focused on short-term rentals of private housing. Besides, Airbnb. com's typical platform features and rental process for the short-term rental user. The target audience is people looking for unique and personalized travel experiences. Booking a listing begins with choosing the destination, check-in and check-out dates, and the number of guests. Where tenants can browse available listings, filtered by property type, price and location. Once the customer has selected a property, they can read reviews, message the host, and confirm the booking. Airbnb also has an instant booking option on many of its listings.

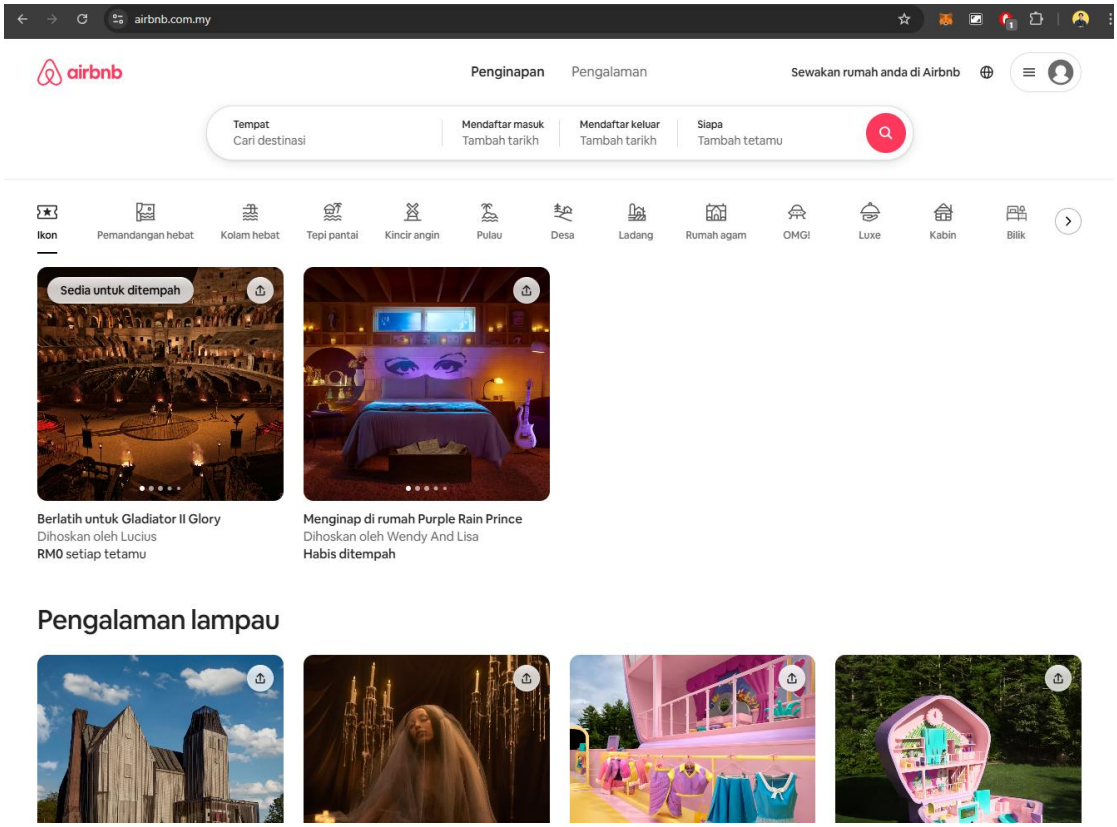

Figure 2.5 Airbnb Website

(Source: https://www.airbnb.com/)

2.5.3.3 Agoda.com

Agoda (founded in 2005): Agoda is a global hotel and vacation package booking site. It also acts as an online travel agency worldwide offering such services as booking hotels, resorts, and holiday packages. Agoda's target market includes both individual travellers and corporate accounts. Users click to book by filling in a destination, travel dates, and number of rooms. Agoda will then show availability of properties that can be filtered by price, hotel star rating and amenities. Once the user selects a property, they proceed by entering their personal details and payment information to finalize their booking. A lot of discounts are also available on Agoda.

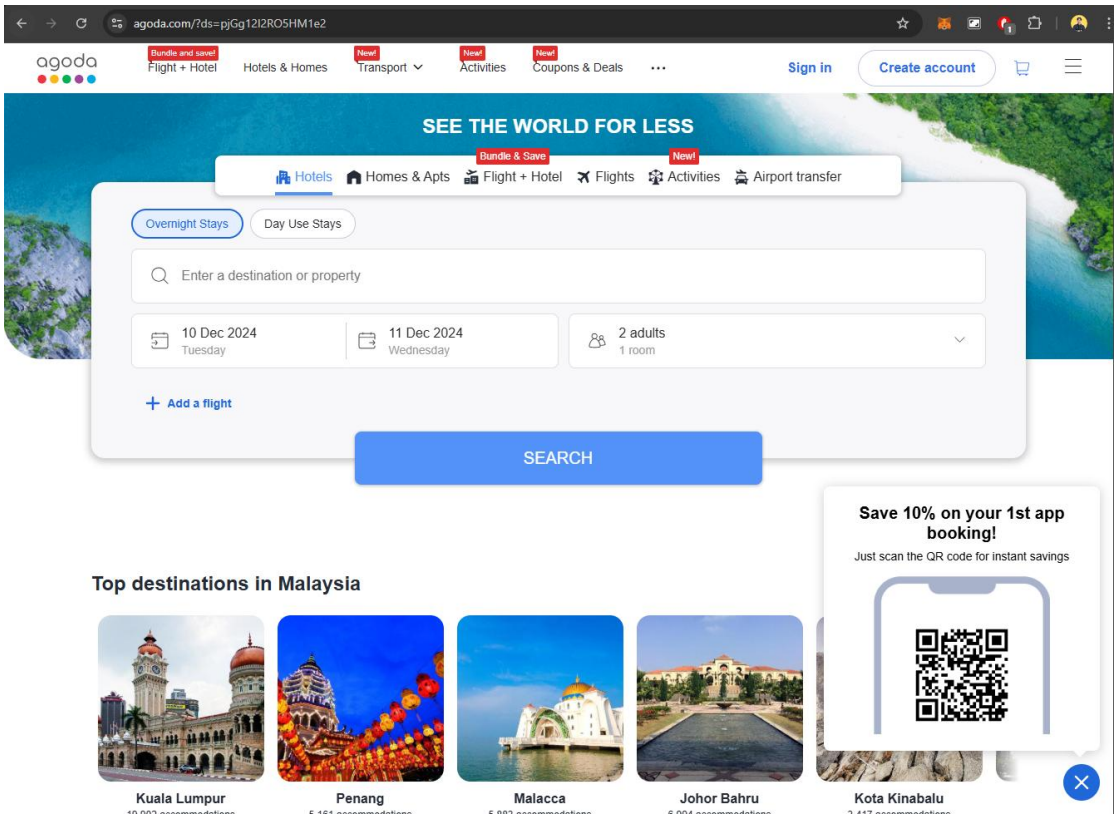

Figure 2.6 Agoda Website

(Source: https://www.agoda.com/)

2.5.3.4 Traveloka.com

Traveloka.com is an Indonesian-based online travel agency. Traveloka specializes in flight, hotel, and activity bookings. It primarily targets travellers from Southeast Asia. Users need to choose a destination, travel dates, and flight options to make a booking. Traveloka then flashes choices for flights and hotels, letting customers filter them by price, airlines, hotel ratings and more. After choosing, the user confirms the reservation, filling in their personal and payment information. Traveloka also offers 24/7 customer support as well as a variety of promotional deals.

