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Online Booking System for Chalet Sri Nelayan

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Abstract: The Online Booking System is a system which goes about as another booking strategy for Chalet Sri Nelayan. The reason for fostering this system is to execute the new Online Booking System of Chalet Sri Nelayan contrasted with the past manual booking process as far as execution, dependability, and effectiveness. This system acknowledges the enrollment of the guests to book the room at Chalet Sri Nelayan. To guarantee the advantages of the system goes just to the guests, they should enroll to see the subtleties of the room data. With this system, guests will want to check the accessible space for reservation and the subtleties of the room. Besides, guests can straightforwardly hold the accessible room on the system. This system will burn-through less time contrasted with the past manual system and this system is extremely productive to save booking subtleties as opposed to saving it on a PC.

Keywords: Online Booking System, Waterfall Model, Structured

1. Introduction

Chalet Sri Nelayan is a chalet located in Kg, Jawa, Rompin, Pahang. The manager of the chalet, Encik Suib, is handling all the room booking process in the chalet. There was no proper system for the booking process at the chalet. There are some issues that have been found in the chalet manual booking process. Firstly, the procedure for room reservation is quite disorganized and complicated. Visitors need to call the number given on the chalet's Facebook page on google to ask for the available room to reserve. The visitors need to tell the characteristics of the room they want to book such as the number of adults and children, the facilities provided, and the check-in and check-out date.

Next, the manual booking process is very time consuming. It is because the administrator will take some time to give the confirmation as he needs to head back to the office at the chalet to check the available room that suits the requests of the visitors. Furthermore, the booking details have been recorded manually into the computer in the office. If the admin keeps using this manual way of recording data, the risks of missing all the details are high if he does not keep the data properly as there is no back up data.

Therefore, to deal with this problem, an online booking system will be very necessary to manage the booking process properly. An online booking system is a piece of software that allows you

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to manage your reservations online. Businesses had to labor with a variety of spreadsheets and manually enter information to track bookings and manage availability before such systems were available [1]. The system is accessed with the internet by devices which have internet connection at anytime and anywhere. The system will be the convenient way to reserve the room at the chalet. The system will have all the necessary information about the room. This way makes it easier for visitors to make a choice to book a room at the chalet based on their needs for the reservation.

2. Related Work

A literature review is a piece of academic writing that exhibits a thorough understanding of academic literature on a certain topic. The difference between a literature review and a literature report is that a literature review involves a critical evaluation of the content. The content of a literature review, which contains previous research, hypotheses, and evidence, and your critical evaluation and discussion of that information, are the two main goals. A literature review is frequently included as part of a dissertation, research project, or lengthy article. [2]

2.1 Current booking system

Currently, the room booking system in Chalet Sri Nelayan is a manual system where visitors need to contact the administrator via a phone call that the phone number is provided in google and the chalet's Facebook page. The admin will ask the details of the visitors and suggest the best and suitable room for the visitor's reservation. The admin also will tell the procedure for the reservation, such as the time for check-in, and the price and details of the rooms. The admin also needs to recheck the available room for the reservation. Basically, visitors need to contact the admin again to get confirmation about the reservation. Figure 2.1 shows the flowchart of the manual room booking system in Chalet Sri Nelayan.

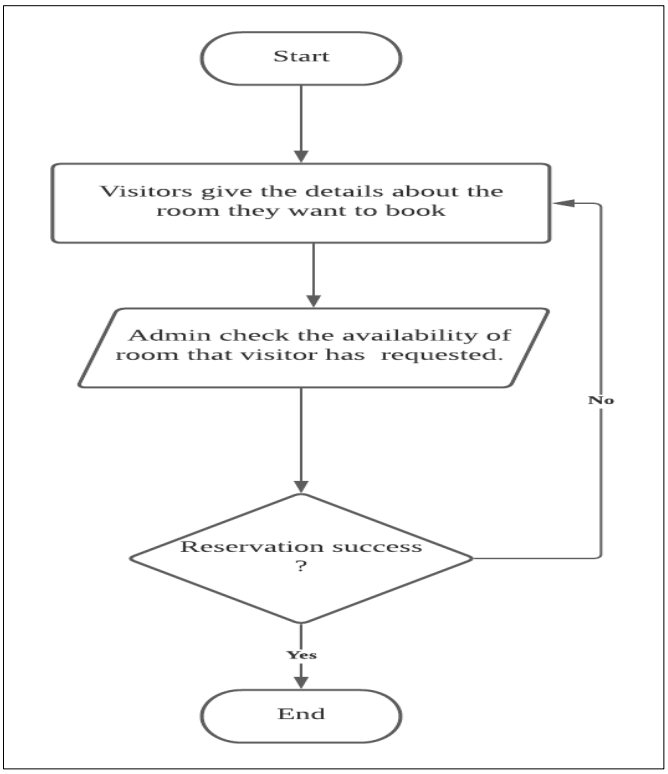


Figure 2.1: The Flow Chart of Manual Booking System

2.2 Comparison between the existing system

Observation was carried out on a similar system, and some differences and similarities were discovered. Table 2.1 provides a clear comparison of similar systems and those that will be developed.

