WEB BASE

HOTEL MANAGEMENT SYSTEM

FOR

HOTEL LA-VILA

Y.N.PRARTHANA

2017

Web Base

Hotel Management System

For

Hotel La-Vila

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DECLARATION

DECLARATION

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ABSTRACT

La-Vila is a hotel located in Wadduwa, and highly recommended to feel sea breeze. The hotel expects to give the customers a better service, to accommodate more guests & give a lifetime experience as a rising hotel. The hotel is also capable of accommodating more than fifty guests at once and one banquet hall have the capacity of seating two hundred guests at once and one banquet ground with the capacity of seating three hundred guests at once. All the work is done by manually and this has caused certain unexpected problems and several complain from the customers. The management could not get a proper knowledge about the sales and profit of the business.

My final year project is developing a hotel management system to this hotel as a solution to overcome the above mentioned problems faced by the current manual system. The clients' main requirement is a usable effective management system including an online reservation system, user management system, Food and beverages operations, Room status, check-in and check-out transactions , Banquet operations handling, content management system generating reports. The system also gives the ability to handle all the rates details, transaction details and report details.

With considering client requirement the system was developed using (PHP Hypertext Processor) open source server side scripting language. As the database tool for designing the database My SQL was used. Apache 2.4 web server was chosen to run the system. Additionally, Net Beans IDE8.0 was chosen as the coding tool adobe Photoshop CS6 was chosen as the interface design tool in the main stages of developing.

The new system has been developed to overcome the existing problems and it will help the administration to make the La-Vila Hotel Management processes much more effective, efficient and competitive.

ACKNOLAGEMENT

I am thrilled to writing this acknowledgement at the completion of this project for my Bachelor of Information Technologies (BIT) in University of Colombo School of Computing (UCSC).

I make this an opportunity to express my heartfelt gratitude to all the people who helped me in various ways to complete my final year project successfully. I must be thankful to the University Of Colombo School Of Computing and its staff for guiding us from the start to the end.

I also wish to thank my project supervisor Mr.H.M.Daminda Shantha Herath, Senior lecturer of Esoft metro Campus, his constant supervision and guidance throughout the project even with his busy schedule.

I'm also glad to thank the staff La Vila Hotel who gave me a great support by explaining their hotel functionalities, giving all the required information, documentations of their hotel. Specially, N. Stanley Silva, Chairman and Mr.Nandana Wijayabahu General Manager of the hotel La Vila who helped me to develop my project step by step, spending their valuable time.

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LIST OF ACRONYMS

IMS   -Information Management System

AJAX – Asynchronous JavaScript and XML

DFD- Data Flow Diagram

HTML – Hypertext Markup Language

LVHMS – La Vila Hotel Management System

MVC – Model/View/Controller

PHP – Hypertext Pre Processor

PDF – Portable Document Format

SQL – Structured Query Language

RUP – Rational Unified Process

UML – Unified Modeling Language

XAMPP – A cross platform server with Apache, MySQL, php and Perl

XML - Extended Markup Language

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION - Hotel La – Vila

Hotel La-Vila is a famous hotel and well-known hotel with the best hospitality in Wadduwa area. When providing the services, there should be an easy way to deal with customers of the hotel and manage their day to day activities, which has been handled with heavy paper work, phone calls currently and which will be inefficient and waste time and man power.

As a solution we can get support with information technology, web base hotel management system is introduced to overcome these problems and make a better co-ordination for internal and external users.

The proposed web base system helps when dealing with the main operations of the hotel and lot of other facilities. With using web base hotel management system external users can easily get connected with hotel to make their inquiries, room reservations with advance facilities such as special packages, room types relevant services and many more internal users get much freedom with web base hotel management system.

With considering customers interest, they have advantage of having their payment early at the moment they make sure to visit the hotel. The system was developed using (PHP Hypertext Processor) open source server side scripting language.

As the database tool for designing the database My SQL was used. Apache 2.4 web server was chosen to run the system. Additionally, Net Beans IDE8.0 was chosen as the coding tool adobe Photoshop CS6 was chosen as the interface design tool in the main stages of developing.

According to the present software engineering theories and by studying the problem domain the RUP (Rational Unified Processing) was identified as the most suitable development methodology based on its flexible developing theorem and based on its flexible developing theory and related advantages in comparison to other software methodologies.

At the end of this development process the web base system which was tested by many users of the hotel was successfully handed over to the client to enhance their company business process as well as to help the company to become a successive hotel among hotels in Sri Lanka.

1.2 MOTIVATION FOR THE PROJECT

Though the hotel La-Vila is not newly opened, the hotel has the opportunity to experience of handling the hotel work with help of technology in a systematic way. All the work is done manually and this has caused certain unexpected problems, complains and a number of complaints from customers regarding reserving rooms.

Given bellow are points that cause the manual system to be replaced by web base hotel management system.

- Room reservation and other booking are done over the telephone or by emails and they are recorded in hotel log book reserved for reservation. Sometimes reservations through emails are not getting proper attendance and emails can be mixed with old emails. Also checking emails is not their habit.
- All the reports are generated manuals. Therefore the accuracy of these reports is low. This whole process has been inefficient since the managers can't retrieve the relevant data as quick as they want.
- All the other manual work in hotel requires a large number of staff.
- Customer reservation book can be accessed bay any person / staff member in hotel, therefore the confidentiality of customers personal information is low.
- The poor management of food and beverages would result in conflicts between the cost incurred and the outcome.
- Historical data cannot be viewed at any time to make future decisions and referring to those data is consuming.

Therefore to overcome these problems, the management decided to combine all the key hotel functions with Information Communication Technology (ICT) and create a web base hotel management system.

The objective of this project is to use my knowledge which I gained throughout the BIT degree program and implement a web base hotel management system for the hotel La-Vila Wadduwa.

1.3 OBJECTIVES OF THE PROJECT

The main objective of this system is to improve efficiency, reduce the overall manual workload of the hotel and provide suitable technical and profitable solutions for current problems such as time consuming, less accuracy in heavy calculations, wastage of resources.

The web base system for hotel La-Vila will increase the revenue of the hotel and will be able to compete with other upcoming hotels and rooted hotels in area.

Given below are the points that mention what are the objectives achieved by the project.

- Provide a system which help to check the room availability and do the relevant reservations efficient and replace the reservation book. With online reservation and increase the reservation process quality and make reservations efficiently.

- Automate all the possible current work being done by manually in the hotel. Ability of checking the current situation of the hotel with less effort and less time with high efficiency.

- Ability to generate necessary reports quickly and easily for management decision making. To facilitate guest to make reservation services easily.

- Make notice and alerts on creating new events and offers to current customers.

1.4 SCOPE OF THE PROJECT

- Login management
- User management
- Inquiry management.

- Room Reservation

- Room details handling.

- Food and Beverages handling.

- Banquet operations handling

- Offer management.

- Transactions

- Guest invoice generation.

- Feedback and notifications.

- Report generation
  - Room list report
  - Reservation forecasting report
  - Managerial reports

    Yearly/Monthly/Daily Income report

    Yearly/Monthly/Daily Visitors report

    Customer relationship management. (CRM)

CHAPTER 2: ANALYSIS

2.1 INRODUCTION

Requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant and detailed. In software engineering, such requirements are often called functional specifications. [1]

This chapter gives details about the current manual system, requirements gathering techniques, Functional and Non-Functional requirements of the proposed system and similar system reviews.

2.2 REQUIREMENT GATHERING TECHNIQUES

Requirement gathering techniques are used to collect requirements, in analysis stage. Requirements should be properly accomplished before starting the analysis stage.

The following techniques were primarily used.

Interviews

Interviews are the most commonly used technique in requirements gathering. Information was collected from the management through face to face interactions.

Also employers at hotel La-Vila and their customer who are the primary uses of the proposed system are interviewed in both structured and un-structured way.

Interview helps to acquire more knowledge about current manual system and furthermore, proposed new requirements that need to accomplish for the hotel.

Observation

Another popular requirement gathering technique is observation. Observation make easy to understand about overall process of hotel. Through document review technique, it could be easy to understand how reservations are made of the hotel, how employers deal with the customers.

Customer requirements that do not exist in the current system were being able to identify via observing.

Further we gain more information about banquet operation handling, food and beverage handling and package management through the observation.

Questionnaires

This was a method used to gather information from various employees as well as customers, about improvements that should be made to the new system.

Open ended questions provide opportunity to obtain a quite a lot of unbiased information and ideas from both customers as well as employees.

2.3 LITERATURE REVIEW AND EXISTING SIMILAR SYSTEMS

Studying existing systems with similar hotel management system functions provide an overview idea on developer to develop system to match user requirements correctly.

Similar system helps to understand the domain of the system, and implement user requirement in the same manner with less variance.

By studying following current famous web base hotel management systems we get idea on developing required web base hotel management system for hotel La-Vila.

2.3.1 Jetwing Hotels

Jetwing is a Sri lankan company, which owns many luxuries hotels in various locations in the country.

Figure 2.1 shows the Jetwing Hotels logo.