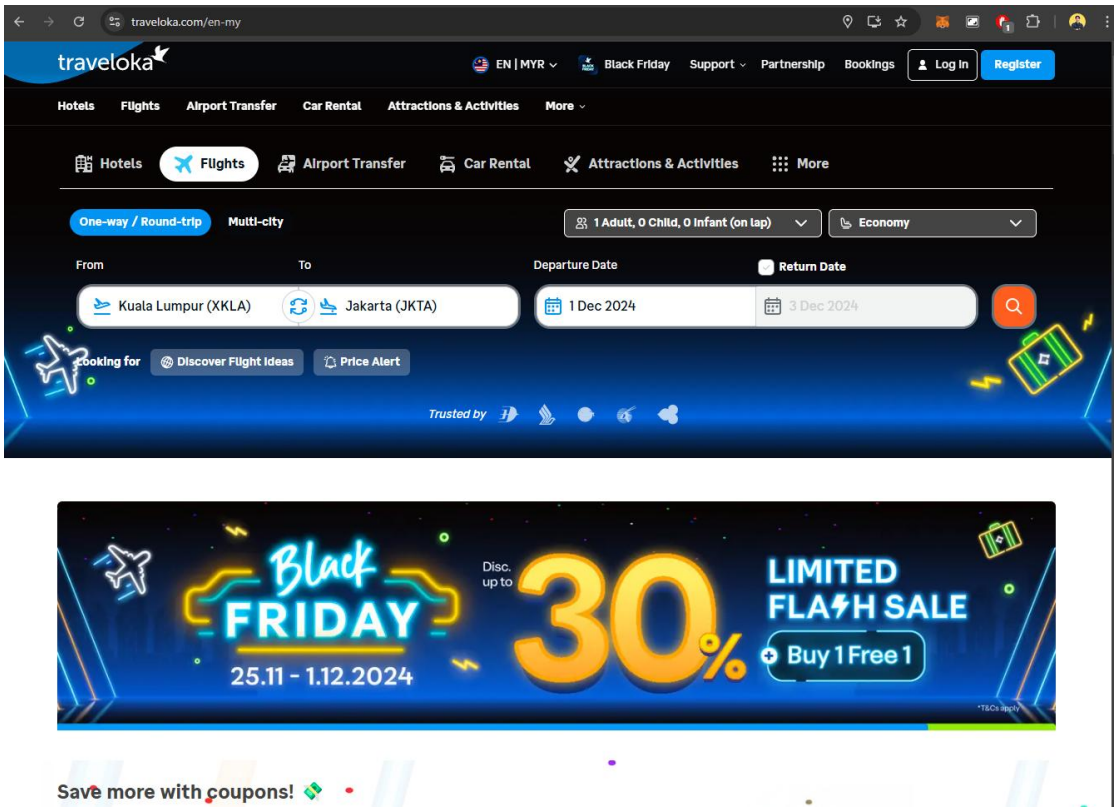

Figure 2.7 Traveloka Website

(Source: https://www.traveloka.com)

2.5.3.5 Homestay.com

Lastly, Homestay.com was founded in 2013 and connects travellers with hosts offering private accommodations in homes. Besides, Homestay.com is based on the typical process and features of the platform, which connects travellers with hosts offering private accommodations in homes for more authentic, local experiences. The target audience includes individuals looking for authentic local experiences. The booking process starts by selecting a destination, travel dates, and the number of guests. After that, users can browse available homestays, which can be filtered by location, price, and type of property. Upon selecting a homestay, users can contact the host, read reviews from previous guests, and confirm the booking. Homestay.com also allows hosts and guests to communicate directly through a messaging system.

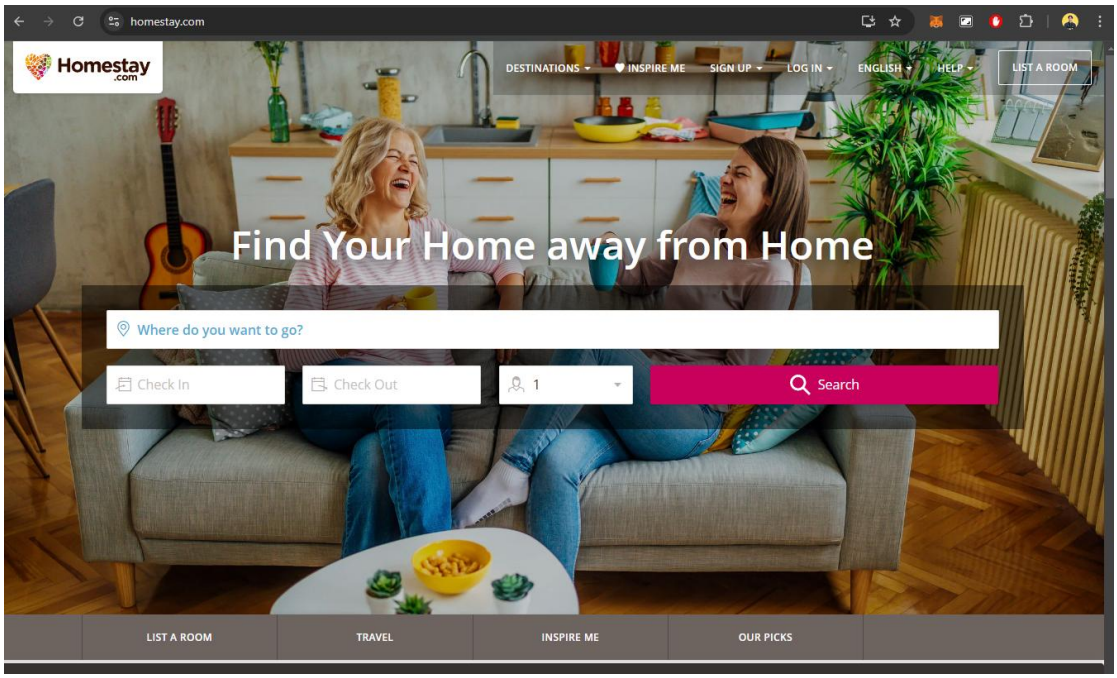

Figure 2.8 Homestay.com Website

(Source: https://www.homestay.com/)

2.5.4 Comparison Features of Online Booking Systems

Table 2.3 Comparison Features of Online Booking System

	Online Booking Website				
Features	Booking.com	Airbnb.com	Homestay.Com	Agoda	Traveloka
Log in/sign up to the system.	Available	Available	Available	Available	Available
Choose a date and time.	Available	Available	Available	Available	Available
Choose the location place.	Available	Available	Available	Available	Available
Choose a service.	Available	Available	Available	Available	Available
Real-time Availability Homestay and Hotel	Available	Available	Available	Available	Available
Add-on services.	Not Available	Not Available	Available	Available	Available
The customer cancels the appointment.	Available	Available	Available	Available	Available
Leave/Edit customer's information	Available	Available	Available	Available	Available
Multi-language Support	Available	Available	Available	Available	Available
Customer Support	Available	Available	Available	Available	Available
Payment Gateway Integration	Available	Available	Available	Available	Available
Promotional Codes and Discounts	Available	Not Available	Not Available	Available	Available
Automated Email/SMS Notifications	Available	Available	Available	Available	Available
Log in/sign up to the system.	Available	Available	Available	Available	Available

Table 2.3 shows the comparison features of the online booking system for the websites namely Booking.com**,** Airbnb.com**,** Homestay.com**,** Agoda, and Traveloka**.** The features compared include essential functionalities such as login/sign-up options, date and time selection, location selection, real-time availability, add-on services, and payment gateway integration. This comparison will assist the researcher in conducting reconnaissance to identify the essential features that need to be developed for the proposed project. Examining these systems will give the researcher a clearer idea of the fundamental aspects to develop a functional and user-friendly homestay online booking system. This analysis will provide the basis for scoping the fundamental system requirements and allow for the proposal of a booking system that caters the needs of both customers and business.

Based on the comparison of features across the platforms mentioned above, we can have a clear vision of the essential general features needed when developing the Efzee Cottage homestay and event space booking system. With this understanding, the homestay will have a proper, user-friendly platform that ensures smooth and efficient booking processes for customers. The system will integrate key functionalities such as real-time availability checks, personalized recommendations, and easy navigation to enhance the overall customer experience.

The elements of the online booking systems in Table 2.3 match with sections of hospitality service that are related to customer satisfaction and efficiency. Once the service is responsive and reliable, features like "Real-time Availability," "Multi-language Support," and "Customer Support" can ensure good service quality. Just like in the hotel business, providing value-added services and promotional codes improve customer experience. The added flexibility in "Customer Cancellations" and "Editing Information" offer much needed convenience, leading to greater customer satisfaction and effortless running and operating in the hospitality business. These features provide the best customer experience, keeping in mind both customer and business experiences in hospitality services.