Table 2.1: Comparison between existing system

Features/System	Agoda	Booking.com	Traveloka	Chalet Sri Nelayan Online Booking System
Programming language	• ASP.Net • JavaScript	• Java • JavaScript	• JavaScript	• PHP
Database	MySQL	MySQL	Big Query	MySQL
Web Server	Nginx	Nginx	Node.js	XAMPP
Login Module	Yes	Yes	Yes	Yes
Registration Module	Yes	Yes	Yes	Yes
Reservation Module	Yes	Yes	Yes	Yes
Reviews Module	Yes	Yes	Yes	Yes
Calendar Module	Yes	Yes	Yes	Yes

Table 2.1 shows the comparison between the existing systems and the system that will be developed. From the observation, there are a few differences identified which are the programming language, web servers, and the database used for the system software.

3. Methodology

This section describes the methodology used to develop the project and the actions completed during each phase. Waterfall Model has been chosen as the new methodology for Chalet Sri Nelayan Online Booking System. The waterfall model is an old styles' model used in the structure improvement lifecycle to make a system with a straight and sequential strategy [3]. This model is easy to manage and control as all the requirements are very well understood. It is quite simple to grasp and apply. The waterfall model has five stages. As shown in Table 3.1, each phase has its own set of assignments and

outputs that must be fulfilled as the project moves forward. Aside from that, the output was done within the time frame specified.

Table 3.1: Software development activities and their task

Phase	Task	Output
Planning	● Proposed the title of the project ● Proposal preparation ● Proposal defense	● Project proposal ● Develop Gantt chart
Analysis	• Stack up user requirement • Study the scope of the user requirement	• A documented report about the visitors' requirement information.
Design	• Design the template for the sign up, login, and the menu interface. • Design algorithm for the system.	• A detailed diagram performed along with the algorithm design. • A detailed process diagram with a description of the system performed. • A complete design of the Chalet Sri Nelayan Online Booking System interface.
Implementation	• Observe the database needed for the system. • Implement the software needed to build the system. • Implement the algorithm of the system.	• Running trial and error. • A complete Chalet Sri Nelayan Online Booking System.
Testing	• Evaluate the system. • Functionality testing • User acceptance testing	• Finalized tested software. • The Chalet Sri Nelayan Online Booking System.

4. Analysis and Design

The process of identifying user expectations for a new or modified product is known as requirements analysis, sometimes known as requirements engineering. These characteristics, referred to as criteria, must be quantitative, relevant, and specific. Needs analysis entails continuous communication with system users to discover feature expectations, as well as the resolution of any dispute or ambiguity in requirements [4].

4.1 Functional and Non-functional Requirements

Recognizing the critical movement, effort, or activity that must be completed distinguishes what has been done. It explains the process of transforming user input into the intended output. Table 4.1 shows the functional requirement of the proposed system, while Table 4.2 shows the non-functional requirement of the proposed system.

Table 4.1: Functional requirement of the proposed system

No	Modules	Functionalities
1.	Registration module	• Before logging in, the system ought to permit the new user to enroll.
2.	Login module	• Users should be able to log in using their username and password. • The system should allow the user to log in as a user by requiring a valid email address and password. • If any invalid input is detected, the system should warn the user. • The system should redirect users to the dashboard after a successful login.
3.	Reservation module	• Users should be able to verify the availability of available rooms for reservations through the system. • Users should be able to book a room and the packages offered using the system.
4.	Cancellation module	• The system should allow admin to cancel the reservation after got informed by the visitor

Table 4.2: Non-Functional Requirement of the proposed system

No	Requirements	Descriptions
1.	Performance	● The user-system interaction should not last more than 10 minutes. ● The system should be always accessible.
2.	Operational	● The system should be straightforward to use. ● The system should be simple to maintain and update. ● The system ought to be viable with any internet browser.
3.	Security	● Just the administrator can refresh the room accessibility and alter the room information. ● Users can get to their own record by utilizing the username and secret key.

4.2 Hardware and Software Requirement Analysis

Online Booking System needs some important hardware to be developed in this application. Table 4.3 shows the hardware and requirements that are needed in the system.

Table 4.3: Hardware requirement specification

No	Hardware	Specification
1.	CPU (Central Processing Unit)	Intel(R) Core (TM) i5-4300U CPU @ 1.90GHz 2.49 GHz
2.	RAM (Random Access Memory)	4.00 GB
3.	Hard drive	145 GB

Chalet Sri Nelayan Online Booking System needs some important software to be developed with this application. Table 4.4 shows the software and requirements that are needed in the system.

Table 4.4: Software requirements specification

No	Type	Software	Functionality
1.	Programming tool	Sublime Text 3	Develop system
2.	Programming language	PHP	Develop the online booking system utilizing the PHP programming language.
3.	Design Tool	Lucid Chart	Create and modify flow charts, context diagrams, data flow diagrams (DFDs), and entity relationship diagrams (ERD).
4.	Server Application	XAMPP	A web server is used as a database access platform.
5.	Database	MySQL	Plan and fabricate databases.
6.	Operating System	Microsoft Window 10	An operating system that has been utilized to put a proposed system through its paces.

4.3 Data Flow Diagram

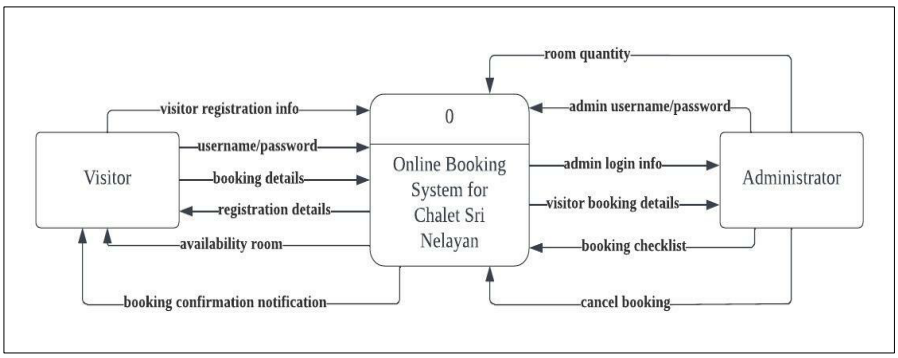


Figure 4.1: The context diagram of Chalet Sri Nelayan Online Booking System

The system diagram consists of five processes, two entities, and four data stores. In this scheme, the entities involved are administrator, and visitor. Visitors need to register and login to the system before they can book a room and look for the available room for a reservation. All the booking details are recorded and stored in a database.

