



اَبُو سَيِّدِي تَيْكُو لُو كِي مَارَا
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MARA



ITS470 – OBJECT ORIENTED REQUIREMENTS ANALYSIS Proposal

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1. Project Background & Problem Description

NurHomestay is a family business by Encik Ghafar to give accommodation towards the tourists that visit Melaka's attraction places or a family vacation. The company started 8 years ago, and the business rule is well-defined for a small company. Problem started to arise slowly and the proposed IT system by us should overcome those problems.

1.1 Company Background

NurHomestay is a homestay business that currently has 4 branches of homestay. The first branch of homestay is located at No. 4, Jalan PM 1B, Taman Pokok Mangga, 75250 Melaka, second branch is located at No. 127, Jalan LP13, Taman Pandan Indah, 75250 Melaka, third branch is located at No-5, Jln PM-1, Taman Pandan Murni, 75250 Melaka, and the forth branch is located at No-22, Jln PM-1, Taman Pandan Murni, 75250 Melaka. Encik Ghafar Bin Ab Kadir is the owner of NurHomestay business. Furthermore, this homestay business has started since early 2012 when Encik Ghafar bought a house to stay during weekend. However, when Encik Ghafar tired of moving in and out every weekend, he decided to make the house as homestay to generate some income for the long run.

Organization chart for NurHomestay business:

Figure 1.1 NurHomestay Organization Chart

According to the organization chart, Encik Ghafar assisted by Pn Norrussima Mohamad as a manager by observing employees and plan, evaluate, and improve the efficiency of business processes and procedures to enhance quality of services. Next, En. Ab kadir as a Maintenance his job is to respond and attend to guest repair requests, perform maintenance activities in homestay like plunging toilets, unclogging drains, repairing all types of hardware, plumbing and electrical equipment and cosmetic items, and testing, troubleshooting and performing basic repair on all types of equipment. Lastly, Pn. Effa and En. Ab Rahman in charge of advertising about the Homestay and handling customer check-in and check-out activities in the homestay.

1.2 Problem Description

Encik Ghafar plans to expand his company by adding more homestay in the future. In order to achieve his goal, the owner should have a proper management to run his business effectively and smoothly.

Currently, the business can be reached by the customer using an outdated blog, Instagram and Facebook. Encik Ghafar and the manager monitor the company's progress to make sure every process is in order. Firstly, support services manage homestay booking orders from the customer. The booking order can be in direct booking by call or WhatsApp message, system providers like Airbnb, Traveloka and Let's Go Holiday or the homestay is recommended by other customer or homestay business. When the customer got into contact, the support management would ask two questions, when is the date and how many people staying, to ensure no double booking happens. After the payment is made by the customer, they can stay according to their booking details. As soon as the customer checks out, the support unit will clean up the homestay. The maintenance will check if there is any broken or damaged item or property from the customer, it will be deducted from the security deposit.

This business does not prepare any package now unless there is demand from the customer. Usually, the customer will get a package of accommodation and food. NurHomestay also once collaborated with Zoo Melaka, Menara Taming Sari and Wildlife Theatre Melaka to give discount tickets to the customer.

Thus, the business faced some problems:

- i. Double booking occurred due to owner mistake

Double booking can be overcome by the visibility of available homestay. The customer can book a homestay based on the available date and maximum number of customers provided by the owner. The proposed system will update the booking details in the calendar and this feature eases the owner to keep track with the booking.

ii. Damaged or broken item or property from the customer

The maintenance will notify the system if there is any damaged or broken item or property from the customer during cleaning up of the homestay. The system will deduct some money from the security deposit. Both the owner and the customer will be notified about this matter.

iii. Outdated information

The updating of the system will be easy-to-use for the owner to update his new information about the company such as inserting image, updating company background and package, and add a new homestay. This system can also convince or attract the customer to trust the company.

2. System Capabilities

System Capabilities are the ability of a system to perform a course of action to achieve the desired effects. It is an essential requirement to build a system as it shows the features that are used within a system to complete a set of actions. These are the main idea for the proposed features to be developed in the NurHomestay Booking System:

- NurHomestay Image Gallery

An image gallery is one of the most important features in developing NurHomestay Booking System as it helps the customer imagine the house by looking at the picture and make it easy for them to choose the stays confidently. The interface for the image gallery can be visualized as a slideshow where the visitors at the web system can click to view the full gallery of the house image. Moreover, to add more photos in the gallery, the add button is only shown at NurHomestay Booking System's admin account. Admin must make sure the image is stored in high-quality resolution to satisfied customers' needs.