These platforms, such as Booking.com, Airbnb, Homestay.com, Agoda, and Traveloka, offer booking services for a wide range of properties owned by different individuals and businesses, making them versatile in accommodating various types of customers. However, while they provide a broad array of choices, each platform's approach to managing multiple property owners can vary significantly. For example, Airbnb focuses heavily on individual hosts and unique accommodations, while Booking.com primarily caters to a mix of both individual property owners and established hotel chains. This variation in service models makes these platforms ideal for comparison, as their features and functionalities directly reflect how different property management approaches can affect customer experience, service quality, and business operations. By analyzing these platforms, the researcher can gain valuable insights into how to design a more efficient, personalized booking system that is specifically tailored to the needs of both individual property owners and customers in the homestay sector.

2.5.5 Comparison of Online Booking System focusing on Personalization services in the Hospitality features for Customer Experience

Table 2.4 Comparison of Online Booking System focusing on Personalization Services in the Hospitality features for Customer Experience

Personalization services in the hospitality features	**Elements**	**Booking.com**	**Airbnb.com**	**Homestay.com**	**Agoda.com**	**Traveloka.com**
Tailored Offerings	Recommends personalized accommodation or services based on customer preferences.	Yes	Yes	Yes	Yes	Yes
Customized Preferences	Allows customers to save preferences, such as room type or amenities, for future bookings.	Yes	Yes	No	Yes	Yes
Interaction with Staff	Offers live chat or direct communication with hosts or support staff for personalized guidance.	No	Yes	Yes	Yes	Yes
Dynamic Pricing	Provides personalized pricing offers or discounts based on user loyalty or behavior.	Yes	Yes	No	Yes	Yes
Customer Loyalty Programs	Includes points or benefits programs for repeat customers tailored to their booking history.	Yes	Yes	Yes	Yes	Yes
In-System Video Tour	Offers video tours of rooms or accommodations for a more personalized experience.	No	Yes	Yes	No	No

Timely Notifications	Sends reminders or updates personalized to the customer's itinerary or preferences.	Yes	Yes	Yes	Yes	Yes

In the table 2.4 above, the online booking systems were compared throughout the websites, emphasizing the hospitality characteristics that can influence customer experience on personalization services. The comparison analyses crucial factors, including personalized packages, curated preferences, employee engagement, real-time pricing, loyalty programs, system-based video tours, as well as timely alerts. The goal of these new features is to improve customer engagement by offering a personalized experience tailored to individual preferences and behaviours. As per the comparison, Homestay is one of the few platforms. com, facilitate the saving of customer preferences; all platforms except Booking. com and Traveloka. Plus, sites like horseracing.com allow one-to-one interaction with staff or hosts for tailored advice. Dynamic pricing and customer loyalty programs are scored high across the platforms. But in-system video tours are still rare, with only Airbnb and Homestay. com providing this feature. In this way, the parts that need to be more personalized for the booking systems hope to provide a better user experience are extracted.

Tables 2.3 and 2.4 are related in that they both relate to improving the customer experience in an online booking system. Table 2.3 summarizes the characteristics that are critical for seamless booking, such as availability, payment incorporation, and customer support. Table 2.4 shows personalization features such as personalized recommendations, custom saves, and dynamic pricing, making this experience unique for each consumer. All these facets boost customer satisfaction which is functional assistance or personalized services.

To identify and implement the personalized features listed in Tables 2.3 and 2.4, it's essential to first understand the key customer touchpoints throughout the booking process. This includes gathering data on customer preferences, booking behaviours, and feedback, which can then be used to personalize offers, suggestions, and pricing strategies. Tools such as customer profiles and tracking systems can help store and analyse this information, ensuring that features like tailored recommendations, customized preferences, and loyalty rewards are activated when needed. Additionally, integrating customer communication channels, such as live chat or personalized notifications, can create a more engaging and responsive experience. By evaluating current customer behaviours and aligning them with the features highlighted in the comparison, the booking system can be fine-tuned to provide a seamless, personalized journey that boosts satisfaction, retention, and overall business success.

2.6 System Development Methodology

The System Development Life Cycle (SDLC) is a structured approach to developing an information system from initiation to implementation. These phases include planning phase, requirement analysis phase, system design, development phase, testing phase, deployment and maintenance phase, which together ensures the delivery of a high-quality system that meets user expectations and falls within the limits of cost and time (Hossain, 2023). The SDLC consists of seven parts, including requirements collection, system development, implementation, testing, and their respective roles in each cycle. One time process, but here we are focusing on only one stage at a time and once it’s done, the researcher will starting the next stage. The SDLC model provides a structured methodology for system development that minimizes risks, controls resources, and delivers solutions on time and within budget (Hossain, 2023).

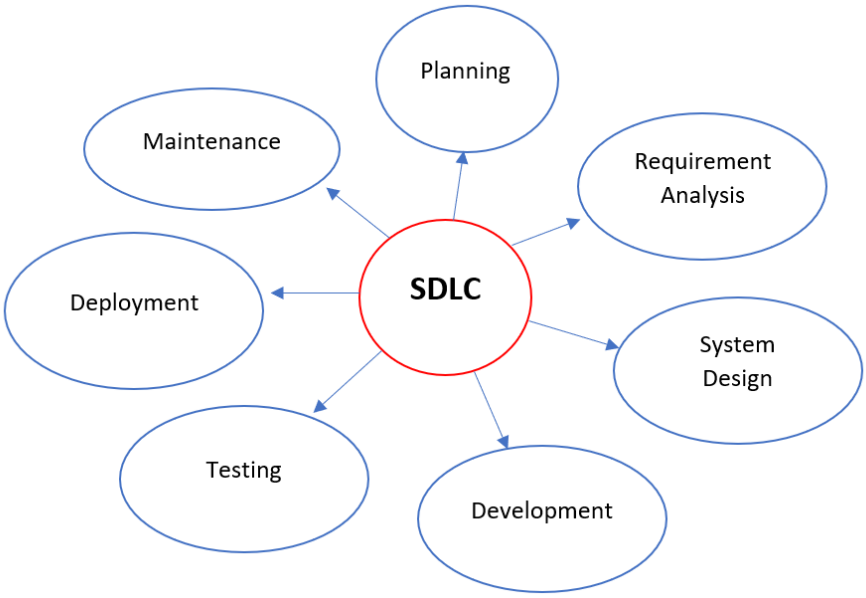

Figure 2.9 The Software Development Life Cycle
(Source: Hossain, 2023).

2.6.1 Waterfall Model

The Waterfall Model is a more structured, linear approach to software development, which follows a sequential process where each phase is completed before the next one begins (Hossain, 2023). It is often used for projects where the requirements are clearly defined and unlikely to change throughout the development process. It is a multi-phased model which consists of Planning, Design, Development, Testing and Maintenance; each phase is a separate tier of system development (Hossain, 2023). It also helps to maintain proper documentation at every stage, which allows to document progress and project timelines (Hossain, 2023).