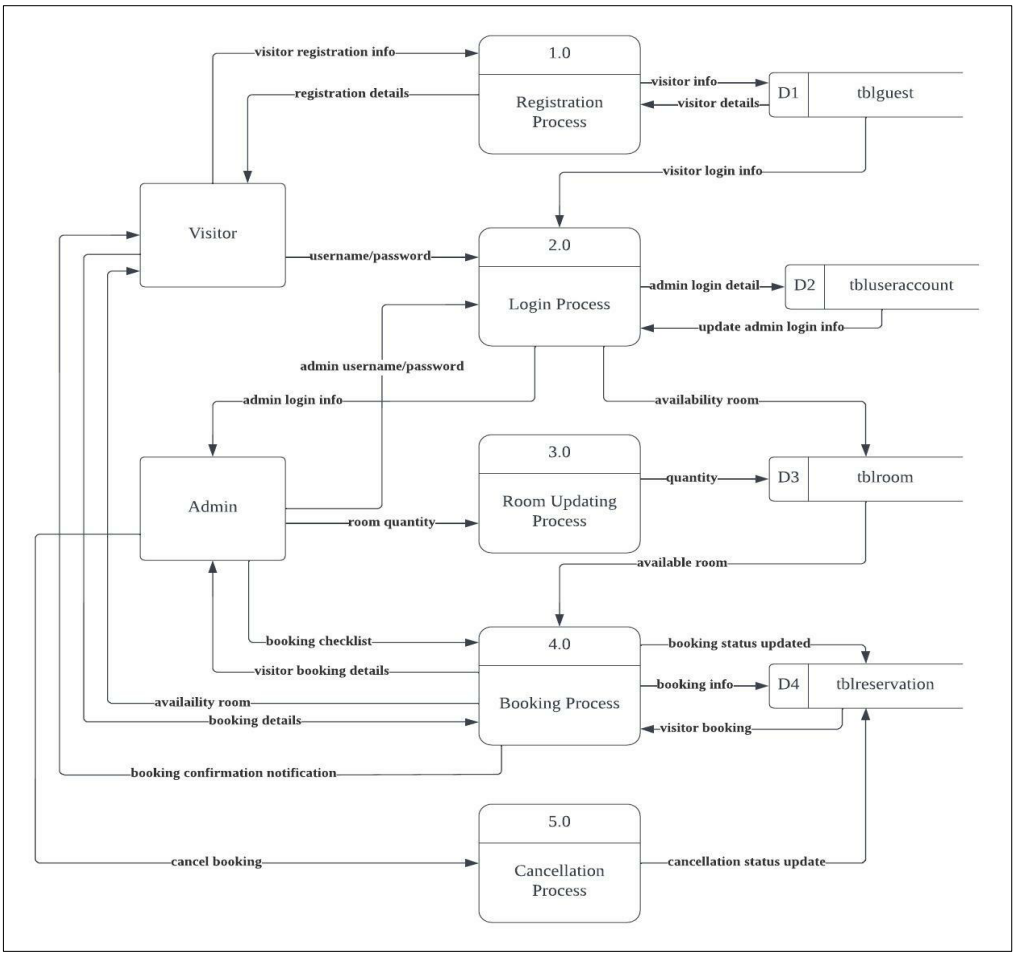


Figure 4.2: DFD 0 Level of Chalet Sri Nelayan Online Booking System

Figure 4.2 illustrates the entire process involved in the Online Booking System for visitors. There are five operations in the system, namely registration process, login process, room updating process, booking process, and cancellation process. There are four data stores which are tblguest, tbluseraccount, tblroom, and tblreservation. There are two entities in the DFD Level 0, which are admin and visitor.