- Quick Booking

Quick booking is a feature that will process a direct online reservation in the NurHomestay Booking System. The data that has been booked at the online booking system will be stored in the database so that it can be accessed by other parties that manage to complete customers' booking. On the homepage, there is a layout for a quick booking that checks the availability of each of the branches of NurHomestay by filling in the check-in and check-out dates from the calendar and the location for the stays which can only be selected in the dropdown menu. If the house has been fully booked, it notifies as full. Otherwise, it shows the price and some of the packages available during that time. The customer can click on the button book to proceed to make the payment. The data for booking is accessible to be used at other features as it will notify people who will complete the processing of the booking which is staff and admin.

- Sales Report

Each sale from the homestay must be calculated and do a report either monthly or yearly. It is to ensure the performance has been reduced or increased in the business. The sales report is based on the total payment from the NurHomestay booking. The data of the total booking by

customers will be automatically generated and stored on a PDF file so that it can be downloaded by the admin as only admin can see the total sales for the business.

- Customer Management

The customer is a user that will perform the booking which is one of the necessary requirements to complete the action of the system. Creating a customer management system in the system will help the interaction between NurHomestay company and customers.

- i. Registration

For the visitors at the system, they can register as a member to save time to fill in their details, access a voucher code, and other special gifts after booking the stays. Customer registration also helps the business to have repeated bookings from the same customer whenever they travel to the nearest NurHomestay located. In order to register in the system, the customer needs to fill in the first name and last name, phone number, address, email, and password.

- ii. User authentication

After the customer successfully registered into the system, customers can log in by using email and password. User authentication is the interaction between human-to-computer in order to access customer information. Customers will input their credentials in the log in form then, the credentials will be compared with all customer data in the database. If the match is found, the system will grant customer permission to access their accounts in NurHomestay Booking System.

- iii. Customer Profile

As a customer can access their account, they can add or update their profile by time if necessary. If a customer wants to cancel the plan of the booking, they are able to do so

as long as they are following the rules that have been set by NurHomestay. More than that, customers can get a notification if the booking needs to be cancelled by an admin.

iv. Booking history

Customer can see the record history of the booking homestay at the company from the payment and the deposit. If customers do not get any notification from admin regarding the maintenance, customer can get their full deposit back by online. Otherwise, customer can get a message from an admin if there is a damage and the maintenance fee will be minus from the deposit fee which means the deposit will not return to the customer.

- Staff Management

Staff is an employee that will be affected in every homestay booking. Basically, there are only two types of staff which works as a maintenance and support service.

i. User Authentication

Staff will get user id and password from the admin of the business upon redirecting to the staff interface. Just like the customer, staff need to perform user authentication to confirm staff is a valid user from the database. If the staff credentials match, the system will give permission to access NurHomestay Booking System.

ii. Staff Profile

Staff details can be updated at the staff profile as it is a piece of essential information to avoid any unsecured work environment. Some of the details are name, address, phone number, and bank details.

iii. Works notification

When there is work coming, the staff will get the notification to do the tasks. After finishing the tasks, the staff can get the commission as they click on the button done. Staffs' commission is based on the finished work they have done. The percentage of each commission will be set by an admin.

- Admin of the business

Admin of NurHomestay System can control all the movement and features that going through within the system. Basically, an admin of the business is the owner of the NurHomestay as it can edit, update, add, and delete some of the components in the system. Admin already has an account as it is created when the system is developed. These are some of the function that are available for admin of the business:-

i. Staff

Admin of the business can register new staff of the system for staff to get an account performing the work on the system. It also can delete staff data if needed. Furthermore, the admin also can see the commission that the staff have achieved.

ii. Branch of the homestay

NurHomestay can add more than four branches to grow the business and delete it if necessary.

iii. Package or promotion

Every homestay can add a package to make the customer satisfied and come again to stay at NurHomestay. If the promotion ends, the admin can remove it from the system and the customer no longer can access the package or promotion.

iv. Image Gallery

As the image gallery is an important feature, it is a must for the admin to update a new picture every time there are changes in the homestay. To do that, the admin has a right to add a new image.

v. Customer

Admin can delete some of the no-longer-use customers in the system to make sure that the storage will not be filled. In order to determine that, the admin can see all the details of the customer from the date they registered until the booking. Moreover, the admin also has the right to approve return back customer deposits or not if something is broken during the time the customer stays.