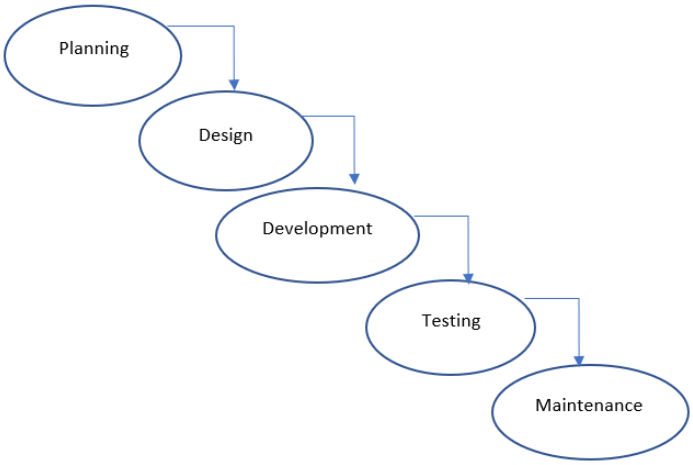

Figure 2.10 The Waterfall Model Methodology
(Source: Hossain, 2023)

i. Planning

Waterfall Model is a fully planned phase, where the process of system design and requirement gathering is done. During this stage, risk is identified, and there is a clear understanding of what is expected in terms of the timeline and deliverables of the project (Hossain, 2023). The key to this is the proper success of this stage as understanding requirements incorrectly could result in issues in the later stages (Hossain, 2023).

ii. Design

After planning comes design in which architecture of the system is developed. This includes (but is not limited to) both high-level and fine-grained design addressing the system components, the database schema, and user interface specifications. These designs are subsequently specified in detail, serving as a guide for the development stage (Hossain, 2023). The main objective of this phase is to verify that all technical needs and that design fits with the demands of the system (Hossain, 2023).

iii. Development

The Development phase is where the actual system is built based on the specifications prepared during the Design phase. That is to say, coding the software, and bringing together the different components into a functioning system. The development phase is usually the lengthiest in the Waterfall Model because it consists of taking design documents and turning them into an operational software solution (Hossain, 2023).

iv. Testing

The Testing phase guarantees that once the system is built, the software does what it is supposed to. This may include unit testing, integration testing, system testing, and other types of testing. The intention is to detect and correct defects before the system is deployed (Hossain, 2023) It allows any issues found in the testing to be fed back to the development to resolve (Hossain, 2023).

v. Maintenance

This leads us to the Maintenance phase, where the software is updated, modified, and corrected during its lifespan to fix issues, keep up with new systems, and improve functionality once the system has been deployed (Hossain, 2023). For the life cycle of the software, maintenance work continues to keep the system running and relevant to the user, as user needs may change (Hossain, 2023).

2.6.2 Website Development Life Cycle (WDLC)

Website Development Life Cycle (WDLC) is a structured process for designing, developing, and maintaining websites. This process includes multiple phases to ensure that every level of the development cycle is properly planned and implemented. The key stages in this life cycle include the Planning Phase, Analysis Phase, Design and development Phase, testing phase, and Implementation and maintenance phase. Website development can be classified into phases, and these phases are critical to the effective setup and continuous operation of a website (Kamatchia, Iyer, & Singh, 2013).

Research on the Website Development Life Cycle (WDLC) has pointed out to the changing perspective of developing Websites from traditional approaches like Waterfall to more flexible and iterative approaches like Agile and DevOps. These techniques enable continuous feedback, collaboration, and updates to ensure that websites remain up to date and performing excellently. In addition, user-cantered design is also being "emphasized in web development that not only websites need to be functional, but also a pleasant and smooth experience must be provided to the users" (Smith & Kumar, 2022).

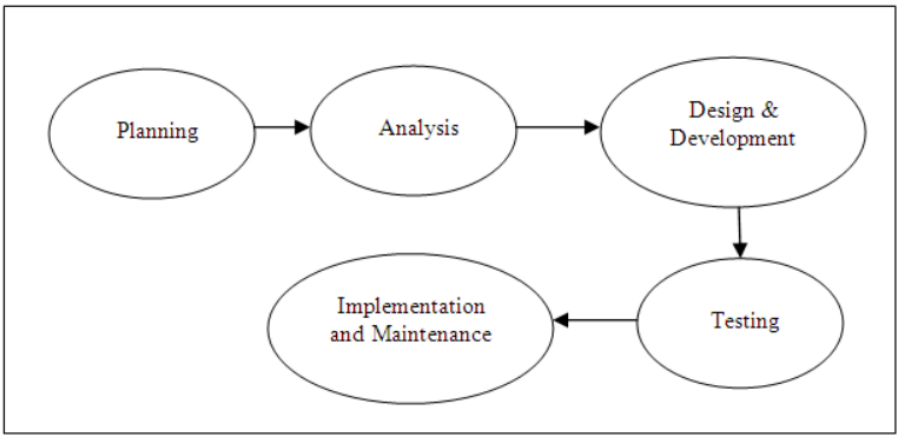

Figure 2.11 WDLC Methodology Phases
(Source: Kamatchia et al., 2013)

i. Website Planning Phase

The planning phase is the first step in the Website Development Life Cycle (WDLC and it is the key to setting up the foundation of the project. It involves defining the purpose and goals of the website, identifying the target audience, and selecting appropriate technologies (Kamatchia et al., 2013). Decisions taken during this phase should be wise, as a bad planning stage can cause problems during the next stages. This phase describes the goals of the site, including, but not limited to, revenue generation, branding, or providing a channel for communication. Awareness of the audience's needs and the limitations of the technology, such as internet speed and browser compatibility, guarantees that the site is accessible and user-friendly (Kamatchia et al., 2013).

ii. Website Analysis Phase

In this analysis phase, user requirements and functionality needed to get the required outcomes are analysed. This phase provides insights into what the users are expecting in terms of the performance and response time of the website and the features (Kamatchia et al., 2013). The analyst of the system determines the actions that the users must take (completing forms, browsing through sections of the online site, etc. This phase is where the processes to support these features, such as site mapping and content structuring are also planned (Kamatchia et al.,2013). This phase of the analysis is important because it guarantees that the system has the necessary qualities and data for user needs.

iii. Website Design and Development Phase

In the third phase of the WDLC, the website design and development phase, the blueprint of the website is created. The structure of the website is determined, and several models such as data and process models are created (Kamatchia et al., 2013). Designing the wireframes and mock-ups representing how the site will appear and operate is part of the design process. This is a stage where the conceptual design becomes a functional and aesthetically pleasing website. The coding process begins with the web development team alongside the web design specifications. To ensure proper organization of the content on the website, the layout options are explored, including hierarchical or linear (Kamatchia et al., 2013).

iv. Website Testing Phase

The next step after website development is the testing phase. Once the website has been built, it now needs to be tested to see if it is what the users expect and if it works correctly. Testing is checking for testing (Kamatchia et al., 2013), for example, accurate content, usability, and function. The website is cross-browser and device-tested to ensure. Usability testing: Users are able to navigate through the website efficiently and accomplish their goals with no problems. The third phase launches the site into a live server after assessing the only website's performance and speed and correcting any bugs or issues noted earlier in the testing phase (Kamatchia et al., 2013). Validation checks, namely HTML and CSS validation, form a part of this phase as well to check the technical integrity of the website.

v. Website Implementation and Maintenance Phase

The last stage of the WDLC is implementation and maintenance phase. Once the website completes the testing mode the website is hosted and made live. The website is installed on the server and form preparations are completed (Kamatchia et al, 2013). In this phase, database management and server configuration are performed. User acceptance testing is also done, signifying the project technical and commercial checkpoints. After the website goes live it needs to be maintained constantly in terms of updating current information and maintenance of it. This phase involves periodic bug fixes, updates, and changes in light of user feedback. Similarly, the performance of the website is monitored, and statistics are collected to analyse usage and identify areas for improvement (Kamatchia et al., 2013).

2.6.3 Comparison Between Methodology

Table 2.5 The Comparison Between the Waterfall Model and Website Application Development Life Cycle (WADLC).

Characteristics ↓	Waterfall Model	WADLC
Environment	Structured, sequential process	Iterative, flexible development
Focus	Process-driven, rigid planning	User-focused, continuous feedback
Suitability	Best for simple, well-defined projects	Suitable for dynamic, evolving projects
Architecture	Linear, predefined stages	Modular, iterative, adaptable
User Involvement	Limited until testing phase	Continuous collaboration with users
Flexibility	Low flexibility, changes are costly	High flexibility, easy to adapt
Testing	Done after development phase	Continuous testing throughout development

Comparative analysis comparison shown in the table above, the Website Application Development Life Cycle (WADLC) was chosen to be the appropriate methodology compared to the Waterfall Model in the development of the development of homestay and event space web-based booking system for Efzee Cottage software using personalized service approach. This decision was made in line with WADLC's iterative and flexible approach, which is essential for ensuring ongoing evolution and timely adjustments. WADLC is the perfect choice as compared to Waterfall due to the limitation of distance and interview sessions. WADLC allows the researcher to build continuous user and stakeholder feedback into their development process, rather than continuously responding to stakeholder-imposed deadlines. Not only does this make the

project more feasible, but should also illustrate the intention to produce a user-centric solution that meets the needs of Efzee Cottage. Thus, WADLC is the most suitable methodology for being used in this project.

