# Hotel Management System

## Diploma in Software Engineering

## Final Project Documentation

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# Table of Contents

# Chapter 1: Introduction

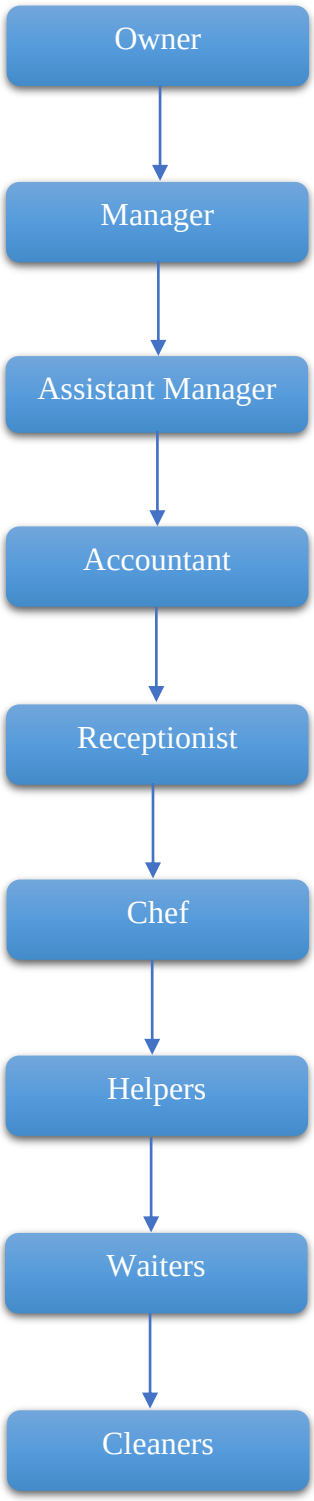
## 1.1 Introduction of the Organization

Overlooking the enchanting Laccadive Sea, **Ranweli Beach Resort** in Mount Lavinia is the perfect choice for a vacation immersed in the relaxing atmosphere of a warm and comfortable building, just ten kilometers from the heart of Sri Lanka's commercial capital.

The story of Ranweli Beach Resort which opened its doors in 1973 is a splendid tale of continual product improvement and having embraced over 4 decades of expertise in hospitality. A 'Smart Luxury' concept combines superior service and facilities with affordability.

The friendly family management and the convenient access to the spaces in Colombo are just a few of the aspects that make the hotel a preferred destination for lovers of the sea. Ranweli Resort features 34 spacious rooms offering cutting-edge facilities. Complimentary Wi-Fi throughout, a spacious outdoor restaurant and a well-maintained swimming pool provide the perfect setting for both business and pleasure.

## 1.2 Organization Structure



## 1.3 Current Operations in Organization

Ranweli Resort Mount Lavinia is currently running with a manual data collection method. Here are the current operations they do manually.

1. Room Reservation
    - When a customer comes for reserving a room the receptionist provides an application to fill them after filling it receptionist takes it with a copy of the customer ID. That's how they keep the customer details.

2. Billing
    - They have a small system for billing, the receptionist does the billing related to the booking of rooms and food orders coming to the restaurant. After billing of food, the receptionist sent customers to the restaurant section. This is how the billing part works.

3. Room Cleaning
    - Usually, customers hand over the rooms by 12 noon. From there until 2 pm the time is allocated for cleaning the rooms. They are assigned some employees to this work, and they should finish their work within the relevant time. Currently assigning these people is done manually.

4. Employee Salaries
    - Employees mark their attendance every day on a logbook, End of the month using those employee details the manager calculates the salaries of each employee.

## 1.4 Users and Responsibilities Organization

There are so many people in an organization, and each and everyone has a job already that they are assigned.

1. Owner
    - Budgeting, revenue management and other strategies are required to manage their financial performance.
    - The owner needs to manage reputation and general client expectations.

2. Manager
    - Organizing repairs, gatherings, and room reservations.
    - Hiring, training and supervising staff.
    - Addressing client inquiries and complaints.

3. Assistant Manager
    - Assisting guests.
    - Finding solutions for administration and client problems.

4. Accountant
    - Reconciliations and evaluations of the balance sheet accounts.
    - Based on the hotel's cash forecast, review and process the account payable bills for payment.
    - Deliver accounting analysis and insight into the weekly and annual budgeting procedures.

5. Receptionist
    - All visitors should be greeted and helped with check-in and check-out.
    - Answer all queries and requirements imposed by visitors.
    - Answer and forward phone calls.
    - Manage reservations and booking for visitors.