3. Project Significance

Due to growth of the technology, many number of business start to realize benefit of having online system as a main medium to their business. Today's online system is the main driver of the success of the e-commerce world. As we can see, people nowadays are likely looking forward to online control as this online technology brings lots of convenience. Present of this project system is to provide strong and versatile career advancement for NurHomestay in Melaka. In this section will redound the significant purpose of this system. By understanding the benefits of this online system, the stakeholder will be assured of the advantage of this project.

- 24/7 booking services

Existence of this NurHomestay Booking System mainly allows customers to place their booking at any time within or out from business hours. This will help NurHomestay receive several bookings over time. Customers can directly book the house available. The benefits of 24/7 services offer save in business time for admin that can use for any important tasks because compared to traditional focus, admin need to answer calls and text for booking confirmation issues. Manager of NurHomestay can track the number of bookings through this system's features capabilities. This system provides convenient ways for customers to do the reservation and NurHomestay behalf in increasing their profit.

- Service Page

Due to 24/7 services, this system offers the opportunity to NurHomestay Melaka to create a space and strong identity page as marketing, promoting and advertising techniques as many analytic customers refer to this system websites to search and compare with various homestay. This will help many other global customers to recognize the services provided by NurHomestay through this page and help NurHomestay grow their business. This will give NurHomestay extra recommendations over the competitors. This service page is designed to provide user friendly and customer care support.

- Efficiency Business Management

This system comes with features capabilities that provide both administrative tasks and customer booking tasks. Those features simultaneously and automatically work to respond to the services provided at NurHomestay Melaka. This system delivers administration management flow solutions. It enables managers to monitor bookings and employee memberships and enable staff engagement in their workflow. For instance, this system provides staff to notify of the book that is done by the customers. All administration management and customer booking management are done by a few clicks. This will lead to reduce staff management workload and help the organization to have better scheduling, business planning and systematic process flow.

- Efficiency Data Storage

Generally, in any business required companies to deal with several data related to their business. Advancement of this online system provides all data required stored in the database. It helps organizations less in writing files. Administration management will no longer do things manually that can risk the management process. It allows NurHomestay management to sort and manage their essential data or priorities in a single place which are in the database. The organizations parties also can search any information regarding the business in a short time and all that operates automatically using database architecture. This helps the management maintain records and reports required for their management purposes.

- Quick Information

Due to advancement of technology, people can discover everything by a few clicks only in the web browser. This system provides customers to keep track and discover their booking and all the related details. It is easier for the customer to generate or click what they want. Quick information allows the administration management to notify customer's booking and quickly can update availability to avoid misleading or double bookings. This system provides customers to

get in touch with any related news with NurHomestay management even though without real communication.

- Security Guarantee

Though this system provides online and payment booking, all payment methods in this system provide secure transaction gateways. Customer and staff personal information also secured in the database system. Processes involved in this management system also prioritize many security features like access information methods to secure the system. This system will ask the username and password from every individual who wants to access and log in to this NurHomestay Management System for authentication and security.

4. Project Methodology

Methodology is about the study of methods that had been used in order to complete a task or project which is a theoretical analysis of the methods applied to a field of study. Thus, in this section, the project methodology will be discussed in a few stages containing activities with a set of better planning and management. The methodology may include the process that will be carried out for each stage according to the system development life cycle (SDLC) that has been chosen.

4.1 Selected Software Development Methodology

Software development of NurHomestay Booking System is a modified waterfall methodology which is the improved version of the classical waterfall model. The feasibility study allows the phase to be reworked in which errors are committed during a phase and these changes are reflected to any phase of the software development life cycle.

In this modified waterfall model, there are six main phases:

Figure 1.2. Iterative Waterfall Development Model

In Figure 1.2, it explains the phases that are involved in the model. For each of the phases, it overlaps with the previous phase to add or remove features.