4.4 Entity Relationship Diagram

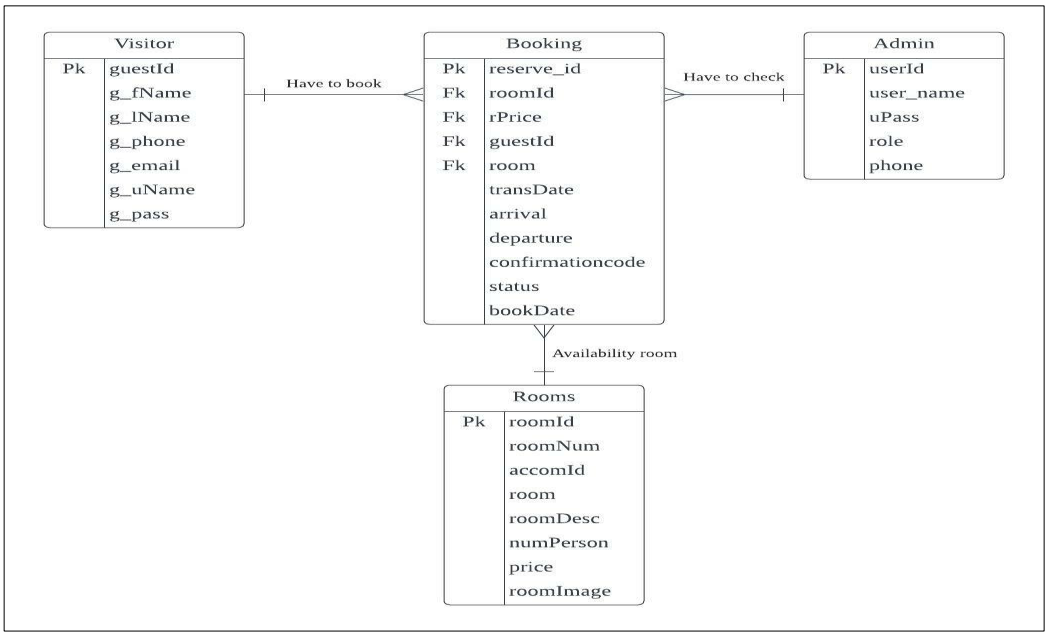


Figure 4.3: Entity Relationship Diagram for the proposed system

Figure 4.3 shows an Entity Relationship Diagram for the Online Booking System for Chalet Sri Nelayan. An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation of relationships in information technology (IT) systems between people, objects, places, concepts, or events [5]. An ERD uses data modelling methodologies to help define business processes and serves as the foundation for a relational database.

4.5 System Flowchart

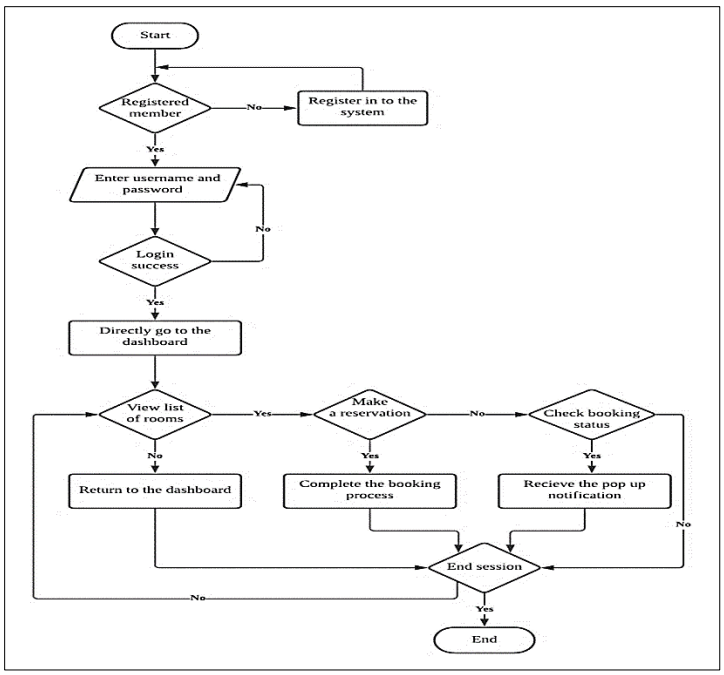


Figure 4.4: The user flow chart

Figure 4.4 shows the visitors' flowchart that represents the activities of what visitors can perform from the Online Booking System for Chalet Sri Nelayan. Visitors are allowed to book a room from the homepage and perform their next activities according to the flowchart.

4.6 Interface Design

The cycle through which fashioners foster points of interaction in programming or electronic gadgets with an accentuation on feel or style is known as (UI) plan [6]. Figure 4.6, 4.7, and 4.8 shows the main page of the Online Booking System, visitor login page, and booking page.