Figure 2-1 Jetwing Hotels logo

Figure 2.2 shows the home page of Jetwing Reservations Hotels.
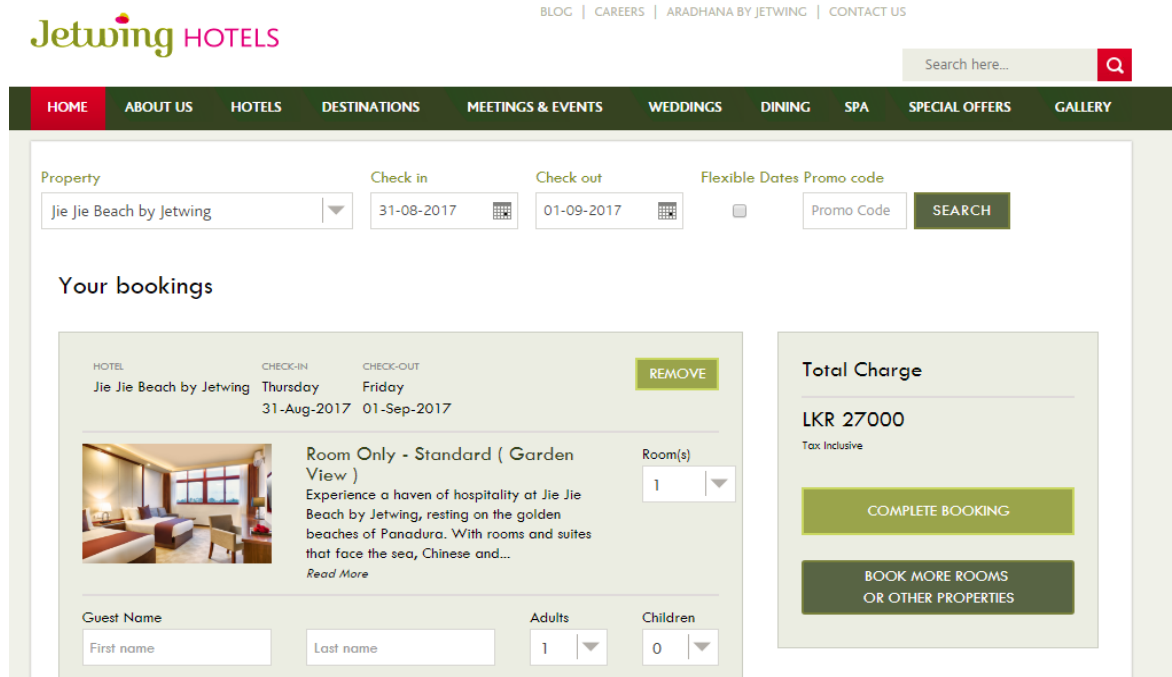
Figure 2-2 Jetwing Reservations

Jetwing hotel online reservation system is one of the referred hotel management system with online reservation. System allows customers to book the hotel for accommodations.

Jetwing reservation shows available number of rooms and customer can select one or more rooms in one selection. Also online payment can be made with high security. Jetwing hotel management system has an impressive usability and came up with interactive user interfaces and many more features. Their website is also consisting with information about hotel and the content is changing and updating frequently. [1]

Figure 2.3 shows LAYA hotels logo

2.3.2 LAYA Hotels

LAYA Hotels is a well reputed

Sri Lankan hotel chain managed

By Sri Lanka army leisure sector.

Figure 2-3 LAYA Hotels logo

Figure 2.4 shows online reservation system of LAYA beach hotel
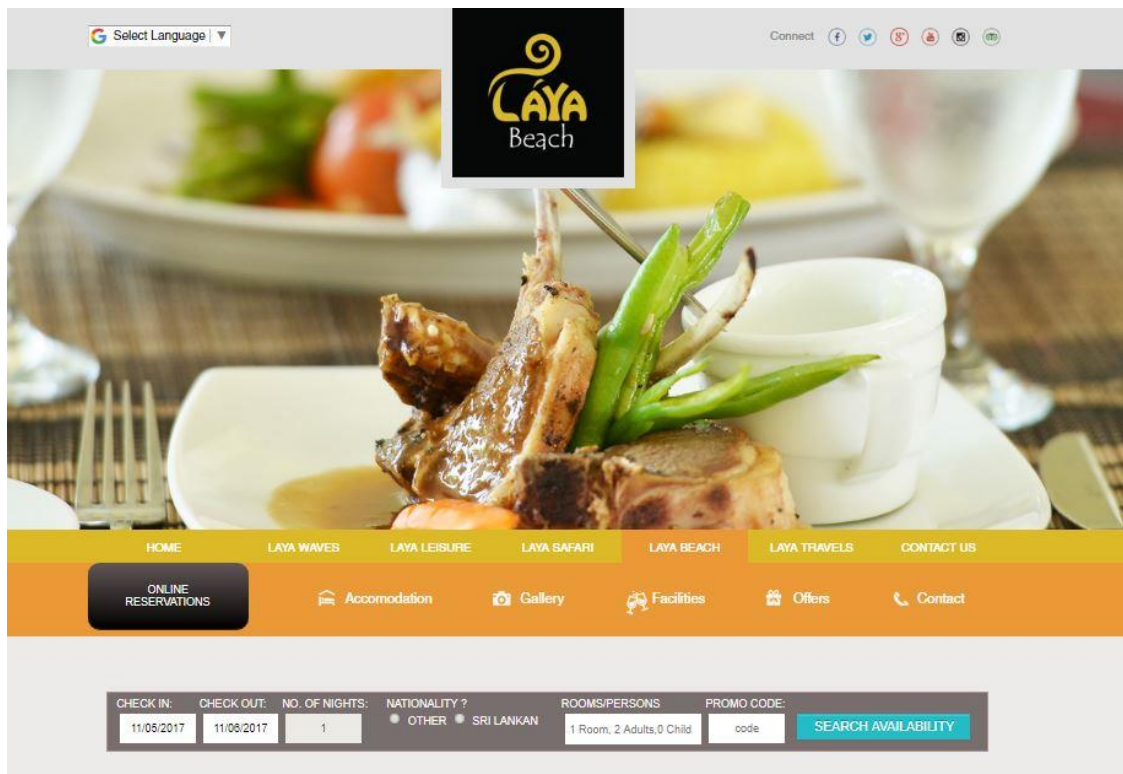
Figure 2-4Online reservation system of LAYA Beach Hotel

LAYA Beach provide ideal place to host private parties or weddings with ultimate beach breeze.

LAYA Safari located bordering yala national park and enthusiast as well as for the culture tourists. LAYA Leisure allows enjoying precious time together relaxing in its peaceful surroundings of nature beauty.

LAYA hotel group provides online payment system with high security. Also LAYA hotel group provides much interactive web site with many features. They provide a chat conversation called live-chat to make the customer much more attracted for hotel group and provide details for customer based on their individual requirement and questions.

LAYA hotel group is a developing hotel chain and they plan on opening another hotel called LAYA Waves. LAYA hotel group owns a simple and attractive web site with much details that customer would prefer to know. [2]

2.4 THE CURRENT MANUAL SYSTEM

Figure 2.5 shows the use case diagram for the current system.
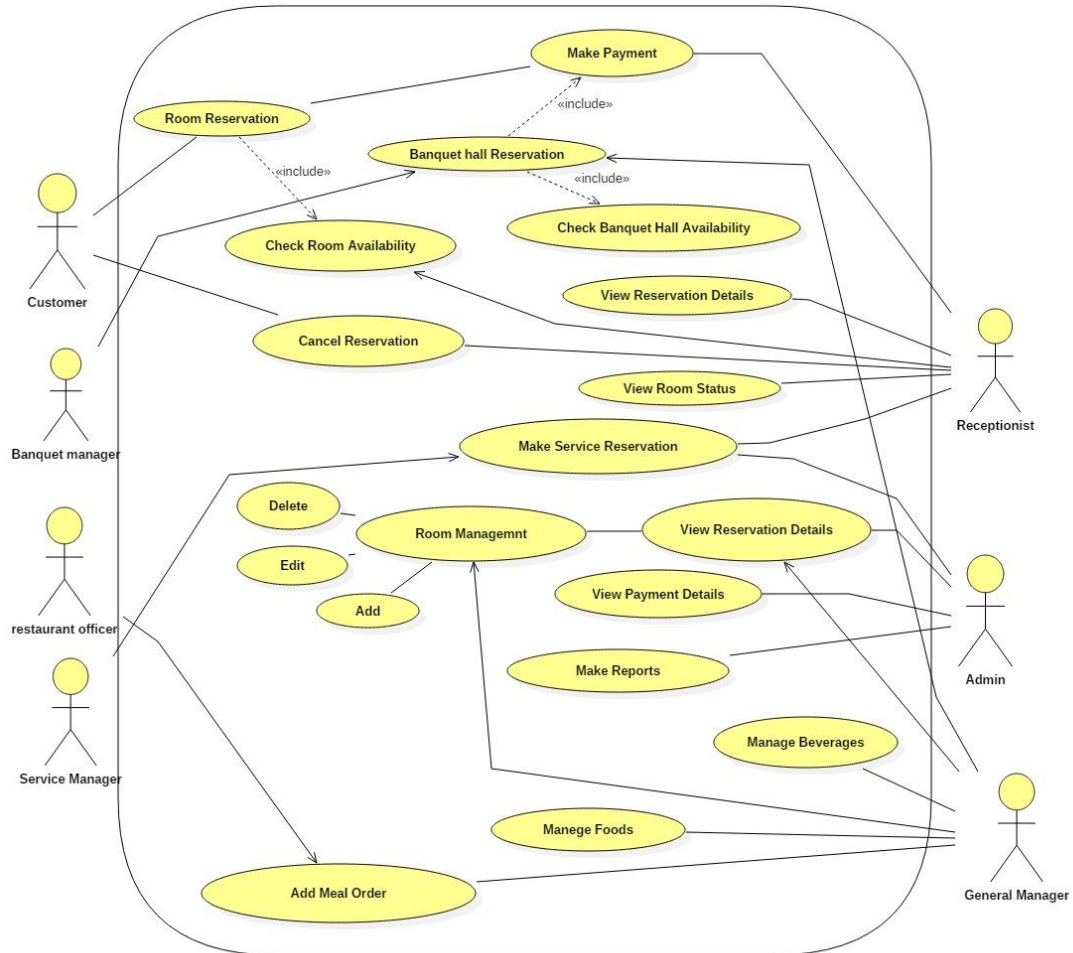
Figure 2-5 use case diagram for the current system

According to domain analysis the critical functionalities can be identified as follows.