2.7 Summary

In conclusion, highlighted on this literature review by the researcher is on the coverage area of interest of this project is the development of the homestay and event space web-based booking system for Efzee Cottage by using personalized service approach. It starts by discussing the service and hospitality industries in Malaysia and why SMEs are important, along with how these sectors have been transformed with digital technologies. The studies are mainly concentrated on comparison of features on service quality with hospitality services, comparison of features on online booking systems, comparison of online booking systems hospitality features to provide personalization services that will affect customer experience. In addition, the Website Development Life Cycle (WDLC) is utilized as the system development methodology, as this type of development is iterative and user-focused, allowing for flexibility and constant enhancement in the overall development process. Finally, many booking platforms today, such as Booking. com, Airbnb, Agoda, Traveloka, Homestay. com for key features such as real-time availability, tailored offerings, and customer support that influence the customer experience is examined. This comprehensive review lays a foundation for designing a robust, efficient, and user-friendly booking system tailored to customer needs while leveraging digital innovations. The personalization service features (impact on satisfaction, customer loyalty, interaction with staff, and tailored offerings) are also examined to assess the application of hospitality features for customer experience, which aligns with the project's focus area.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter will cover the research technique with the steps to complete the project. Starting with producing the proposal, collecting stakeholder requirements, analyzing the requirements obtained, designing the system, and developing the system are the subtopics that will be covered in this chapter.

3.1 Web Application Development Life Cycle (WADLC)

First, the Web Application Development Life Cycle (WADLC) was concluded to be the best methodology to help complete the project based on the comparison made between two development methodologies WADLC and Waterfall Model in Chapter 2. WADLC is chosen because it is particularly well-suited to web-based projects, offering a fairly formal structure while allowing for flexibility in incremental refinement. WADLC approach is divided into five phases, Planning, Analysis, Design & Development, Testing, Implementation and Maintenance. WADLC provides an iterative feedback mechanism especially in testing and maintenance phases which ensures constant avenues of improvements aligning with project objectives. Unlike the sequential rigidity of the Waterfall Model, the flexibility of the WADLC ensures better alignment with evolving project needs for each phase is carefully tailored to deliver well-defined goals that ensure a smooth developmental flow. Figure 3.1 illustrates the phases of the WADLC as described by Kamatchia et al. (2013).

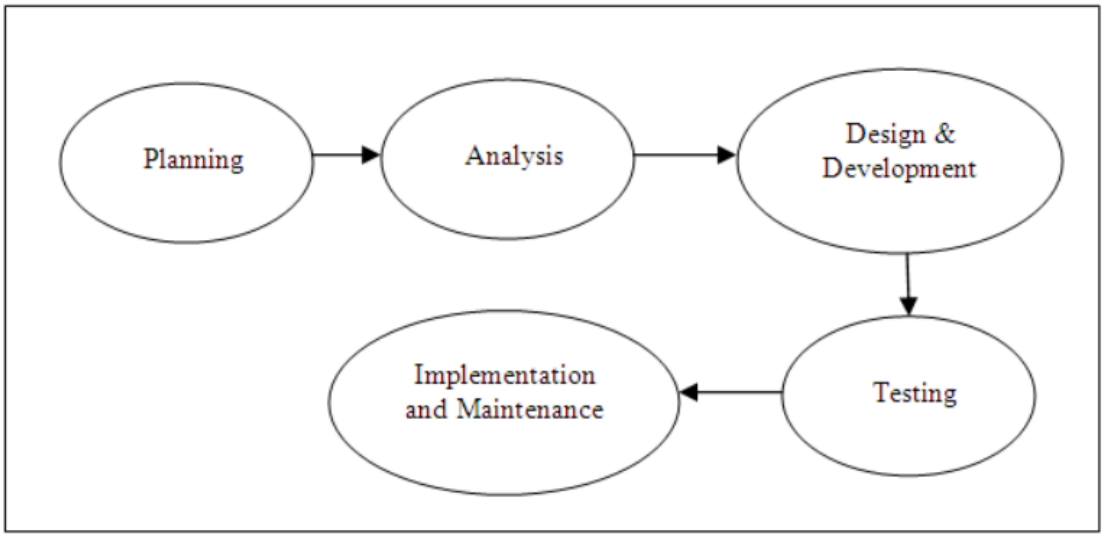

Figure 3.1 WDLC Methodology Phases

(Source: Kamatchia et al., 2013)

The Personalized Service Research Framework is integrated in this study because it lays emphasis on the importance of personalization in increasing customer satisfaction and loyalty especially in the hospitality sector (Kamatchia et al., 2013). This structure perfectly dovetails with the goals of the Efzee Cottage Booking System by underscoring how such bespoke services, like the creative virtual tour, can help elevate customer interactions, build trust, and enhance engagement. This approach provides structure in devising goals and objectives for the research so as to understand and fill the needs of the customer with planning, analysis, and user focus (Kamatchia et al., 2013). Such a system to help reinforce the brand value of the firm while also increasing the intent to return (Kamatchia et al., 2013), where the booking system reduces friction in processes.

For applying the Personalized Service Research Framework (Kandampully, 2017), Figure 3.2 below will be taken, which accepts it is a major element to contribute to service personalization on customer satisfaction and loyalty in hospitality. The idea corresponds with the goals of the Efzee Cottage Booking System, which aims to make booking easier through a user-friendly platform that provides flexibility and convenience. The best feature about this system is the virtual tour, which leaves the customer experience enhanced and indulges in satisfaction, loyalty, and higher engagement. By integrating personalization and innovative tools like virtual tours, the system aims to meet customer expectations, providing a seamless and tailored booking experience.

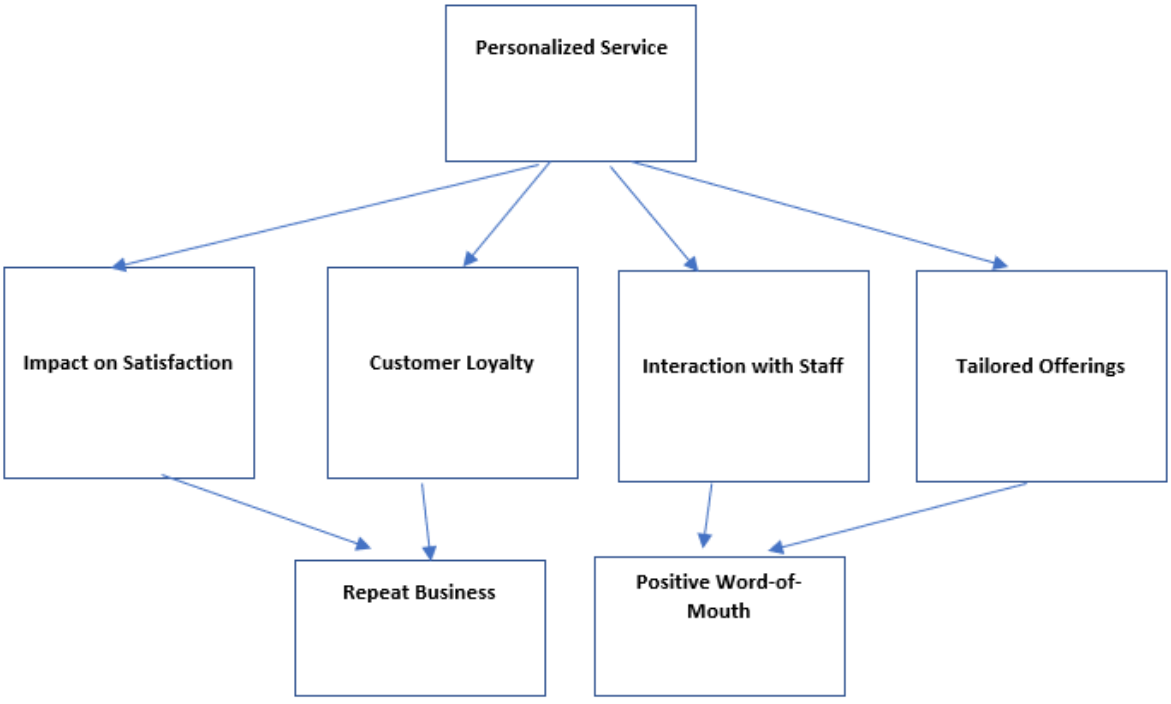

Figure 3.2 Personalized Service Research Framework

(Source: Kandampully, Zhang, & Jaakkola, 2017).