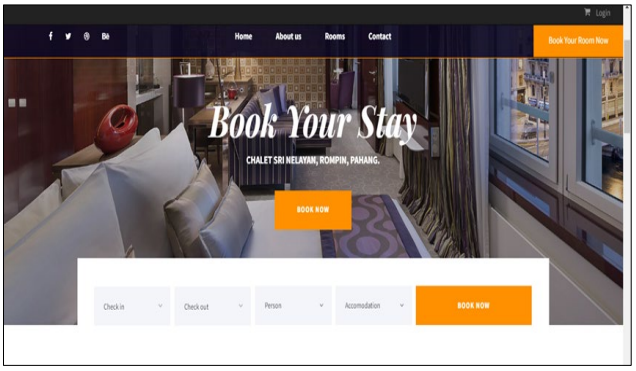


Figure 4.6: Main page of the system

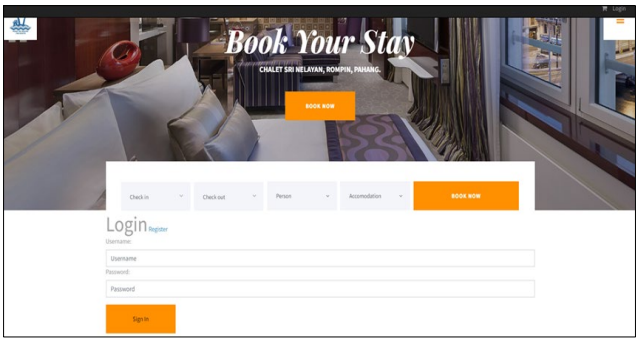


Figure 4.7: Visitor login page

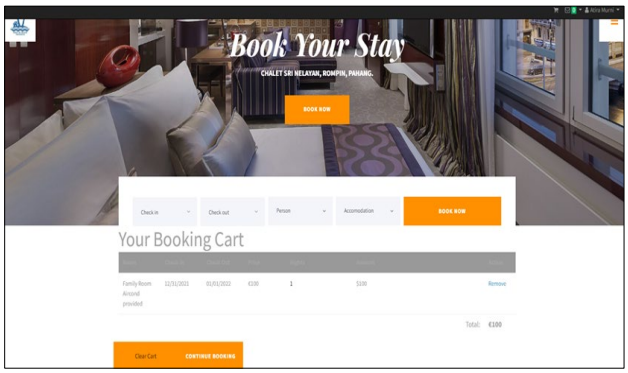


Figure 4.8: Booking page

5. Implementation and Testing

5.1 Implementation

After the analysis and design phase, the implementation phase has been carried out. This phase is crucial for ensuring that the final product satisfies the stated design criteria. The actual system will be constructed in this phase, and the developer will devote more attention to it since it is more time consuming and an important part of the system development process. The major goal of the implementation phase is to make sure that the Online Booking System for Chalet Sri Nelayan has been created based on a system analysis and design. The Hypertext Preprocessor (PHP) programming language was utilized for this project.

5.1.1 Registration Interfaces for Visitor

Figure 5.1 shows the registration interfaces of the user account. The visitor needs to insert the details, such as first name, last name, phone number, email, username, and password.

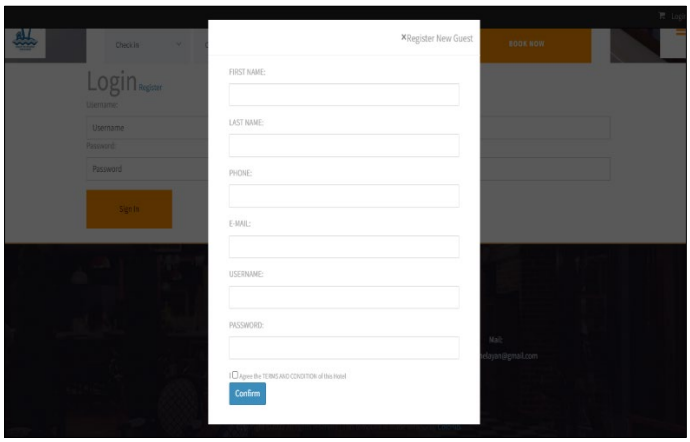


Figure 5.1: The registration interface for user account

5.1.2 Login Interfaces for Visitor

Figure 5.2 shows the login interface, where the visitor needs to insert the username and password that have been registered during the registration process.

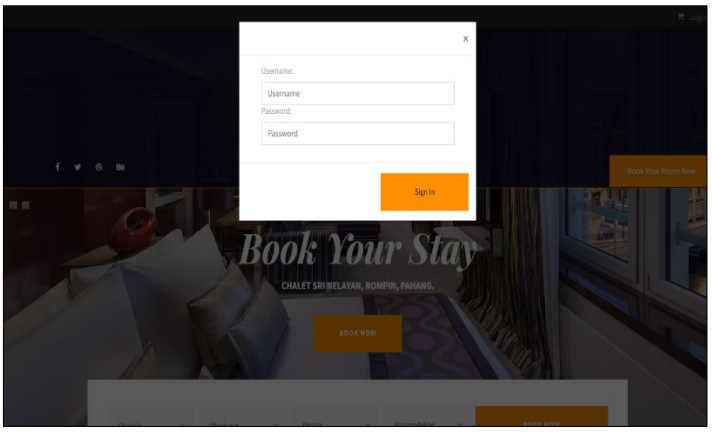


Figure 5.2: The login interface for user account

5.1.3 Booking Interfaces

The visitor can choose the date of the booking on the calendar given in the system. After that, the visitor also needs to choose the number of people that will stay in the room that will be reserved. After that, visitors need to click the 'Book Now' button in order to be redirected to the types of room as the details that have been inserted. Figure 5.4 shows the booking interface for visitors.

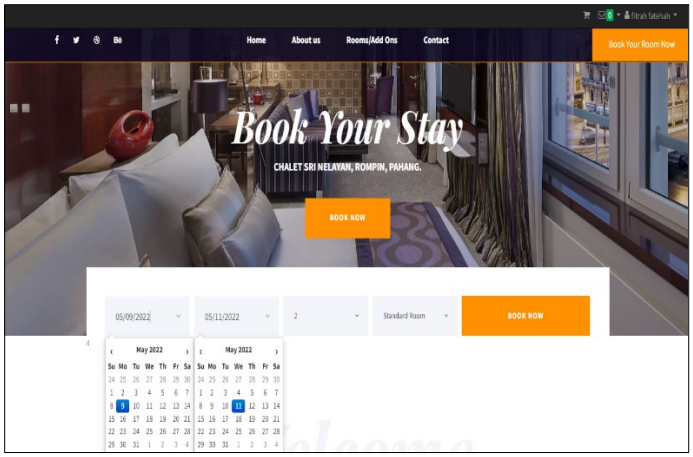


Figure 5.4: The booking interface for visitors

5.1.4 Reservation Interfaces for Admin

After the visitor has submitted the reservation, the admin will receive the notification of the reservation submitted. In the reservation list interface, there will be the view, done, cancel, delete, and edit buttons for admin to take an action of the reservation. Figure 5.5 shows the booking list interface in the admin account.