- Room reservation
- Banquet operations handling
- Food and beverage operations handling.
- Room status detail handling.
- Check-in and Check-out operation handling.
- Report generating.

- **Room reservation**

All the reservations are done through telephone or face to face conversations. Receptionist handles all the reservations manually. They use reservation book and other documents to check the requested dates, rates of the rooms and do the reservation. When the reservation continuing, personal details of the customer will be entered in to the log book and room will be assigned to the customer with the room key and house keeper if they requested. Cancelling reservation makes bad impression on hotel management process.

- **Banquet operations handling**

Banquet operations also happen in the same way as reservations. Customers come and visit the place to check the surrounding and the arrangement view of the banquet hall.

Reservation banquet hall or beach grounds do manually with considering requested dates and rates in seasons.

- Food and beverage operations handling

When make reservation in the hotel, banquet manager get details on reservation volume.(number of persons in the relevant reservation and age group) then an employee is assign to talk with them with pre-designed menu tables and take orders.

When considering banquet operations customer need to select food package among many packages that hotel arranges in different occasions.

- **Room status detail handling**

To find the current room view, they must go through room key rack and select the relevant room type key for open the room and view to the customer. Until the room get cleaned and customer make check – out the room will not be able to check.

- **Check-in and Check-out operation handling**

Payment relevant for the period has to be made manually in the receptionist counter with cash or credit card. All the room charges, food package charges, service charges, tour charges are entered manually and calculate by the staff employee.

The hotel currently faces huge loss regarding make reservations through the phone. The reservations done by the telephone have 50% to make them unsuccessful. So the room is booked due to date, but customers may get late or absent for reservation.

- **Report generating**

Several reports are being created by manager of hotel La-Vila and accountant. Room list report, reservation forecasting report, payment detail report and expenditure are the reports that currently being created.

Accountant creates reports on expenditure and payment details. Manager makes reports on reservation and room list and usage reports.

2.5 DRAW BACKS OF THE EXISTING SYSTEM

Reservations are done manually using face to face or through telephone. They use reservation book and other documents to make room reservations and banquet operations. Food menus do not change with customer satisfaction and customer preferences.

Room status could not be monitored and have to find the available or booked rooms by referring books and keys.

The current web site is not getting updated and there is no method of publishing offers for seasons and news of various promotions of the hotel.

While generating reports, managers and accountant need to go through a huge number of documents. Also some documents are not in a valid status to be accepted in financial reports.

2.6 HIGH LEVEL USE CASE DIAGRAM OFTHE PROPOSED SYSTEM

Figure 2.6 shows the high level use case diagram for the proposed system.
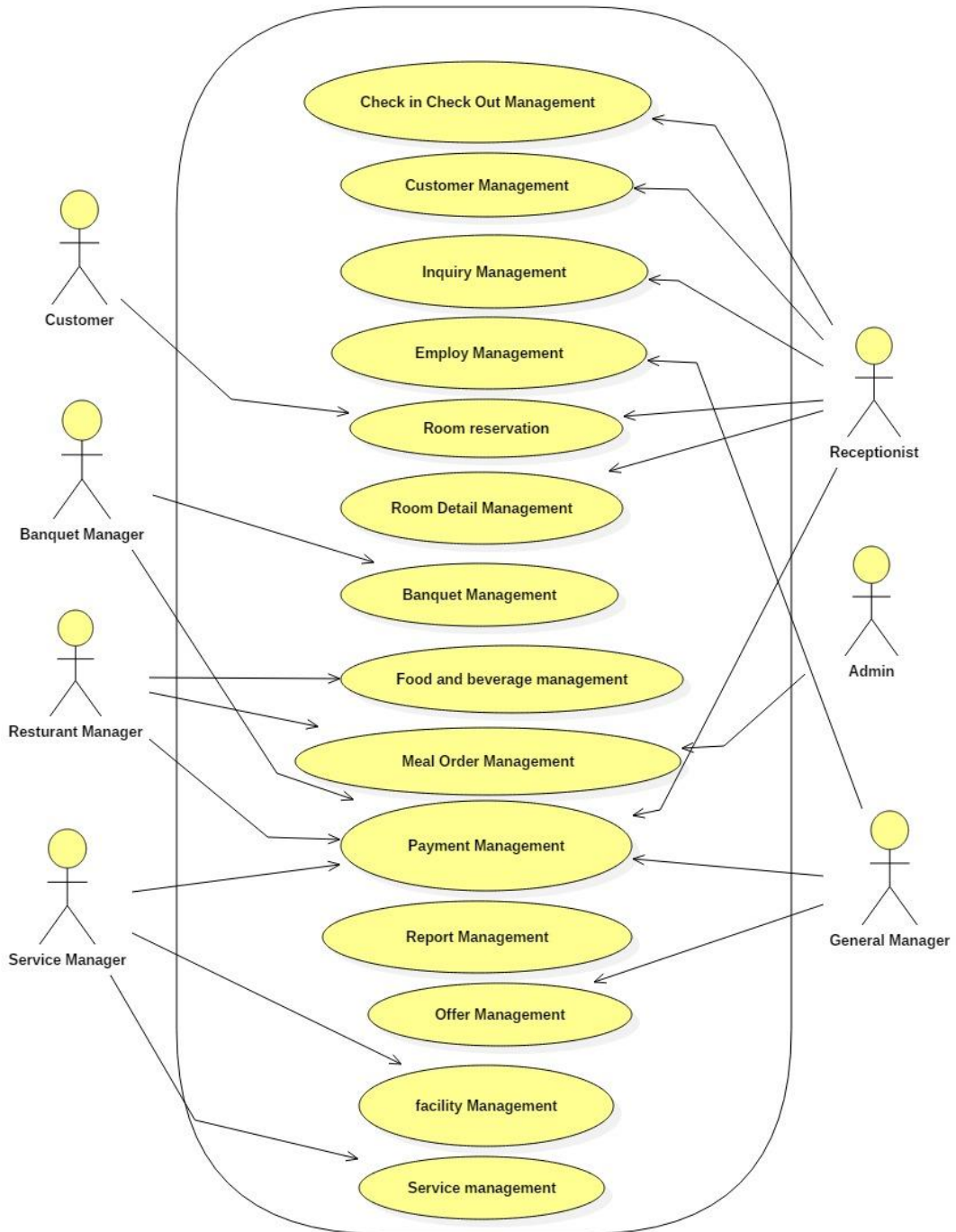
Figure 2-6 use case diagram for the proposed system

2.7 FUNCTIONAL REQUIREMENTS

A functional requirement defines a function of a system and its components. A function is described as a set of inputs, the behavior, and outputs. [2]

When considering functional requirements for the proposed system following can be identified.

- **Login Management**

According to role basis there can be two types of users, as External User and Internal User. External Users are customers and internal users are the staff in the hotel. Functionalities get different by login management according to their privileges.

By using login account user can be forward to relevant site.

- **User Management**

Able to register a staff member, who uses the system as internal user and a customer as an external user before log in to the system.

- **Inquiry Management**

Ability for customer to post an inquiry with mentioning that, what are the interesting packages that he or she expected to use. Administrator can make decision to arrange rooms and other facilities according to future customers.

Also administration can identify how many customers are definitely come from who make inquiries.

- **Room Reservation**

Customers should be able to view available rooms and available banquet halls. Reservation can be done for accommodation, meeting and banquets. Also system should have ability to edit or delete bookings.

Customers who made a reservation for room or banquet hall should receive a SMS notification with confirming the relevant reservation.

- **Check-in and Check-out transaction process handling.**

Customer should be able to select the check in date with mentioning room type and number of people who willing to come. Then customer can enter select check out-date.

- **Handle Room Details**

Customer would be able to know the requesting rooms and facilities are available or they are under maintenance. Administrator would be able to enter details of room states in to system to help customers to change their preferences.

- **Reserving Foods and Beverages**

Customer should be able to view food menus and packages and select relevant for them. Available menus should be updated to the system daily so that customer can make reservations on food and beverages prior they attend.

Banquet packages also can be categorized with food menu packages and beverage types.

- **Banquet operation handling**

Banquet halls, foods and beverages, decorations and photo suit locations should be able to decide according to customer request and make reasonable adjustments.

- **Service Management**

Customer should be able to get additional services such as tours, spa facility and gem and jewelry.

- **Transactions**

Administration would be able to handle payments done by customers for their consumed service. Also customer should be able to make payment online when they make reservations.

- **Guest invoice generation**

All payments will be added to the reservation code issued by the system and the standing bill can be able to viewed and get printed by customers online.

- **Feedback and notifications with CRM**

Hotel maintains its own updated website and customers should be able to comment on photos of locations, food and beverages and other facilities that they experienced. So the hotel can keep in touch with customers with good customer relationship.