6. Chef
    - Making food for orders getting from the restaurant.
    - Create and organize daily specials and menus.
    - Manage the cost and stock of food.
    - Uphold standards for the rotation, quality, appearance and storage of food.

7. Helpers
    - Cleans and disinfects kitchen appliances.
    - Makes basic food preparation easier.
    - Receiving and storing goods in the kitchen.

8. Waiters
    - Welcome and lead customers to their tables.
    - Set up the linens, silverware, and glasses for the tables.
    - When asked, provide the menu, and give specific details.

9. Cleaners
    - Cleaning the rooms before and after check-out.
    - Swapping out dirty towels and linens.
    - Removing garbage, recycling and room service trays.

## 1.5 Problem Definition

According to the information we have obtained, most of the processes in the Ranweli Beach Resort are handled by manual method. The responsibility of doing all the above processes is assigned to the employees.

All the information about customer details, cleaners' details, employee details are obtained through admission forms and recorded in files manually. Due to the large number of guests files occupy too much space to store. Also, it is very difficult to update the information and generate a report at the end of each month. It is difficult to find for a specific record within those files. Even if records can be found, it takes a lot of time. Since there is no backup of the information, if any documents are lost, they cannot be found again. Because most of the information is documented in the files, there is risk of them being used by outsiders. Therefore, the manual method is risky. When a guest makes a reservation, a form of containing the details and a copy of national ID is handed over. Even though the same guest visits the Resort again and again, a new record is filed for each time he visited. So, the same information is filed repeatedly. It is a waste of both time and file storage space.

Due to the problems mentioned above, the daily activities of the Resort take a considerable amount of time. Therefore, it is quite difficult to maintain a Room Reservation System by manually.

If we summarize all the above problems, they can be shown as follows.

- It takes too much time.
- Information files take up a lot of space to store and there is a risk of information loss.
- Updating and searching information is difficult.
- Low in security.
- It is possible to copy the same data repeatedly.

## 1.6 Project Objectives

The main objective of this project is to create user friendly application for the Ranweli Beach Resort, for all departments such as restaurant, reservation, billing. It will be able to achieve the following goals.

- Transfer manual work to computerized system.
- Day-to-day work can be made easier by using the system, so time can be saved.
- Customer details can be recorded properly and updated easily.
- Easy to manage customer, cleaners' , employees' details.
- Customers can easily book rooms online.
- A special record can be found easily.
- Reports can be generated.
- Provide excellent customer satisfaction.
- Increase employee efficiency.
- Information gets more security. (The information cannot be misused by outsiders but hotel management.)
- The probability of information loss is extremely low.
- Backups of information can be kept.

## 1.7 Proposed Solution

The Room Reservation System we are going to build will troubleshoot all the problems in the Problem Definition mentioned above. The system will be upgraded with new features that will help the Resort achieve its long-term objectives.

This product performs consistently well and covers various aspects in hotel management. There are three main modules & two sub modules in our system.

Main three modules are,

1. Room Reservation Module.
2. Cleaning Management Module.
3. Sales Management Module.

Sub modules are,

1. Authentication Module.
2. Configuration Module.

**Room Reservation**

This is usually the first point of contact between guest and the Resort. It provides the facility of checking room availability and booking it. When booking a room, a new updatable record is entered into the database with all the details of the customer (with an ID photo). A customer gets a unique number so data is not duplicated. All data is secure as only specific employees of the Resort can access the database.

**Cleaning Management**

The new system provides an updatable database of cleaners' details including scheduled times. It is useful in their salary calculation. Here, among the returned rooms, the rooms that have been cleaned or not are easily separated.

**Sales Management**

Both restaurant and hotel billing are done by same cashier. With the income and expense records added by the cashier, the accountant can prepare an income and expense report at the end of each month. It prevents possible misappropriation of funds in the organization.

**Events Management**

The hotel manages various events. The events management system can manage all details of event, activities, organizers, attendees, hall bookings etc.

•System needs to store information about new entry of event.

•need to keep the record of attendees and organizers.

•Details of the reserved hall, ordered food, dates and agenda should also be mentioned

•It should be possible to take a report about the events at the end of the month

**Authentication**

The proposed system provides a user-friendly background as well as user friendly functions. After login to the system Receptionist or Manager can get a quick view of all bookings, room availabilities and all other details. User can register new customers and update or delete them if needed. Additionally, the password can be reset if the user forgets it.

**Configuration**

By saving the information that needs to be preserved in a database, many of the problems encountered in the use of manual systems can be solved. The user can do many configurations such as deleting, updating, entering new information etc. Because only a few people can access the database, the information in the database is more secure.

The solutions of the above proposed system can be summarized as functional requirements and non-functional requirements as follows.