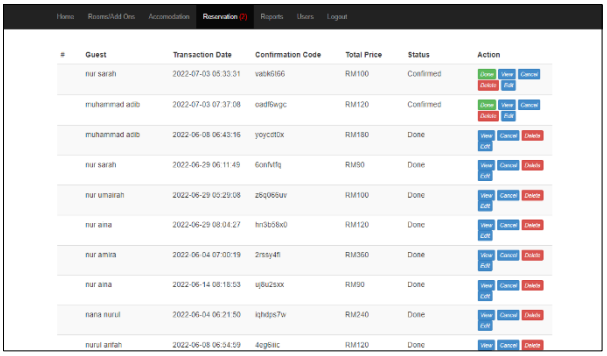


Figure 5.5: Reservation Interface for Admin

5.2 Testing

During this phase, every aspect of the system will be tested to guarantee that the systems developed fulfil the needs of consumers. During the testing phase, the feedback will be collected from the user testing process for the purpose of improvement.

5.2.1 Functional Testing

Using the functional specification provided by the client, functional testing compares the system to the functional requirements. Functional tests are used to verify a software application's output by providing sufficient input and comparing it to functional requirements [7]. Table 5.1, 5.2, 5.3, and table 5.4, shows the test case result for registration module, login module, reservation module, cancellation module.

Table 5.1: Test Case Result of Registration Module

	Test Case	Expected Output	Actual Output
T1-1	Insert all the requirement details for registration.	Registration success and user is redirected to the booking cart page.	As expected,

Table 5.2: Test Case Result of Login Module

	Test Case	Expected Output	Actual Output
T2-1	Insert correct username and password	Login process successful	As expected,
T2-2	Enter the wrong username or password	A message will appear on the screen, "Invalid username and password."	As expected,

Table 5.3: Test Case Result of Reservation Module

	Test Case	Expected Output	Actual Output
T3-1	Insert the arrival and departure date, the number of persons, and chose the accommodation.	System will display the room according to the number of people that have been inserted.	As expected,

Table 5.4: Test Case Result of Cancellation Module

	Test Case	Expected Output	Actual Output
T4-2	Admin clicked the cancel button at the reservation list in the admin account.	The message, "Reservation updated successfully" will appear on top of the screen and the status of the booking will be updated from 'Confirmed to 'Cancelled'.	As expected,

5.2.2 User Acceptance Testing

The testing was carried out based on criteria chosen through a questionnaire, with visitors and administrators of Chalet Sri Nelayan as the intended users for this system. This test is used to ensure that systems are designed and developed to satisfy the needs of users. These criteria were scaled by 1 to 5, where 1 is very poor, 2 is poor, 3 is moderate, 4 is good, and 5 is very good. The test was conducted on the administrator of the Sri Nelayan Chalet, and 14 random persons who are suitable and potential to check in to the chalet.

Figure 5.6 shows the pie chart for the first question, which is the rate of system interface design. 66.6%, which is 10 of the respondents, voted that the interface design of the Chalet Sri Nelayan Online

Booking System is very good, while the other five of the respondents voted that the system interface design is good and moderate.

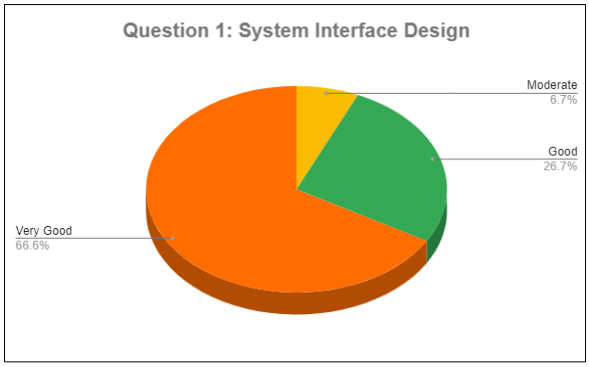


Figure 5.6: Question 1 of User Acceptance Testing Questionnaire

Figure 5.7 shows the second question, which is the ease of use of the system that has been developed. The pie chart shows that 73.3% of respondents, which is 11 of 15 respondents voted for 'Very Good' for this question. There are 20% of respondents who vote for 'Good', while the other one of the respondents votes for moderate.

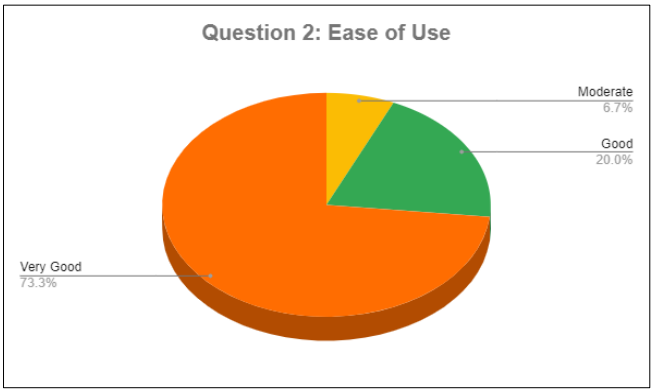


Figure 5.7: Question 2 of User Acceptance Testing Questionnaire

Figure 5.8 shows the third question of the questionnaire for the user acceptance testing. The third question is about the user's understanding of the system. The pie chart clearly showed that there were only two scales that have been voted, which is 'Very Good' and 'Good', with the result of 73.3% for 'Very Good' and 26.7% for 'Good'.