- **Report Generation**

The system should allow the management to generate the reports required for further analysis and decision making. Also it should allow the user to print the reports and documents.

- **Content Management**

The hotel is maintaining its own web site. The content of that web site should be able to change, and keep it up-to-date. The system provides this facility to the user to do necessary modification to the content of the web site.

2.8 NON-FUNCTIONAL REQUIREMENTS

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. [3]

Success of this system is not only depending on functional requirements. It is also based on the non-functional requirements.

Following are the major non-functional requirements of the system.

- **Usability**

Users of the hotel management system may does not have wide computer knowledge. Therefore the usability is much important. So usability requirement has been achieved by using various techniques such as easy menu navigation, searching options, attractive interfaces and uses of matching colors.

- **Accuracy and security**

The system should be secure and reliable since it handles a lot of sensitive and personal data, such as credit card details and customers' personal details.

So necessary actions should be taken such as keeping data in safe and maintaining backup accordance with system failures then the data wouldn't be lost.

- **Reliability and consistency**

Customer should allow viewing their previous transactions with the hotel and making reservations and paying online. So the system must have ability to execute without failure for a longer duration. Also calculations and details should be correctly manipulated.

- **Reusability**

System components can be easily modified and ported to other systems with no or minimal modifications that should be extensible for the new requirements that will add in future.

- **Maintainability**

The hotel requirements are rapidly changed with the open economy and the system must be able to change rapidly. So to develop a new system in each change is not a possible task. So re-usability of components and maintainability of system are very important.

CHAPTER 3 : DESIGN

3.1 INTRODUCTION

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. [4]

This chapter includes some main interfaces which deal with the system and gives details about process models that are being used in the current software industry and the selected process model to develop the system.

The database design process consists with ER diagrams. The object oriented design techniques (UML Diagrams) are the widely used approach in modern software design as well as this project.

The following UML modeling diagrams were used for the design of the system

- **Use case diagram** – A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. [5]

- **Class Diagram** – a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects. [6]

- **Activity Diagram** – Activity Diagram Show the flow from activity to activity within a system. It addresses the dynamic view of the system.

- **Sequence Diagram** – Sequence diagram is an interaction diagram that shows how processes operate with one another and what is their order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. [7]

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3.2 OVERVIEW OF PROCESS MODELS

The development models are the various processes or methodologies that are being selected for the development of the project depending on the project's aims and goals. There are many development life cycle models that have been developed in order to achieve different required objectives.

The models specify the various stages of the process and the order in which they are carried out. [8]

3.2.1 WATERFALL MODEL

The Waterfall Model is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed fully before the next phase can begin.

Figure 3.1 depicts the general overview of the waterfall model.
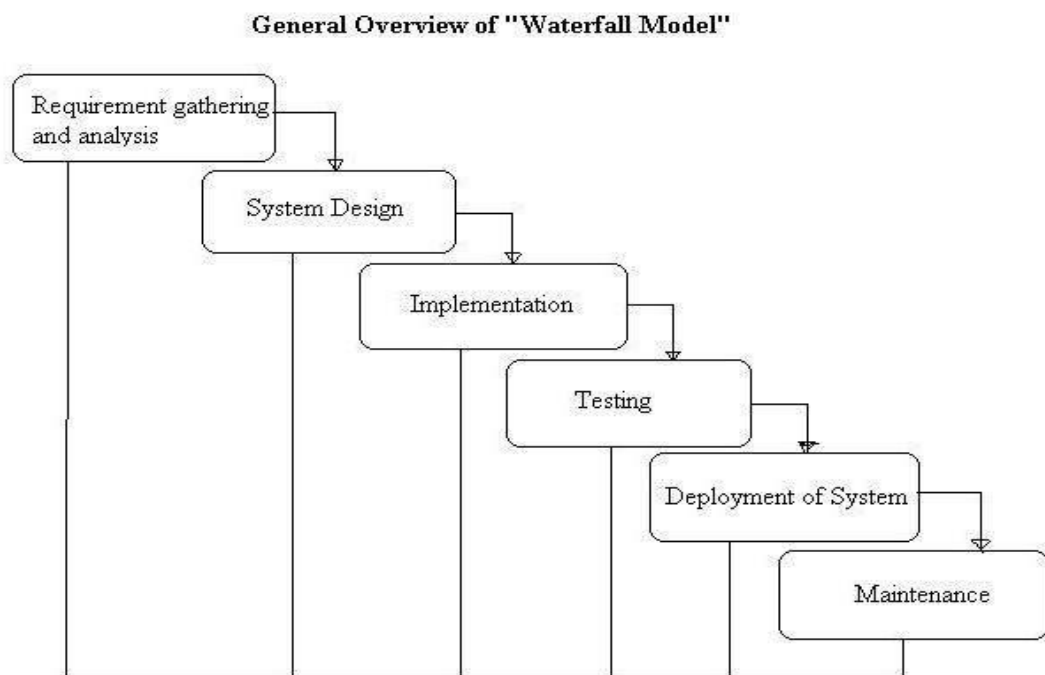

Figure 3-1 Waterfall model [9]

Advantages of waterfall model:

- This model is simple and easy to understand and use.
- Each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time. Phases do not overlap.

Disadvantages of waterfall model:

- Go back and change something that in previous stage is difficult.
- Working software is produced at end of the life cycle.
- Poor model for long and ongoing projects with often changing requirements.

3.2.2 RATIONAL UNIFIED PROCESS

The Rational Unified Process (RUP) is different from other software development methods as the waterfall, in the way it performs the whole development chain.

As it has been mentioned before, within RUP the common lifecycle (requirements, analysis, design, implementation, and test) is replaced with activities called disciplines.

These disciplines are performed in four phases:

- Interception phases
- Elaboration phases
- Construction phases
- Transition phases

The Rational Unified Process has three fundamental characteristics:

RUP is:

- Use case driven
- architecture centric
- Iterative and incremental.

Figure 3.2 depicts the Rational Unified Process (RUP).
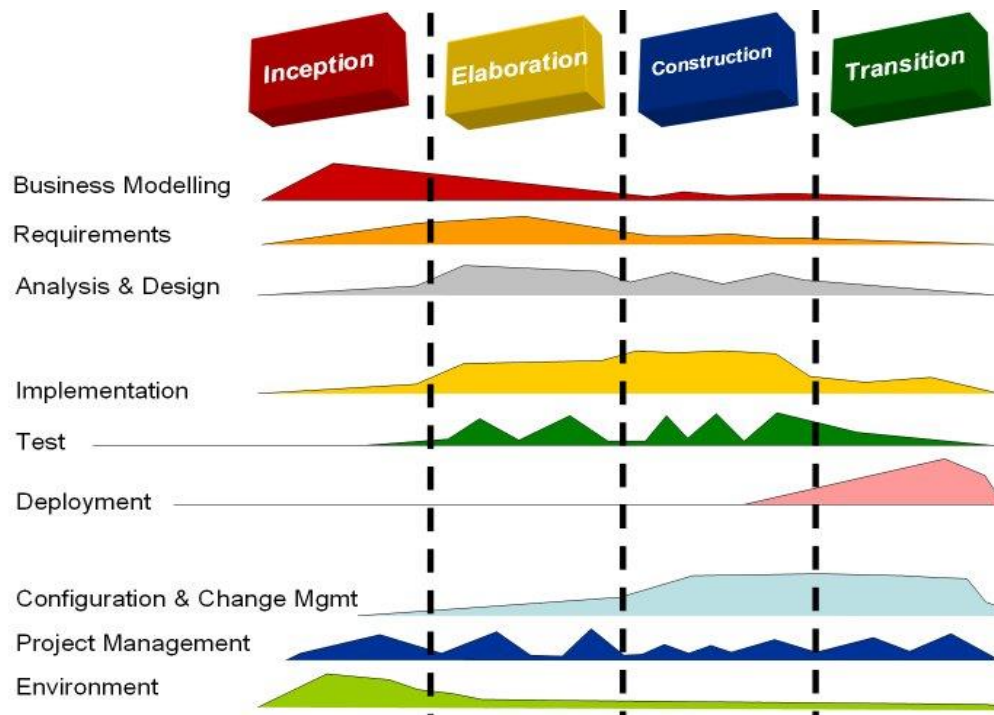
Figure 3-2 Rational Unified Process (RUP) [10]

Advantages of RUP:

- RUP is beneficial for larger companies that spread across different geographic locations or smaller companies that need to access RUP support from a distance.
- RUP allows developers to control the development process satisfactorily and give users a high level of security.
- RUP was designed to work in a stable organizational environment and offers a multitude of applications for its users.

Disadvantages of RUP:

- RUP's four-phase process is not a system that can be used by novices.
- RUP is complex in nature. Because it has infinite applications.
- RUP is suitable for smaller projects as well as restructuring the software infrastructure of large organizations.

3.2.3 JUSTIFICATION OF SELECTING RUP

Among these models RUP model was chosen for this system as it allows developing the software iteratively and works well with object oriented methodologies. RUP verifies software quality with managing requirements and controlling changes.

Along with that incremental and iterative model RUP was also chosen for the project.

The UML diagrams used for the design of the system are:

- Use case diagram
- Class diagram

USE-CASE DIAGRAM

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

A use case diagram can identify the different types of users of a system and the different use cases.

CLASS DIAGRAM

A class diagram is a structure diagram because it describes what must be present in the system being modeled.