In Figure 3.3, the researcher will be adapted the WDLC Model by integrating the concept of personalized service into the Develop & Maintenance phase. This emphasizes the importance of providing tailored interactions to meet specific user needs. Following this, the model incorporates personalization to enhance the system's relevance and usability based on individual user preferences. Lastly, an In-System Virtual Tour is introduced, enabling users to explore system features interactively. These additions aim to enhance customer engagement and satisfaction while maintaining the core structure of the WDLC Model, including Planning, Analysis, Design and Implementation phases. Finally, it is essential to maintain the Analysis and Design & development phases due to the necessities in completing the project and the Design & development phase is the final phase where the project's end and goals are achieved. Other phases of testing and implementation will not be covered due to constraints related to time and resources.

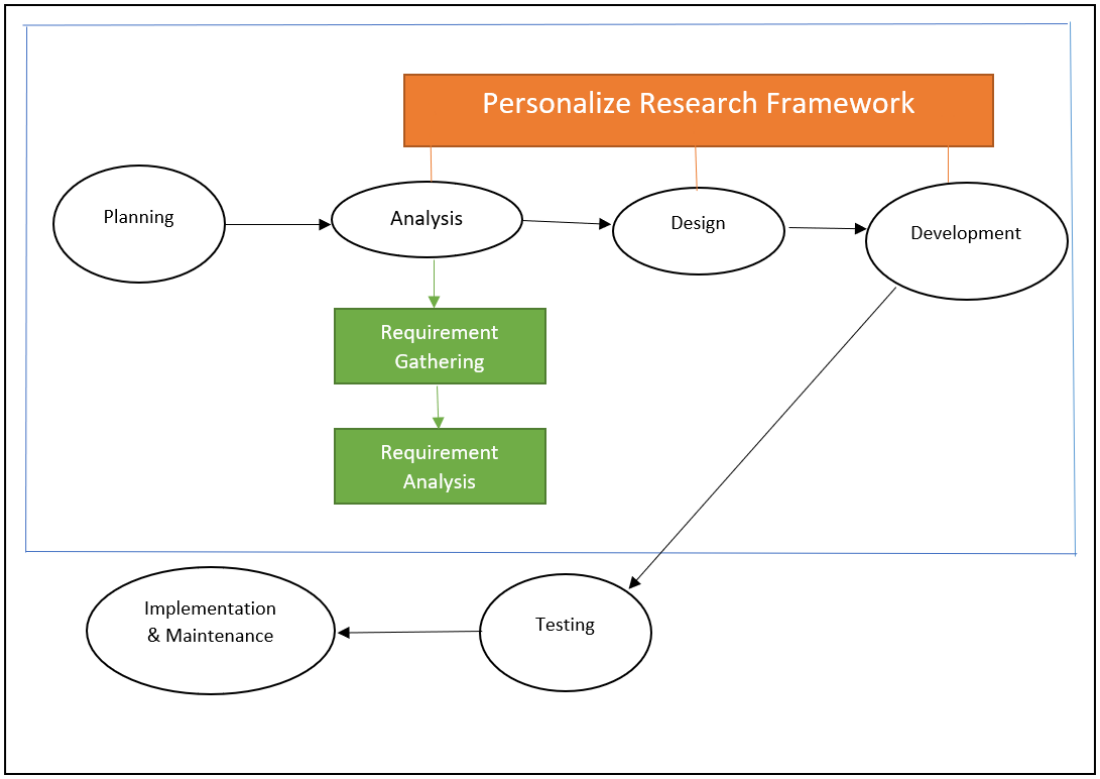

Figure 3.3 Adapted WDLC Model with Personalized Service Emphasized (Source: Kamatchia et al., 2013)

The researcher will focus on the elements inside the blue box in the diagram, which include planning, analysis (encompassing requirement gathering and requirement analysis), design, and development phases, all integrated with the Personalized Research Framework.

- During the planning phase, the researcher will define the project's objectives, scope, and strategies to establish a clear roadmap for the development process.
- In the analysis phase, detailed information about user needs and preferences will be collected during requirement gathering, followed by requirement analysis to refine the data into actionable insights. The design phase will focus on creating a structured blueprint of the system based on the insights gathered.

- In the development phase, the researcher will implement the Personalized Research Framework to ensure the system meets specific user requirements and offers a tailored and seamless experience. By emphasizing these critical elements, the research aims to create a user-focused booking system that aligns with Efzee Cottage's goals of improving customer satisfaction and loyalty. By integrating these phases, Figure 3.3 provides a comprehensive visual representation of how the research methodology is systematically applied to achieve Efzee Cottage's goals of enhancing efficiency, customer satisfaction, and business operations.

3.2 Research Framework

This subtopic will elaborate on the research framework that needs to be fulfilled for this project to be completed. Table 3.1 shows the adapt methodology phases including the activities, deliverables, and the objectives of the project.

Table 3.1 Research Methodology

Phases	Activities	Tasks	Deliverables	Objectives
Planning	Problem Definition	- Primarly interview with owner and customer	- Objective scope - Research significant	
	Project Timeline Planning	- Organize tasks and set a feasible project schedule. - Define key milestones and deadlines.	- Project Schedule (Gantt Chart)	

	Literature Review Analysis	- Define the research focus. - Gather relevant articles, research papers, and other resources for the project. Do literature review analysis	- Visual Map of research Scope - Literature Summary	
Analysis	Gathering Requirements	-Gather user requirements through interviews with owners. - Develop a questionnaire survey and distribute it via Google Forms to gather feedback and requirements from customers.	- Analyse of customer survey feedback	To identify the requirements for Efzee Cottage Web-Based Booking System.
	Requirement analysis	- Analyse both functional and non-functional requirements. - Develop a use case diagram based on inputs from both the customer and the owner.	- Use Case Specifications - Use Case Diagrams -Activity Diagram	

Design	System Design	- Create system architecture diagrams. - Create design the wireframe - Design the database	- System Architecture Diagram - Wireframe Design - Domain class diagram	To design the Efzee Cottage Web-Based Booking System.
Development	Prototype Development	-Develop a working prototype with essential features and gather feedback from stakeholders. - Plan future enhancements based on feedback.	- Interactive Prototype of Efzee Cottage booking Web-Based system.	To demonstrate the design Efzee Cottage Web-Based Booking System through prototype.

3.2.1 Planning Phase

In the Planning Phase, three key activities were conducted to establish a solid foundation for the project. These activities included Problem Definition, Project Timeline Planning, and Literature Review Analysis. Each of these tasks was essential for setting clear objectivaes, organizing the project timeline, and understanding existing research to guide the project's development. These activities are explained in further detail below.

3.2.1.1 Problem Definition

The researcher conducts an initial interview with the owner of Efzee Cottage Homestay and Event Space, Encik Fadzil bin Mohamad, to understand the challenges he faces in managing both the homestay and event space. Encik Fadzil and a few of his customers have been selected for interviews, as they are the key personnel responsible for overseeing operations. The discussions will focus on the challenges associated with booking accommodation, booking events, and managing guest services. Conducting the interview above was done through the application platform WhatsApp; This is an effective one that provides direct communication between the researcher and the owner. This first contact identifies a potential gap for an online solution to help ease the booking process for Efzee Cottage Homestay and Event Space.

After the interview, the researcher continued to design the objective scope of the project, developing the importance of the research. It helps set the project on course by identifying the root problems and pain points. The plan here is to identify a systematic plan for the development of the Efzee Cottage Web Based Booking System by concentrating on the most prominent issues that were raised in the interview. These factors will inform the project, guiding the development process and making certain that the system will meet the needs of the stakeholders while supporting the overarching goals of this project.

Table 3.2 Interviewee Information (a)

Name	Designation	Purpose
Encik Fadzil bin Mohmad	Owner of Efzee Cottage	To establish a clear framework for the project, including goals, resources, and limitations.