- Feasibility Study

The modified waterfall model provides customer's feedback paths from each phase to its previous phases. If during a testing a design error is identified, then the feedback path allows the design to be reworked and the changes to be reflected in the design documents. However, there is no feedback path to the feasibility stage so if any change is required in that phase then feasibility study errors do not have scope for modification or making corrections.

In this phase, discussions were conducted among us to determine whether the project is financially significant and technically practical. The basic understanding of the problem is the main focus before we can generate the alternative solutions and strategies. Strategies can be evaluated as estimated technical difficulty, maintenance, development time and cost also user training. Development cost analysis can be used to determine which solutions are practical. It is because sometimes none of the solutions may be practical due to resource limitations, high cost and long development time.

Phase	Activities	Deliverable	Tools
Feasibility study	<ul style="list-style-type: none"> - Interview session with stakeholder - Identify the problem - Perform risk and feasibility analysis - Generate strategies 	<ul style="list-style-type: none"> - Basic understand of the problem 	<ul style="list-style-type: none"> -Recorder -Paper and pen -Microsoft Word

- Requirement Analysis and Specification

Before requirements can be elicited, specified and modelled, they must be gathered through an elicitation process. The more complex software systems grow, the more important the requirements analysis becomes. The most commonly used requirement elicitation technique is to conduct a meeting or interview. Hence, an interview has been conducted on the manager of an organization. An interview with the stakeholder has been done to gather the information needed. We define needed information, function, behaviour, performance, and interfaces for this system. It takes 2 weeks to fulfil the system requirements.

We also analyse the basic core processes that are required in this system and ask the feedback from the client. The feedback was used to retrieve the features until it meets the client's needs. It takes 2 weeks to do all of it.

Phase	Activities	Deliverable	Tools
Requirement Analysis and Specification	<ul style="list-style-type: none"> - Define requirements - Analysis problem - Interactive brainstorming 	<ul style="list-style-type: none"> - Project team organization - Problem statement - Requirement specifications 	<ul style="list-style-type: none"> - Microsoft word - Whatsapp application

- Design

The second stage determines how it will be designed. Here, some relevant diagrams such as the use case diagram, flow diagram, Entity Relationship Diagram and so on have been taken into consideration in order to structure the development of the project.

We design the database structure, system architecture and the user interface in this phase. The user design is illustrated using Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD). It takes 2 weeks to complete this task.

Phase	Activities	Deliverable	Tools
Design	<ul style="list-style-type: none"> - Design flowchart - Design user interface <ul style="list-style-type: none"> o Customer o Staff o Admin - Create database system 	<ul style="list-style-type: none"> - Process model - Data model 	<ul style="list-style-type: none"> - Xampp - Microsoft Visio - Adobe XD

- Coding and Unit Testing

In the middle of the stage is the actual programming started. Here, the appropriate software and hardware tools as mentioned below are being applied in order to facilitate the project development process. For this part, it can be analysed by looking at the C Sharp (C#) or PHP language coding.

Based on the database structure that was done in the previous phase. After creating the database, we can start coding the system, and it takes 6 weeks to do these in this phase.

Phase	Activities	Deliverable	Tools
Coding and Unit Testing	<ul style="list-style-type: none"> - Code is produced <ul style="list-style-type: none"> >Customer >Staff >Admin - Development of database - validate and testing 	Program code	<ul style="list-style-type: none"> - Adobe Dreamweaver - Sublime Text Editor

- Integration and System Testing

The fifth phase is the full system testing where the stages of testing like unit testing, integration testing, system testing, and user acceptance testing are involved in order to ensure the quality of the system.

We will test each of the features of the system in this phase. If any problems occur while testing the system, we fix the problems as soon as possible. This phase required 2 weeks to be fully done.

Phase	Activities	Deliverable	Tools
System Testing	Testing whether those combined is working properly.	System and installation test plans	Zephyr

- Maintenance

The final phase is focused on implementation tasks. The documentation is being prepared to conclude the overall research and experiment, which is basically to know which method can be applied. In this last phase after the system is placed into production, we will conduct user training. Training sessions are conducted to instruct users of the new system on how it operates.

Phase	Activities	Deliverable	Tools
Maintenance	<ul style="list-style-type: none"> - Support the system users - System maintenance - Adding more functionalities 	Application software and associated databases, user training	Google Analytics

	- Improvement of the software		
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