3.3 DETAILED USE-CASE OF THE SYSTEM

Detailed Use-case diagram shows the associations between the actors and the main modules of the system.

The UML diagrams used for the design of the system are

3.3.1 CHECK IN AND CHECK OUT PROCESSING

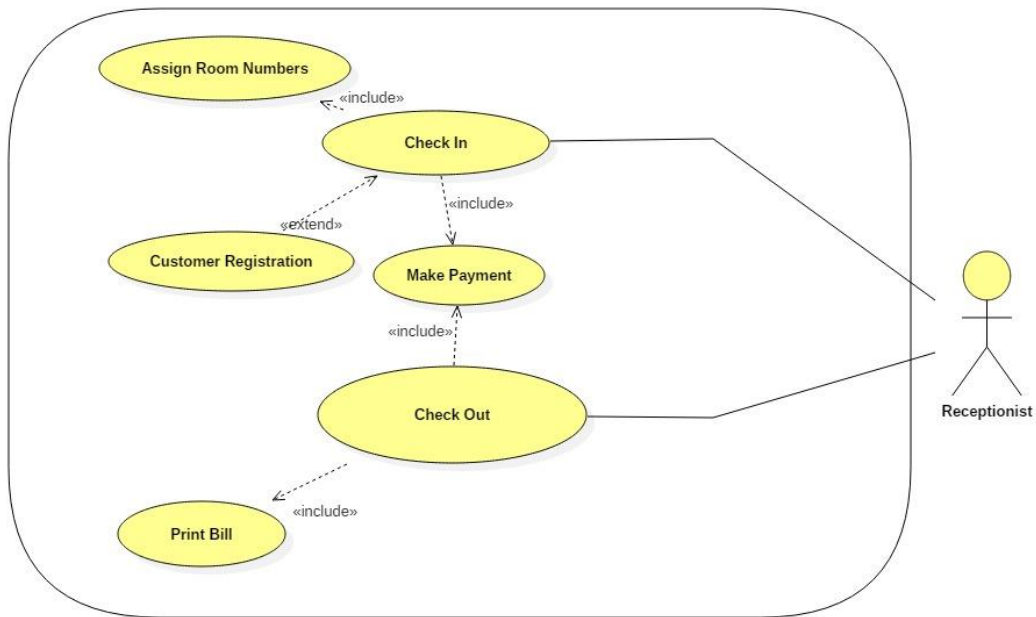Figure 3.3 shows the Use-case for check in and checkout processes.

Figure 3-3Use case: check in and checkout processes

Use-case Description for check in and checkout processes.

Use-case	Check in and Checkout process.
Actor	Receptionist
Overview	
Customer visits the hotel.	
Precondition	
Receptionist should be able to check the whether the rooms are available when edit reservation.	
Flow of events	
Receptionist make advance payment.	
Receptionist assign room numbers.	
When customer checkout from hotel he get a printed bill for his payment.	
Post conditions	
Customer shout make the full payment for services when he/she make checkout.	

Table 3-1Check in and checkout process

3.3.2 USER MANAGEMNT
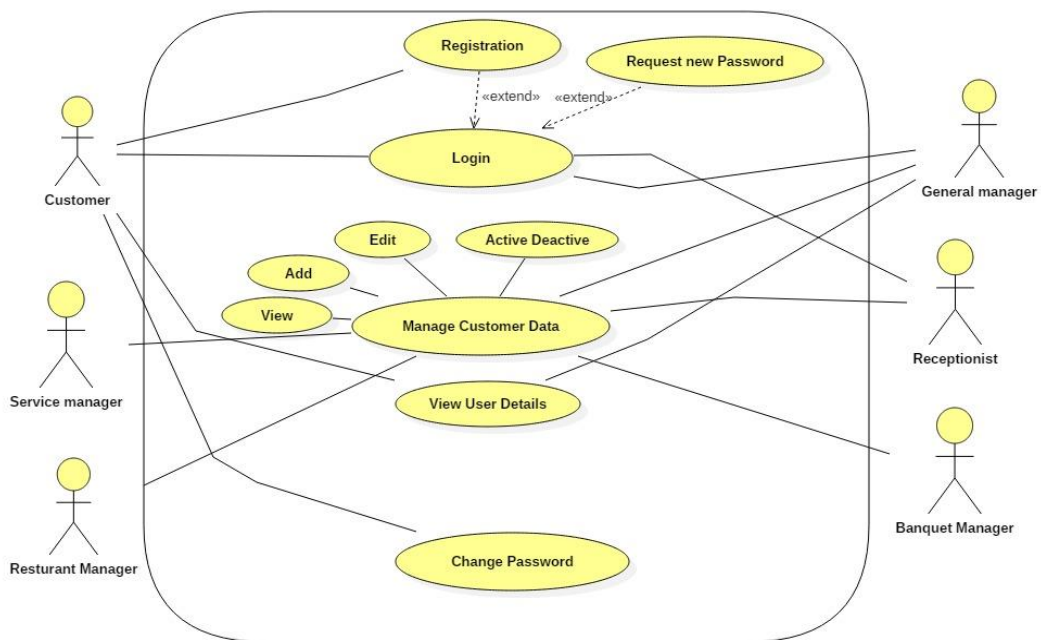
Figure 3.4 shows the Use-case for user management processes.

Figure 3-4 Use case: User management.

Use-case Description for User Management.

Use-case	User Management
Actor	Admin, Recipient, Customer
Overview	
User Management	
Precondition	
Login to the system.	
Flow of events	
Admin and recipient can add, edit, and delete customer details.	
Customer can log in to system and register.	
Customer can view user details and view customer data.	
Customer can change password.	
Customer can request for the password if he forget the password.	
Admin can hold customers by accessing the system.	

Post conditions
Customer can use system functions and privileges of the system.

Table 3-2 Use-case Description for User Management.

3.4 CLASS DIAGRAM

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations and the relationships among objects. [11]

3.4.1 CLASS DIAGRAM OF THE PROPOSED SYSTEM

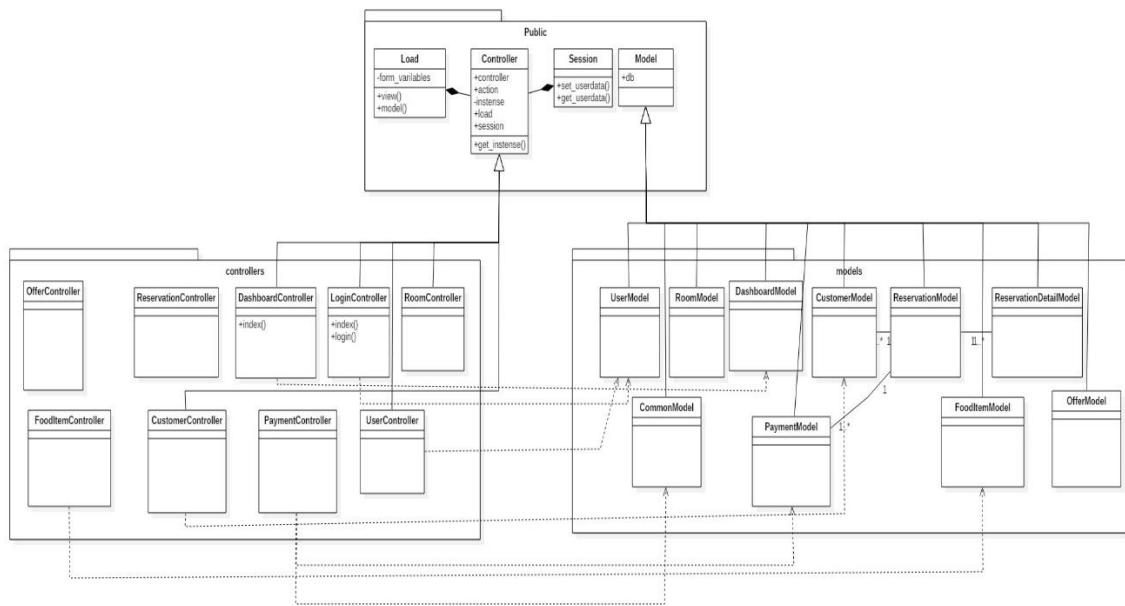Figure 3.5 shows the Use-case for user management processes.

Figure 3-5 Class Diagram of the Proposed System

3.5 PROCESS MODEL FOR THE PROPOSED SYSTEM

Among considered software development methodologies, the Rational Unified Process (RUP) was selected as the process model by considering a lot of advantages it consists. The Rational Unified Process (RUP) is an iterative software development frame work. The Rational Unified Process (RUP) was invented by Iva Jacobson, Jim Rambaugh and Greedy Boosh.

3.6 ALTERNATIVE SOLUTIONS

3.6.1 REASONS TO CHOOSE THE WEB BASED SYSTEM

Client requested a web based system to handle the functions of the hotel. Also the proposed system needs to access by internal and external users. So the hotel needs a web based system. Advantages of using a web based system can be listed as below.

- Cost effective development

Users access the system via the web browser. So there is no need to develop and test it on all possible operating system versions and configurations. Testing and troubleshooting is even easier.

- Accessible anywhere

Web based systems are accessible anytime, anywhere, via any device with an Internet connection. So customers could access the system from anywhere around the world. This is one of the biggest advantages of all which will increase the revenue of the hotel.