3.2.1.2 Project Timeline Planning

An important part of the planning section will be managing the timeline for the project as this will have an immediate effect on how the project works and progresses. To clarify priorities and ensure the project progresses smoothly, the researcher will organize tasks and propose a realistic schedule. This timeline will not only provide an overview of all the stages of the project but also break down the time allocated to each task, helping in tracking the progress as well as estimating the time required to complete the project successfully. Critical milestones and deadlines will be set to guarantee that vital phases are completed on schedule. A Gantt Chart will be generated to provide a visual representation of the schedule, offering a clear overview of the project's activities from start to finish. This chart will be useful in keeping an eye on deadlines, milestones, and ensuring that the development of the Efzee Cottage Web-Based Booking System progresses according to plan.

3.2.1.3 Literature Review Analysis

The literature review activity will be pivotal for this project, as it will provide a comprehensive understanding of the project's relevance and context. The focus of the review will be on developing a web-based booking system for Efzee Cottage that incorporates personalized service approaches. The process will begin by examining the service and hospitality industries in Malaysia, with an emphasis on the role of SMEs and the impact of digital transformation in these sectors.

The researcher will explore scholarly articles, journals, conference papers, and books, utilizing platforms such as Google Scholar, UiTM Library Online Databases (including IEEE Explorer and ScienceDirect), and ResearchGate. This exploration will highlight the significance of personalization and personalized services in online booking systems and their effect on enhancing customer experience. Key comparisons will be drawn between service quality, hospitality features, and online booking systems, emphasizing how

personalization and personalized services contribute to customer satisfaction and loyalty.

To build a strong foundation, the researcher will analyze existing booking platforms (e.g., Booking.com, Airbnb, Agoda, Traveloka, Homestay.com). The analysis will reveal important features driving customer experience, such as real-time availability, customized offerings, and customer support. The frameworks that will be studied, as well as the personalized features a personalization framework can have, like future recommendations, dynamic pricing, and tracking user preferences, will also be evaluated. These insights will guide the decision to implement many of the same personalized features, along with a virtual tour module and enhanced elements of personalized service, which will be included in the proposed system.

In addition, the researcher will use the personalization features framework (PFF) as a guideline to create the website. This framework will be employed to improve customer satisfaction, loyalty, and the overall user experience through a range of personalized services and interactive elements.

The researcher will also choose to follow the Website Development Life Cycle (WDLC) methodology in building the system for its iterative user-based approach, which fosters flexibility and continuous improvement. Therefore, by exploring literature, the researcher will develop a booking system that meets Efzee Cottage's customer needs and is backed by digital innovations. By focusing on what users want, the system will help improve the customer experience, encourage customers to return, and naturally create hospitality features.

3.2.2 Analysis Phase

In the second phase, which is analysis, the researcher analyzes the data collected according to the adapted Website Development Life Cycle (WDLC). However, to achieve a more complete analysis, this research further separates this phase into two distinct activities: Gathering System Requirements (including specific personalized service features) and Requirement Analysis. By going through these activities, the researcher now meets the first goal from Chapter 1, which describes the need for a booking system for the homestay and event space at Efzee Cottage. This two-step process allows for a clear understanding of what the system should do before moving on to the next phase.

3.2.2.1 Gathering System Requirements with personalized service features

A critical step in system development will be the requirement-gathering process. This process will aim to understand the needs and expectations of the stakeholders and customers who will use the system. The researcher will conduct an interview via the WhatsApp application.

Following discussions, the stakeholder will agree to provide feedback through a structured questionnaire survey format to ensure comprehensive data collection. Additionally, the researcher will develop a questionnaire survey based on personalized service features for customers via Google Forms. This questionnaire will comprise six sections, starting with terms and conditions for participation. The remaining sections will address:

• Demographics

• The reservation processes

• Desired booking features

• Virtual tour preferences

• System convenience functionalities

Each section will include relevant questions, both open-ended and closed-ended, to capture specific and detailed requirements.

The form will be prepared to be sent to the owner, Encik Fadzil, and his customers. His responses will provide critical insights into the challenges faced with the current manual booking system and the features needed to enhance the customer experience. The requirement-gathering process will play a vital role in capturing both functional and non-functional requirements from stakeholders and future users of the system.

Table 3.3 Interviewee Information (b)

Name	Designation	Purpose
Encik Fadzil Bin Mohamad	Owner	Gathering information about Efzee Cottage's homestay and event space operations. This included understanding the general nature of the business and its current workflow. Additionally, aimed to identify key personnel involved in specific processes, the activities performed, and the requirements needed to complete those activities effectively.
Customer	Existing customer who has experience booking the Efzee Cottage manually.	Gathering customer feedback on what tp upgrade based on personalized service features thru google form.

3.2.2.2 Requirement analysis

After gathering all the requirements through interviews and questionnaires, the researcher assesses their relevance and suitability for the Efzee Cottage Web-Based Booking System. This process, known as data analysis (Sharma, 2018), involves transforming the collected data into actionable knowledge. The researcher identifies patterns and relationships between the variables, which helps in making informed decisions about the activities and features to include in the system. This analysis provides valuable insights into the shortcomings of the current manual system, guiding the project in the right direction based on the findings.

The researcher analyses the data by transferring all the questions and responses into a structured document, using a table specifically designed for evaluation. For each question, the researcher identifies the actors involved, their roles, activities, and the business rules governing their interactions. These details are carefully noted for each question and later utilized to develop use case diagrams and activity diagrams. This methodical evaluation ensures that both functional and non-functional requirements are taken into account, helping the researcher determine the essential features needed to meet the expectations of stakeholders and users.

The researcher creates a use case diagram that represents the interaction of users with the system based on the needs analysis that includes inputs from the customer and the owner. Use case scenario: description of scenario steps and preconditions are detailed in the use case specifications. System design is based on Use Case diagrams and descriptions to ensure the system works as intended. The activities focus on the Homestay and Event Space Booking System only and the successful completion of the first objective mentioned in Chapter 1.

3.2.3 Design Phase

The design phase will focus on how the system will be structured and what techniques will be applied. The decisions will be made based on the requirements list gathered during the analysis process. The key activity in this phase will be system design, which will be executed systematically to achieve the second objective outlined in Chapter 1 designing the Homestay and Event Space Booking System for Efzee Cottage.

3.2.3.1 System Design

The research will start with a system architecture diagram which will map the structure and flow of Efzee Cottage Web Based Booking System. This is to help you draw a clear representation of how various components are connected together in the system which will help you define the structure of the system. Finally, the wireframes that structure the flow of the user interface were created using Canva, a free online graphic design tool. These wireframes depict a progression of screens in the interface, along with button press, layout, etc. This methodology enables the researcher to potentially discover any designing problems early on and test out different versions of chair design to ensure the interface of the system is user-centered before implementing development.

The researcher proceeds to design and manage the database for the booking system. A domain class diagram will be created in StarUML to illustrate the relationships between classes and their attributes. This gives a good overview of how the data is organized within the system. Finishing the system architecture, wireframe designs, and the database design has accomplished the second project objective specified in Chapter 1, which is design the necessary components needed for development of the Efzee Cottage Web-Based Booking System.

3.2.4 Development Phase

The development phase focuses on implementing the Efzee Cottage Web-Based Booking System according to the design specifications established in the previous phase. This phase is divided into two key activities: Prototype Development and Prototype Demonstration. During the Prototype Development activity, the researcher creates a working prototype that integrates essential features such as a streamlined booking process, an interactive virtual tour, and real-time availability checking. Validation sessions are also conducted to gather feedback from stakeholders, ensuring the system meets their expectations and addressing any issues that arise. To be specific, these activities are performed in

order to accomplish the third objective discussed in Chapter 1, which aims to develop a Functional Homestay and Event Space Booking System for Efzee Cottage. This phase is crucial as the feedback gathered enables you to improve your system and prepares you for the next phase, ensuring that your project meets user expectations and provides a seamless booking experience.