**Functional Requirements**

- Availability of rooms should be visible.
- Should be able to customize the special packages for the rooms.
- It is mandatory to take a photo of national ID when registering a new customer.
- Must be able to generate customer reports.
- Must be able to generate expense reports.
- Should be able to calculate the daily income of both hotel and restaurant.
- Should be able to calculate the inventories of the hotel

- Must be able to show planned events

**Non-Functional Requirements**

- Users should be helped appropriately to fill in the mandatory fields, in case of invalid input.
- System should accept payments via various payment methods.
- Should be easy to use, efficient and accessible.
- A record of documents, activities and responses should be kept.

## 1.8 Chapter Summary

In Chapter One, the analysis of the current system is covered. In this section, introduction of the company and its operations, the current system's description, faults with the current system, the proposed system's description, and benefits of the new system will all be analyzed.

From the first four sub-chapters you can get a good understanding of the overview, management, process, users and responsibilities of the entire Resort.

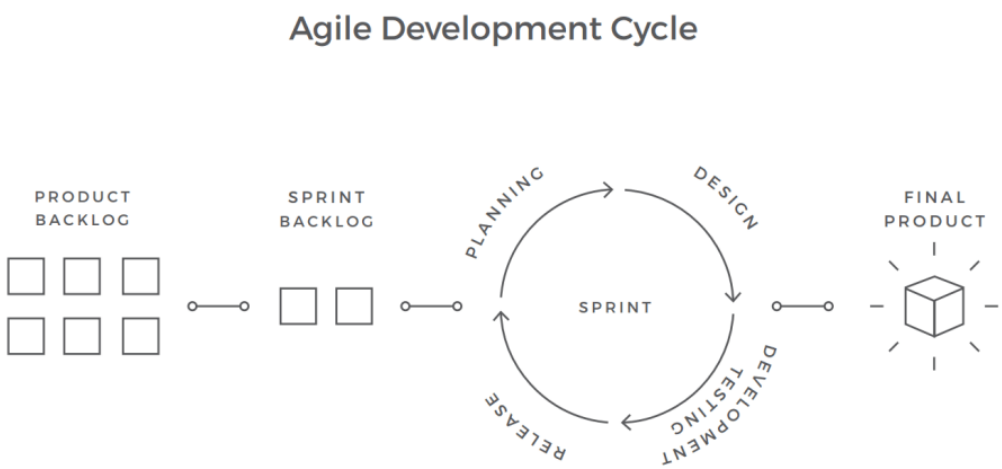
And the next three sub-chapters contain a complete description obtained from the analysis of the defects of the existing system and the features expected in the new system. The advantages of the new system are also included.

There are a significant number of problems with a manual Room Reservation System. A computerized system that can be designed to avoid them has been introduced. It includes the features expected by the client. And the advantages of the new system are many. So, it is undoubted that the new system is more suitable than the existing system.

# Chapter 2: Methodology

## 2.1 Introduction

We have chosen ‘Agile Model’ for developing this software, because an Agile life cycle does not need fully requirements of entire software instead of that we can break the software in to feature modules and we can develop each model and give a release. So, we can get a review from a customer for each module, and we can improve the quality of product according to those reviews. Also, it will be easy to understand project flow and learn technologies while developing. Here is a diagram of the Agile life cycle model workflow.




All feature modules are prioritized in Product Backlog and after the team discussion, for each sprint we will assign a module. This process is then repeated, producing a new version of the software for each cycle of the model.

## 2.2 Data Collection Methods

Data collection & requirement gatherings are very important while manage a project. We used three methods to collect data for our system.

1. Interviewing

   When they gave us the project to develop, we first requested a meeting with their team. Then there was a meeting with HR. We asked him some pre-prepared questions and got a lot of information about the restaurant. Since he is the head of the restaurant's technical functions, we also obtained and noted a lot of information regarding the web application they need.

2. Restaurant Visit and process Observation

   After interviewing, with their permission, we studied the process of the restaurant. It helped a lot to identify the current technical requirements.

3. From Internet

   Next, we studied about this project through the internet. I was able to find new features that can be added to a project like this and suggest them to the client

## 2.3 Software Process Model

- In Agile Model - Advantages
    - Functionality can be developed rapidly and demonstrated.
    - Resource requirements are minimum.
    - Suitable for fixed or changing requirements
    - Easy to manage
    - Gives flexibility to developers

- In Agile Model – Disadvantages
    - More risk of sustainability, maintainability and extensibility
    - Depends heavily on customer interaction, so if customer is not clear, team can be  Transfer of technology to new team members may be quite challenging due to lack of documentation. riven in the wrong direction.