- Easily customizable

The user interface of web-based applications is easier to customize than it is in desktop applications. This makes it easier to update the look and feel of the application. The hotel needs to increase the number of customers and to that the system need to be attractive.

- Accessible for a range of devices

The system content can also be customized for presentation on any device connected to the internet, including PC, PDAs, mobile phones and various mobile devices. The web

base system provides the user the ability to receive and interact with information in speedy way.

- Easier installation and maintenance

Installation and maintenance becomes less complicated. So adaptation to the new technology can be accomplished more easily. Only the users have up-to-date browsers and plugging.

- Security

Web-based applications are typically deployed on dedicated servers, which are monitored and maintained by experienced server administrators continuously. This is far more effective than monitoring hundreds or even thousands of client computers and desktop applications.

3.6.2 THE LANGUAGE CHOICE

It was decided to use PHP as the development language since the proposed hotel management system is a web based system. It was more familiar in use, and including markup languages such as HTML and scripting languages such as Java Script

3.6.3 THE NEED TO DEVELOP A FULLY NEW SYSTEM

There are many available open source Hotel management systems in the market. But the management of the Hotel La-Vila needs a customized system and currently it was not able to find a package with all the requirements.

Therefore it was decided that developing a full system with all the functionalities required by the Hotel La-Vila was the best option to fulfill the current management needs at the hotel.

3.7 DESIGN ARCHITECTURE

The architecture used for La-Vila Hotel management system is MVC architecture representing Model View Controller or MVC as it is popularly called.

MVC is a software design pattern used for developing web applications. MVC is popular as it isolates the application logic from the user interface layer and supports separation of concerns. Here the Controller receives all requests for the application and then works with the Model to prepare any data needed by the View.

The View then uses the data prepared by the Controller to generate a final presentable response. [12]

A Model View Controller pattern (MVC) is made up of the following three parts:

- Model - The lowest level of the pattern which is responsible for maintaining data.
- View - This is responsible for displaying all or a portion of the data to the user.
- Controller - Software Code that controls the interactions between the Model and View.

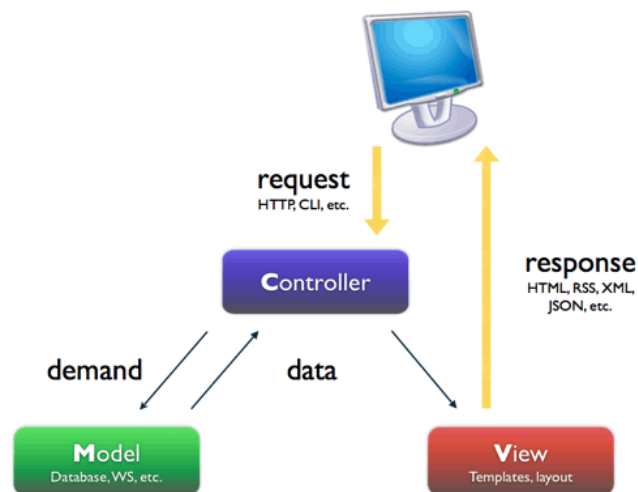The MVC abstraction can be graphically represented as follows in *Figure 3.6*

Figure 3-6 Model View Controller pattern (MVC) [13]

3.8 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. The data in the database must be consistent and complete in order to get accurate results.

The minimal redundancy will increase the performance of the operations handled by database. To avoid the data redundancy, the database diagram shown below is normalized to the third normal form.

A table with repeating groups can be converted to the first normal form by removing the repeating groups.

This can be done in two ways, by separating the table into two or by filling the empty cells with the relevant data and making each record unique.

The first method of separating into two tables has used in the project for the conversion to the first normal form.

The conversion to the second normal form is done by ensuring that all the tables are in first normal form and every non key attribute is fully functionally depends on the primary key and none of the non key attributes functionally depend on just a part of the key attribute. Then the third normal form was to be achieved and it was done by removing the transitive dependencies.

Transitive dependency exists when a non-key attribute functionally depends on another non-key attribute. By ensuring that the above theories are met, the project database was developed in the third normal form.

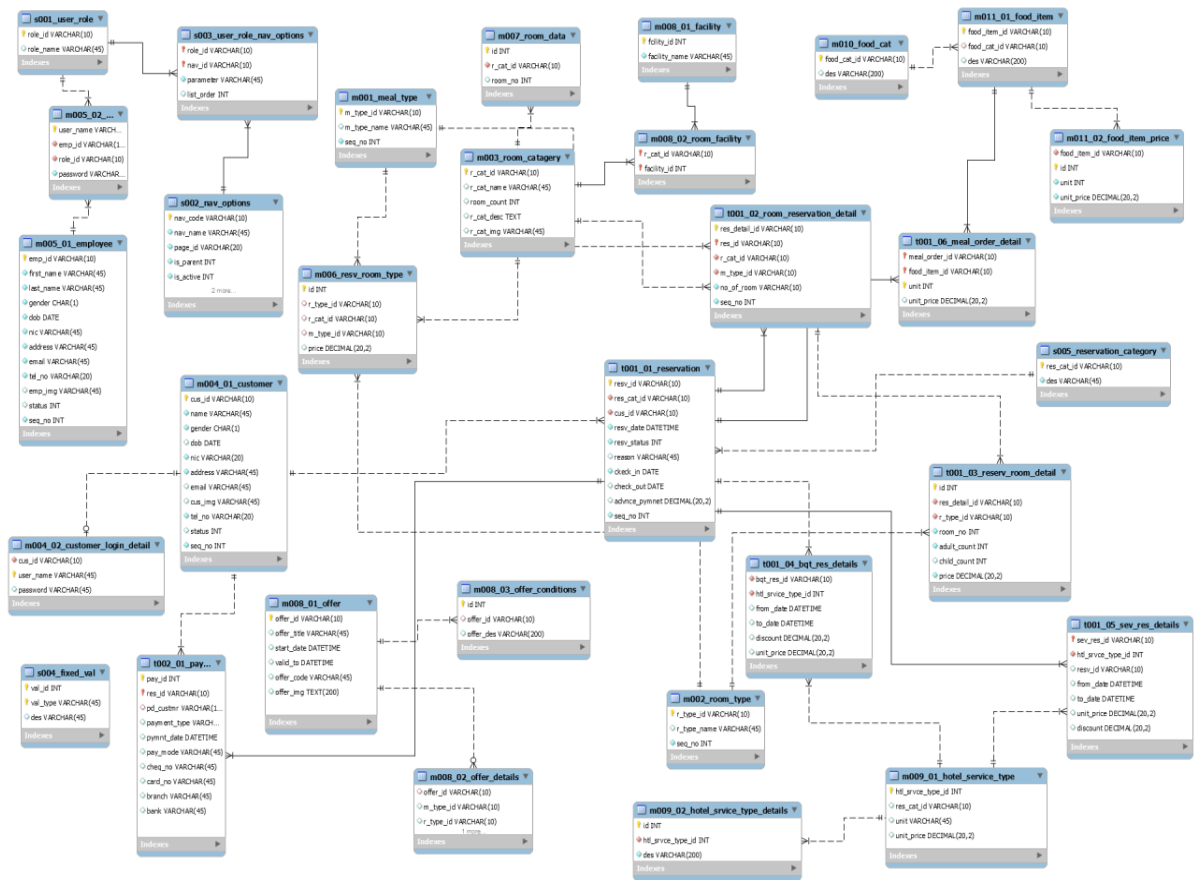*Figure 3.7* shows the database design of the LVHMS.

Figure 3-7 Database Design

3.9 USER INTERFACE DESIGN

User interfaces have to be user friendly with suitable colors and easily understandable commands, because even though the functions of the system work correctly if the users are not comfortable with the interfaces, users will be reluctant to use the system.

Interface also provide attractive front end working environment. Since there are various users of the system, user interfaces should be different to each other from user to user.

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Following guidelines focuses on ensuring efficient and task completion user interfaces.

- Use clear and readable set of fonts and maintain hierarchy.
- Use colors which match the business theme.
- Use attractive meaningful icons and purposeful in page layout.
- User friendly interface so the system communicates what's happening.
- Create defaults to reduce the burden on the user and prompt suitable error messages whenever the user encounters problems.

Even the functions of the system work correctly, if the users are not comfortable with the interfaces, users will be reluctant to use the system.

So in IMS for LVHMS the interfaces were designed using suitable colors. Mostly the blue related colors were used since it is a beach hotel and their core is blue.

3.9.1 WEBSITE INTERFACE

Home page is the very first interface that the customer view first (index.php). The main menu items are set at the home page. A customer can enter check in and check out date and check the availability of rooms and offers with different meal types.