3.2.4.1 Prototype Development

The researcher intends to create a working prototype that contains the main features, ultimately addressing stakeholder needs. We will be using Flutter as the framework to build our prototype, and Visual Studio Code will be used as a primary code editor to write the Flutter code. By this method, the researcher will get an attractive and dynamic model that fulfills the purposes of the Efzee Cottage Web-Based Booking System. This prototype will have some vital features to enhance the user experience and make the booking process smoother and more convenient.

3.2.4.2 Prototype Demonstration

The researcher builds a working model of the Efzee Cottage Web-Based Booking System, incorporating the necessary elements to solve the problems identified in the analysis stage. Core functionality focuses on implementing a simplified booking system, a design for an interactive walkthrough experience, and a prototype that includes a mockup of a digital interface with a front-end user experience. It helps the researcher to validate with the stakeholders, to check if they are on the same page, and is called validation sessions where stakeholders can review the prototype and provide constructive comments. Such feedback is vital to the assessment of the system's efficacy and areas for improvement.

The researcher intends to test it and present the system to the main stakeholder, Encik Fadzil, the owner of Efzee Cottage, once the prototype has been created. The demonstration will be conducted at Encik Fadzil's location, where the researcher will demonstrate the functionality and features of the proposed system. User-testing feedback would then be collected from the demonstration in terms of the system use and performance in real-life scenarios. Such feedback is invaluable for understanding whether or not a prototype is meeting user needs and expectations.

Stakeholders are then shown the interactive prototype to illustrate what the system is capable of. The example illustrates the real-time checking of availability, easy-to-use reservation management, and the virtual tour, allowing users to view key amenities such as bedrooms, event space, and the pool. This empowers all stakeholders to get a sense of how the system works and how usable it is. Drawing on their feedback, the researcher intends to make additional improvements in the future to further narrow down the ideal system to ensure it meets user requirements and maximizes both customer satisfaction and increased operational efficiencies.

Table 3.4 System Demonstration (c)

Name	Designation	Purpose
Encik Fadzil Bin Mohamad	Owner	Functional Prototype Presentation of the Efzee Cottage Web-Based Booking System to Stakeholders. It highlights important features such as checking availability in real-time, easier reservation management, and virtual property tours. This assists stakeholders in gauging the usability of the system as well as telling the developers what changes can be made to accommodate user needs and increase overall efficiency.

3.3 Hardware Requirements

This section will list the hardware used to complete the project. Table 3.4 shows the hardware used aligned with the description for each of the hardware used.

Table 3.5 List of the Hardware Requirements

No	Hardware	Specification
1.	Hp Laptop ROG Strix Scar 15	Processor: 11th Gen IntelI Core I i7-1135G7 @ 2.40GHz 2.42 GHz RAM: 16.00 GB System Type: 64-bit operating system
2.	Rog Strix Impact Mouse	Model: CAN ICES – 3 (B) / NMB -3 (B) Type: Wired
3.	Ipad Pro M1 Gen 5	Battery: Built-in 40.88 Wh rechargeable lithium-polymer battery Storage (ROM): 500GB RAM: 8GB CPU: Apple M1 chip Operating System: iPadOS
4.	Iphone 11pro Max	Model: iPhone 11 Pro Max Operating System: iOS Battery: Built-in rechargeable lithium-ion battery (3969 mAh) RAM: 4GB Storage (ROM): 256GB

5.	Apple pencil	Battery: 96 mAH

3.4 Software Requirements

This section will list the software used to complete the project. Table 3.5 shows the software used aligned with the description for each of the hardware used.

Table 3.6 List of Software Requirements

No	Software	Description
1.	Chrome (Google)	Web browsing tool for accessing the internet and online resources.
2.	StarUML	Used for creating diagrams such as Domain Class Diagrams, Sequence Diagrams, and Activity Diagrams.
3.	Microsoft Word	Tool for drafting and finalizing project proposals and documentation.
4.	Canva	Platform for designing storyboards and visual content.
5.	Microsoft Excel	Used for creating charts, tables, and Gantt charts for project management.
6.	Google Scholar	Search engine for accessing academic articles, journals, and research materials.
7.	Quillbot	Assists in rephrasing and improving sentences for documentation and proposals.
8.	Visual Studio Code	A coding editor for writing and editing project-related code.
9.	Flutter	Framework for developing mobile applications.

10.	ILovePDF	Converts documents into PDF format and enables basic PDF editing tasks.
11.	WhatsApp	Communication platform for discussions with stakeholders and team members.
12.	Microsoft Team	Used for document sharing, meetings, and presenting project progress to the lecturer.
13.	Gmail	Email platform for official communication and correspondence.

3.5 Conclusion

In conclusion, here is a summary of the chapters outlining the researcher's approach to developing the project using the Website Development Life Cycle (WDLC). The core phases of this methodology are as follows: Planning, Analysis, Design, Testing, and Implementation & Maintenance. Each stage is linked to one another and is an important part of the overall project goals discussed in Chapter 1. In the Planning phase the goals, scope and timeline of the project were determined. Although the Analysis phase was cantered around understanding what stakeholders needed from the system and what the system would do. In Develop & Design, the researcher mapped out the systems architecture, wireframes and prototype, ensuring alignment with user needs. Furthermore, using the Personalized Service Research Framework, the researcher integrated tailored attributes and improved satisfaction. The systematic implementation of these stages ensured that the system was both well-structured and user-cantered, fulfilling the project goals. The specifications and tools used were chosen with the development process in mind to ensure that the project succeeded.

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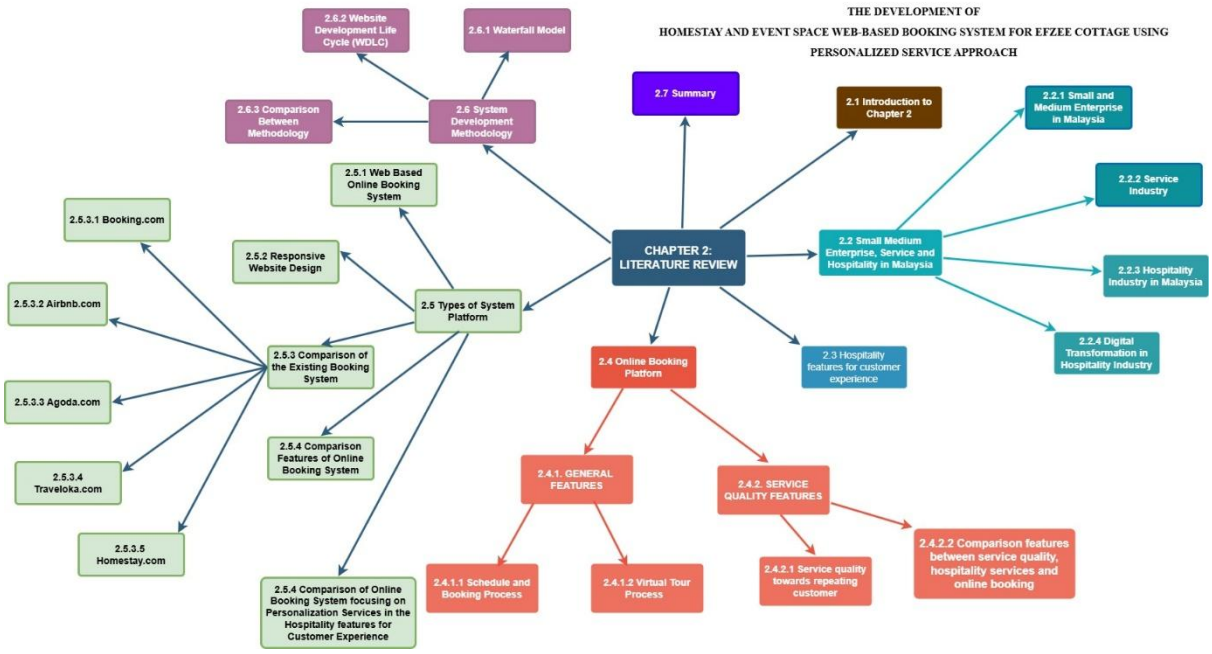
APPENDICES:

Appendix A: Mind Map Outlines of Chapter 2



The mind map outlines Chapter 2: Literature Review for the development of a web-based booking system for EFZEE Cottage using a personalized service approach.

Appendix B: Gantt Chart