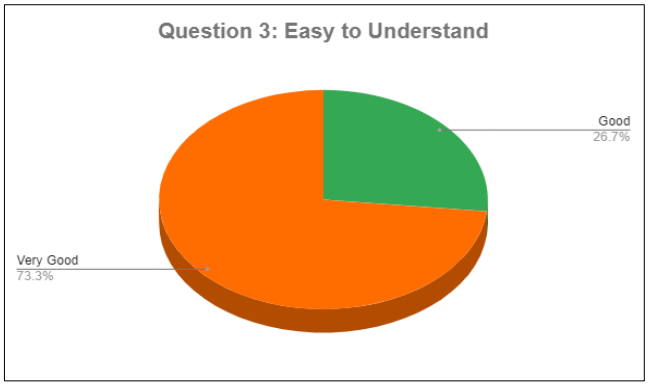


Figure 5.8: Question 3 of User Acceptance Testing Questionnaire

Figure 5.9 shows the fourth question of the survey, which is the rate for the layout of the content in the system. There are 11 respondents, which is 73.3% who vote for 'Very Good', while 20% of the respondents vote for a good layout of the content and the other one respondent vote for 'Moderate'.

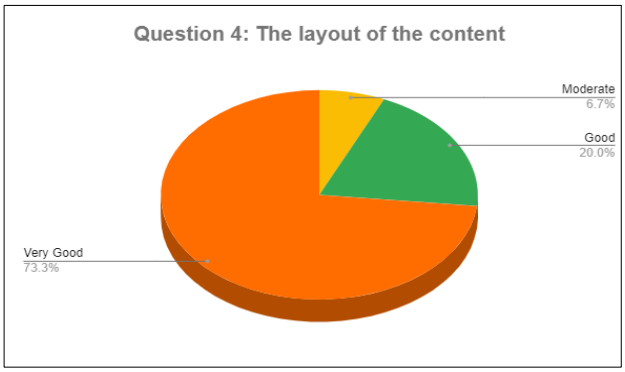


Figure 5.9: Question 4 of User Acceptance Testing Questionnaire

Figure 5.10 shows the fifth question, which is the effectiveness of the registration and login functions of the system. 80% of the respondents, which is 12 of 15 respondents, vote for very good registration and login effectiveness.

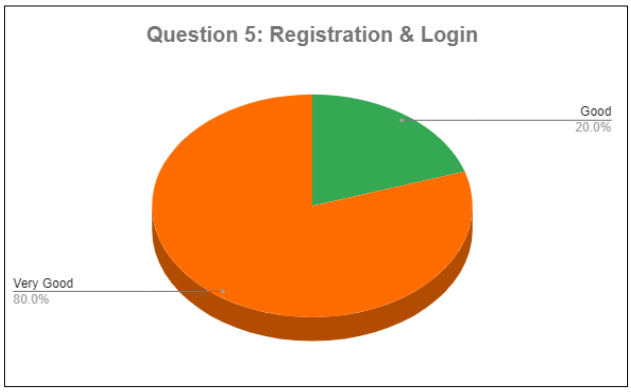


Figure 5.10: Question 5 of User Acceptance Testing Questionnaire

Figure 5.11 shows the sixth question of the questionnaire, which is view rooms and add on packages effectiveness. The pie chart shows that 86.7% of the respondents agree that the view rooms and add-on packages are very effectives. The other 13.3% voted 'Good' for this question.

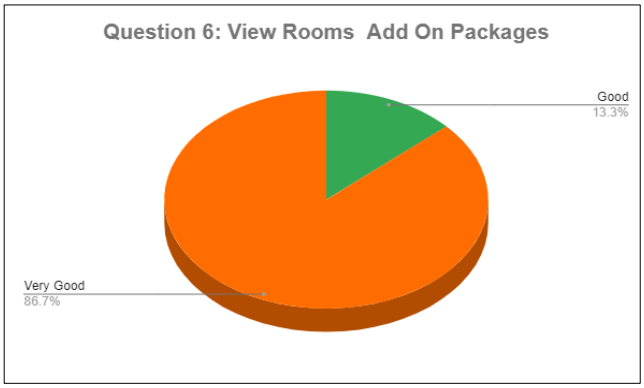


Figure 5.11: Question 6 of User Acceptance Testing Questionnaire

Figure 5.12 shows the seventh question, which is the effectiveness of the booking process by using the Chalet Sri Nelayan Online Booking System. There were 66.7%, of which 10 of the

respondents, vote that the booking process is very good, while the other 5 respondents, with 33.3%, vote for 'Good' scale.

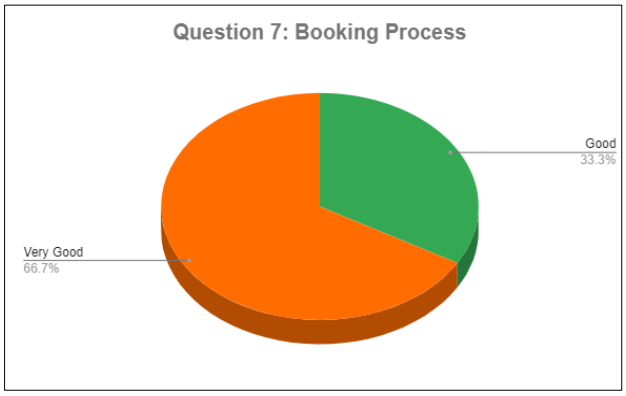


Figure 5.12: Question 7 of User Acceptance Testing Questionnaire

Figure 5.13 shows the last question of the questionnaire, which is the effectiveness of the logout and exit system. 80% of the respondents agreed that the logout and exit system function is developed with a very good efficiency. The rest of the respondents voted 'Good' for this last question.