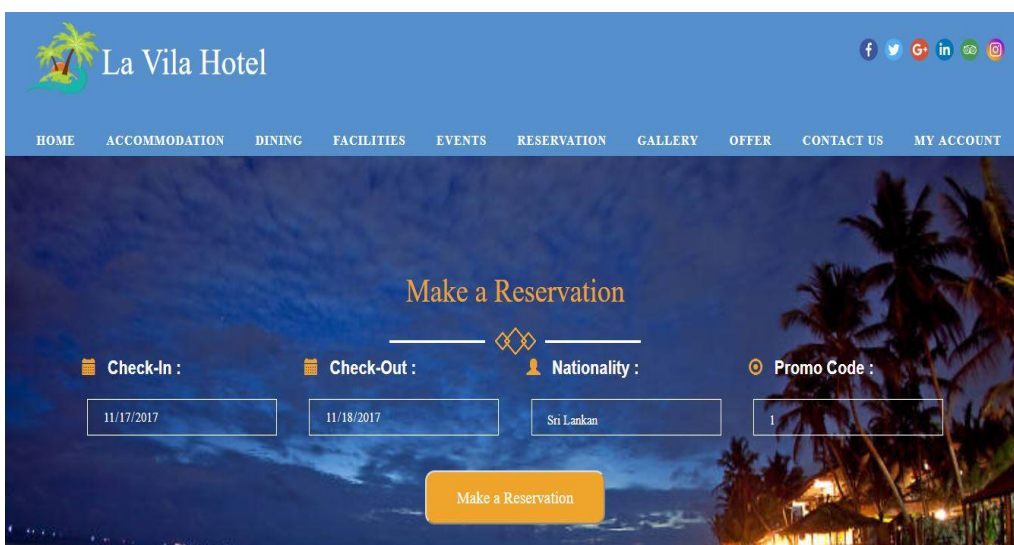*Figure 3.8* shows the Web site home page interface.

Figure 3-8 Website Interface

3.9.2 LOGIN INTERFACE

The users of the system divided in to two, user and customer. When a customer wants to make an online reservation he or she is given a user name and a password to access the system.

This user name and password can be used by that customer for the next time. Staff can also login to the system using their user name and password.

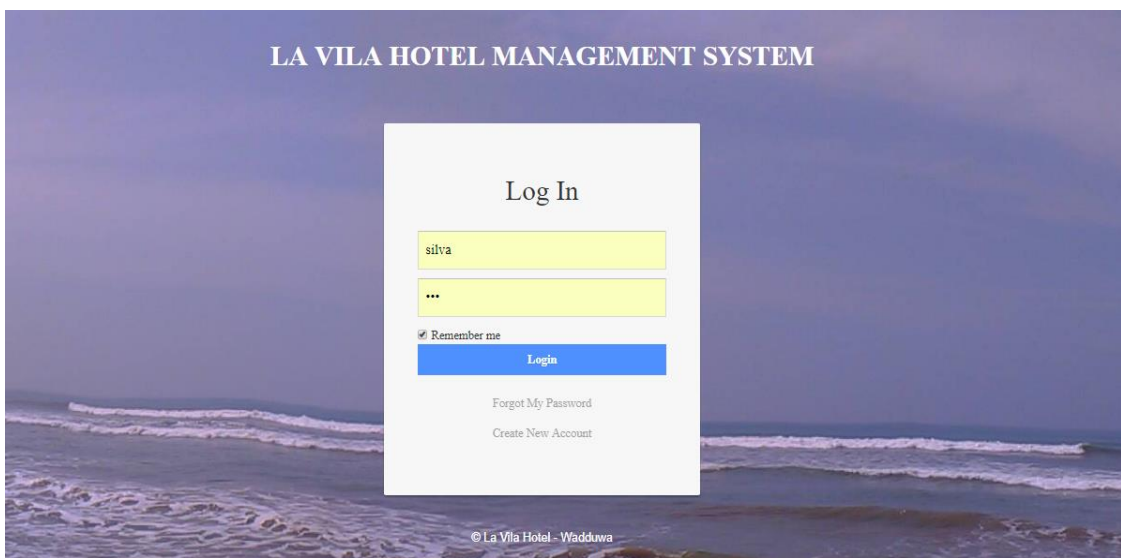*Figure 3.9* shows the internal system login interface for the system.

Figure 3-9 System Login Interface

3.9.3 GET SYSTEM USERS FROM DATABASE

This shows the current employees in the hotel. This phase only shows the important details of the user. By clicking view icon admin can view the whole details of that particular user. While editing user can be activate or deactivate.

Figure 3.10 shows the internal system user list.

Figure 3-10 Fetching data form the database

3.9.4 MANAGE BOOKING A NEW SERVICE RESERVATION

In this interface manager can reserve a service such as various types of spa service, tour and jewelry by providing booking date, customer ID. After selecting service type unit and unit price get auto filled. After submitting the quantity total payment will be calculated and reserved service will be added to the system.

Figure 3.11 shows service booking interface of the system.

Figure 3-11 booking a new service

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3.9.5 MANAGE MEAL ORDER

In this interface Restaurant manager can reserve a meal order by providing booking date, customer ID. After selecting food category, available food items are shown in a list. After selecting food item, unit and unit price get auto filled with default unit. Manager can change the unit and price accordingly.

After submitting the quantity, total price for the food item is calculated. After selecting 'add button' meal order is created at the bottom of the page. Meal order will be added to the system with submitting the form.

Figure 3.12 shows meal order form in LVHMS.

Figure 3-12 Add a meal order

CHAPTER 4 : IMPLEMENTATION

4.1 INTRODUCTION

The project takes shape during the implementation phase. This phase involves the construction of the actual project result. During the Implementation phase project become visible to the outsiders.

All the coding of the software system is done in this phase satisfying the requirements identified so far. The codes are written with readable and understandable format. Comments must be added to the coding and flexible enough for edit source code in future changes.

4.2 IMPLEMENTATION ENVIRONMENT

To buildup LVHMS, I have been used PHP scripting language, HTML, CSS and JavaScript in this project.

PHP is a widely used scripting langue with following benefits.

- Open Source
- Cross Platform
- Power
- User Friendly
- Quick
- Extensions
- Easy development
- Automatically Refreshes
- Community Support
- Other Tools
- Security

The system was developed using following languages tools and hardware configurations.

SOFTWARE

- PHP
- HTML
- CSS
- JavaScript

- Jason

HARDWARE

- The LVHMS was developed using a laptop with following configurations.
- Intel ® Core TM i5 Processor
- 4GB RAM
- 500 GB Hard disk

FOLLOWING DEVELOPMENT TOOLS HAVE BEEN USED

- Google Chrome, Mozilla Firefox, Internet Explorer
- XAMPP Version 3.2.2
- PHP Version 7.1.7
- Apache/2.4.26
- My SQL 10.1.25
- MySQL WorkBench
- php Myadmin
- Ajax
- KompoZer 0.7.10
- TCPDF
- NetBeans IDE 8.0
- Adobe Photoshop CS 5. V 12.0 / GIMP 2

REUSED MODULES

Various modules were used while developing the system and the site.

- JQuery
- High Chart
- PHP Mailer
- Bootstrap
- Moment,js
- Data Tables – pagination
- TCPDF
- Datepicker
- ImagePreview

4.3 NETWORK IMPLEMENTATION

As in the following diagram the internal staff can access the system via web server and the external customers can access it through the telecommunication network via using their username and password.
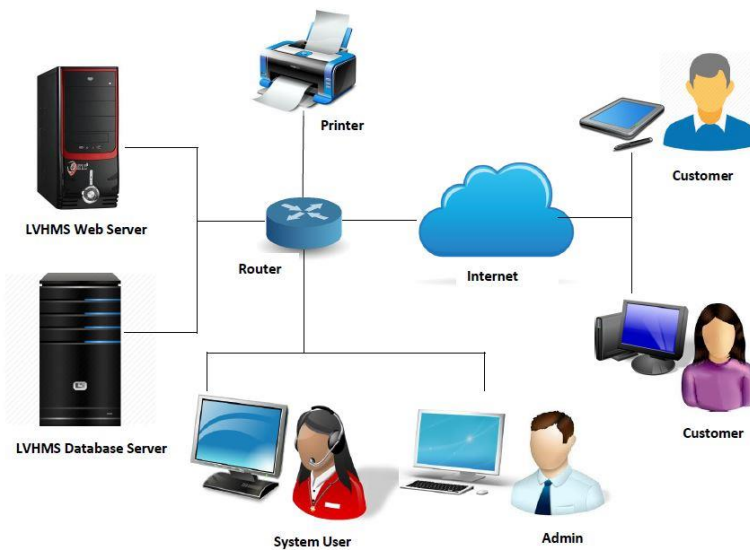
Figure 4.1 show network implementation of the LVHMS.

Figure 4-1 Network Implementation

4.4 CODE SEGMENTS

4.4.1 DATABASE CONNECTION

The system is connected to the database from this code. The die condition can be used if any error is occurred in the connection.

Figure 2.4 shows Establish Database connection.

```
public $db=NULL;
public function __construct() {

    $hostname = "localhost";
    $un = "root";
    $ps = "";
    $db = "lvhms";
    $this->db = new mysqli($hostname, $un, $ps, $db);
    $cntrl_instnce= Controller::get_instense();
    $cntrl_instnce->db=$this->db;
    }
```

Figure 4-2 Establish database connection

4.4.2 LOGIN MODULE

A registered user can login to the system using their username and password. When logging in to the system the user is given privilege for each module which is defined in the database.

After login to the system according to the privileges of the users are checked. Any of the pages are viewed only by the authorized viewers.

Figure 2.4 shows Login privilege handling.

```
function login($data) {
    $is_logn = false;
    $sql = 'select * from ' . EMP_LOGN_DTLS . ' el JOIN ' . EMPLY . ' e ON e.emp_id = el.emp_id '
            . 'WHERE el.user_name="' . $data['uname'] . '" and el.password="' . $data['pass'] . '" ';
    $res = mysqli_query($this->db, $sql);
    $user = mysqli_fetch_object($res);
    if (count($user) == 1) {
        $this->set_session_data($user);
        $is_logn = true;
    }

    return $is_logn;
}
```

Figure 4-3 Login privilege handling

4.4.3 RESERVATION MANAGEMENT MODULE

Figure 2.4 shows this code segment use to fetch current room details are from the DB.