## 2.4 Software Development Tools

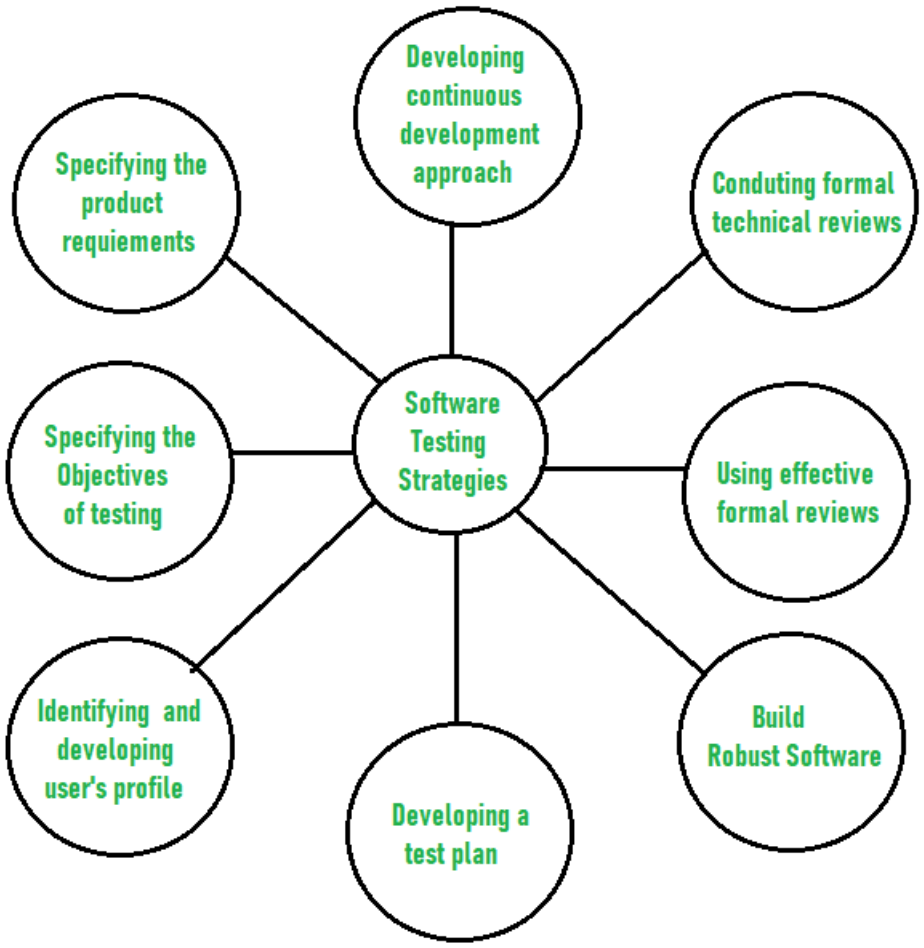
We have used the below mentioned software development tools,

- We've used GitHub as the Source control to Develop our software with the team,
- Visual Studio code as the Code Editor,
- Languages are used to develop the application
    - HTML
    - PHP
    - JavaScript
    - Bootstrap
- We use Postman as to testing API which has been developed to reduce the code in the frontend and the time of response which is been request with the system will be reduced.
- Backend we have been using MY SQL as the database service.

## 2.5 Testing Strategy

Testing the software will always assist to find and avoid faults, as well as provide the correct output in accordance with the user's request. Identifying the problem will thus help to improve the final product's quality.

Below figure will illustrate about the software testing strategies and is been done to identify errors of the software.



## 2.6 Software Implementation plan


We always had a clear understanding of what needed to be addressed and how it needed to be addressed as part of our implementation plan.

So, as always, we will begin by gathering information to give a high-quality product to our clients.

The primary goal of this program is to improve the effectiveness of manufacturing operations by utilizing our technology, which will ensure how much they can produce.

The main implementation of the Agile Method is the auth & configurations Modules are the important modules while developing the software.

As we have Five Modules on implementation

- Authentication
- Configuration
- Room Reservation
- Cleaners
- Management
- Sales Management

## 2.7 Summary of Methodology

We have chosen ‘Agile Model’ for developing this software, An Agile life cycle does not require comprehensive requirements of the entire software, instead, we may break the software down into feature modules. Feature modules are prioritised in the Product Backlog, and after team review, we will assign a module to each sprint. This process is repeated for each cycle of the model, resulting in a latest version of the software.

Data collection & requirement gatherings are especially important while manage a project. We used three methods to collect data for our system.

- Interviewing
- Resort Visit and process Observation
- From Internet

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