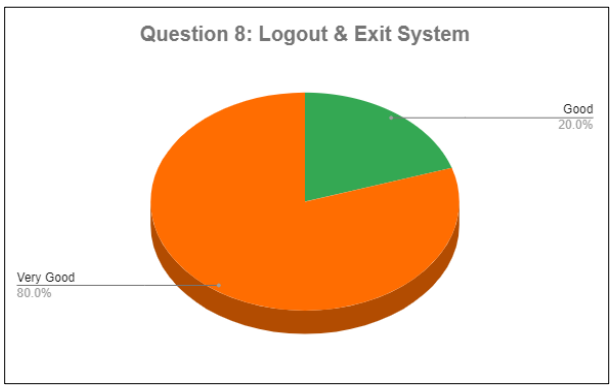


Figure 5.13: Question 8 of User Acceptance Testing Questionnaire

From the above figures, it clearly shows that the Chalet Sri Nelayan Online Booking System was successfully developed. The overall result shows that almost all respondents were satisfied with the developed system. The respondents agreed that the system has been developed with an attractive interface, user-friendly, understandable, and great layout of content. Besides that, almost all respondents agreed that the functions and module in the system, such as registration and login module, view rooms and Add-On Packages, booking process, and logout function, were developed efficiently.

6. Conclusion

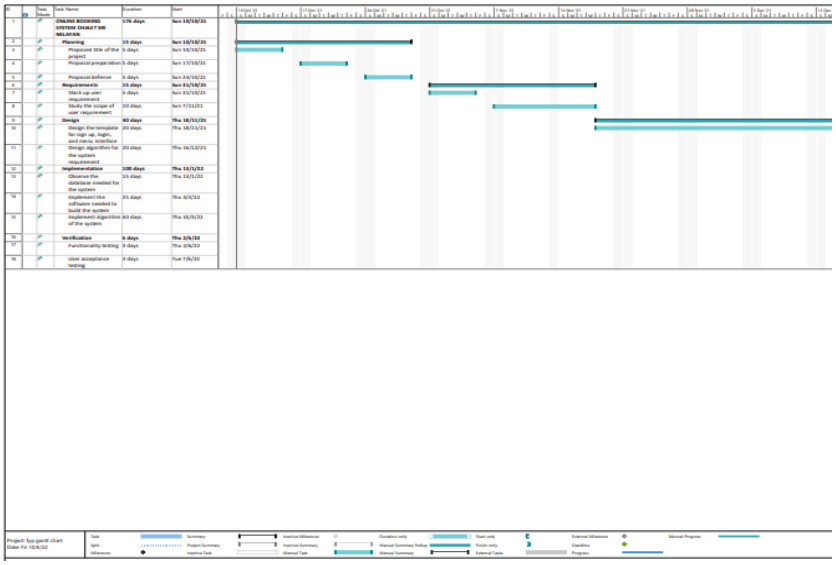
The Online System for Chalet Sri Nelayan was developed successfully, following the user requirements. According to the survey that have been done in user acceptance testing, the users of the system were satisfied with the system that has been developed. There are a few recommendations for better improvement of the Chalet Sri Nelayan Online Booking System, which is do further research on the early phase before deciding to develop the system is very needed to develop the system successfully and can save lot of time to complete the system development. Moreover, the developer needs to always be ready with the new updates of the system, and the way to fix the error of the system.

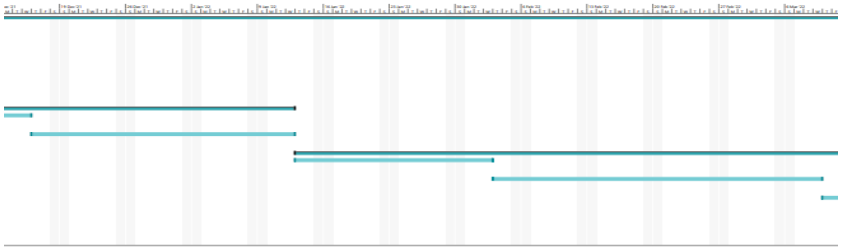
Acknowledgement

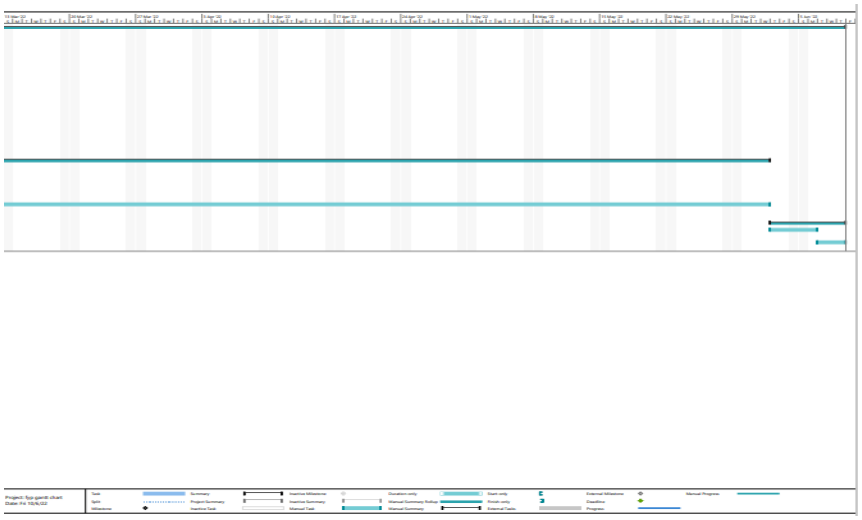
I would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, for its support.

Appendix

Gantt Chart







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