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```
function get_room_list($data) {
    $sql = "SELECT * FROM " . RES_ROOM_TYPE;
    $where = '';
    if (isset($data['item_name']) && $data['item_name'] != '') {
        $where = ' where  r_type_id like"%' . $data['item_name'] . '%"   ';
    }

    $sql = $sql . $where;
    $result = mysqli_query($this->db, $sql);
    $item_list = array();
    while ($row = mysqli_fetch_assoc($result)) {
        $item_list[] = $row;
    }
    return $item_list;
}
```

Figure 4-4 fetch current room details

4.5 SECURITY

4.5.1 ENCRYPTION

Since the system is dealing with external user (Customer) personal information and payment details of transactions it should be maintained with a powerful security method. To maintain security standards SHA-1 was selected as encryption Method over MDS, because SHA-1 produces 160 bit hash values where MD5 produce only 128 bit values. Also SHA-1 is the most widely used method of the existing SHA hash functions.

4.5.2 SESSION HANDLING

Session Support in PHP consists of a way to preserve data across subsequent accesses. This enables to build more customize applications and increase the appeal of the website.

4.5.3 SQL INJECTIONS - PREPAIRED STATEMENTS

SQL Injection is one of the many web attack mechanisms used by hackers to steal data from organizations. SQL Injection is a common application layer attack technique which takes the advantage of improper coding in web application by allowing a hacker to inject SQL command into login from with gain access to the data which holds within systems.

CHAPTER 5: EVALUATION

5.1 INTRODUCTION

Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation.

Testing software is operating the software under controlled conditions to verify that it behaves "as specified" to detect errors and to validate that what has been specified and what are the features that user actually wanted. Testing cannot ensure the quality of software. But testing can be used to give a certain level of assurance in the software.

On its own, Testing software proves whether the software is functioning as expected under specific controlled conditions, by the test cases executed.

5.2 TESTING PROCEDURE

Software evaluation was carried out along with the system development in LVHMS. According to RUP, developing a module in an iterative manner was the suitable process model for LVHMS, Each module developing followed by a testing procedure. Testing validates the quality of the system. Testing with the box approach is conducted with white and black box testing.

Unit testing

A small unit is tested in unit testing which executes a small function and check whether it gives the expected output. Unit testing can be done with black box test or a white box test.

White-box testing

Tests internal structure, test functions exposed to the user. First chooses the Inputs and put them to the code and determine the appropriate outputs.
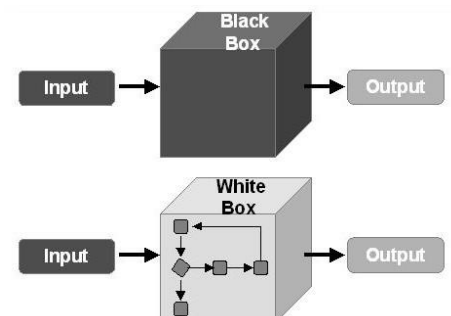

Figure 5-1 Black Box Testing and White Box Testing [14]

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Black-box testing

This basically treats the software as a black box. It is without any knowledge of internal implementation examining the functionalities.

Integration testing

The integration testing involves testing the integration of the individual modules to avoid conflicts. This will check the integration between the system and the design. Even though the individual code fragments pass the unit test, when combing those together a problem might occur as the individual code fragments has to be integrated together to build the final system.

System Testing

After unit testing and the integration testing the full system has to be tested in an environment similar to the client environment. System testing checks for the errors that may arise in the real environment.

User acceptance Testing

User acceptance testing is the last phase of the software testing process. The system must be checked by the end users. The end user will check whether the system functionalities are working properly and check whether they match with the requirement specification. This is to ensure that the provided software solution will work for the client.

5.3 TEST PLAN AND TEST CASES

The test plan shows the strategy that ensures the system meets its design requirements. In test cases, there must be at least two test cases for a single requirement to test that all the requirements are met, one positive test and one negative test.

The written cases should include a description of the functionality to be tested and the preparations required to ensure that the test can be conducted.

5.3.1 ROOM RESERVATION

Table 5.1 Shows test plan for room reservation process.

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
Test cases for room reservation			
1	Check room availability	Select the check in date check out date and check the availability.	If the dates are selected correctly system displays available rooms and offers for selected date rage.
2	Customer details	Enter customer email address	If the customer is already registered with the LVHMS then the email sent.
3	Validating customer details	Customer adding their personal details	Validate NIC number, telephone number email and dob
4	Choosing the payment method	Select card or cash from payment method.	If the card was selected it will direct to the payment gateway. For the cash payment it will show the pdf bill.
5	Successful message	After the successful room reservation process customer get a message	Customer get a success message and printing option
6	Validate	If customer change the check in and check out date at the middle of the reservation process	Re generate available rooms and offers while removing current selected room type details.

7	When no room selected from the available rooms or offers	If customer ignores selecting room from available rooms from the room list or	Will not allow proceeding further and show error message.
8	Reservation summary	Check top of the reservation page and summary has displayed	Summary of the reservation room details and amount up to the point is showed
9	View the total amount for the reservation	Check the bottom of the right hand side of the web site	The total amount includes room charges depending on the selected room type, meal type and bed type of the normal room rates.

Table 5-1Test cases for room reservation

CHAPTER 6 : CONCLUSION

6.1 INTRODUCTION

In the year 2000 'Hotel LA VILA' which was started by Mr.N.Stanley Silva. Currently 50 staff has being employed under his commands. and Even though it has being nearly 17 years yet, all reservations are managed manually.

When looking forward to enhance its revenue by attracting customers and providing better services, the need of a computerized system arises.

Because it's a day-to-day customer related industry, an internal system and as well as a website is important to be maintained.

The implementation of the website is important for the customer to get an idea about the hotel, to see the facilities available for the customer if he is visiting, to see the food menus, order food for an occasion, if delivery is needed set up their destination, reserve hotel room/banquet hall, get to know the hall prices, etc.

Since hotel industry is a very competitive industry it is very important to attract the customer to the hotel.

The implementation of the system is very important as chairman, manager, cashier, accountant, receptionist are all part of it. It helps to maintain a smooth run in the work and keep necessary documentations, reports and statistical charts that will show the improvements of the hotel in time to time.

The system allows the customers to check for availability of the rooms & banquet halls and grounds, make online reservations, check for available food setup menus, and plan their stay at the hotel.

The site and the system were built by using PHP, HTML, CSS and JavaScript

6.2 LESSONS LEARNT BY UNDERTAKING THIS PROJECT

- This was a great opportunity to get a practical knowledge of what was learnt so far throughout the BIT degree program.
- From the beginning, requirement gathering to the deployment of the system was not a smooth task. It helped me to learn to cooperate with people and to manage work and time
- Obtain knowledge in programming with PHP and MySQL.
- Experiencing the project management cycle and most of the knowledge areas relevant to the project development.
- Obtain knowledge, how to manage the scope, time and resources.
- Writing of the thesis followed by the standard methods was another learning outcome.

6.3 PROBLEMS ENCOUNTERED DURING THE PROCESS

During the project life cycle several problems were encountered

- Gathering information from different types of users was very time consuming.
- Gathering requirements from four various different branches located in several places were hard.
- Extracting useful information from the gathered requirements to design the system was very critical.
- Time management
- Short of knowledge in programing with PHP and MySQL lead to incur more time for coding and testing.

6.4 CRITICAL EVALUATION OF THE PROJECT DEVELOPMENT

Project development was started with requirement gathering and analyzing the problem domain. Since the client is currently having a manual system, requirement gathering and customer satisfaction was a hard task to accomplish.

Due to the unfamiliarity of the problem domain, this stage took a long period of time in the project life cycle.

Increasing the efficiency and effectiveness of the performance was the primary objective. To achieve the goal, different new functionalities were introduced by the client such as food delivery service.

Class diagrams, ER diagrams, several Use case diagrams were used to analyze the system. Database was normalized according to the requirements and interfaces were designed according to user preference.

Testing was done to make sure the reliability of the functions. It was done throughout the coding part and as well as unit based (unit testing) and finally, based out the entire system (system testing).

Receptionist makes room reservation using the log book placed in the receptionist desk. Availability of the log book and customer details depends on receptionist's working schedule

Other than that while the receptionist is not available the other authorized person can access the log book to make reservations. It makes customer's information unsecure. Banquet reservation and restaurant operations are also done manually by issuing a receipt from the receipt book and the availability of food items could not be viewed clearly.

With the developed LVHMS the manual system of hotel La Vila is replaced according to user requirement and satisfaction. With compared to the existing similar systems with LVHMS there are many new functionalities developed for the new system.

Customer can place an inquiry using the La Vila hotel website and the inquiry can be viewed by the receptionist directly from the LVHMS.

Service manager can make service reservations with LVHMS and using this system can reserve spa, banquet and tour also. Restaurant manager can add new food items with the selected food category. And the available food items are displayed to make reservations.

Receptionist can assign rooms for customers when they check in to the hotel. Receptionist can have a quick view on available rooms by using LVHMS. Customers can make payments while they stay in the hotel or while check out from the hotel. There are many other unique features which are not found in exiting similar systems

6.5 FUTURE IMPROVEMENTS

6.5.1 SMS GATEWAY

The system can maintain an SMS gateway, which will help to keep track on the customers and help to maintain the efficiency of the system.

An SMS gateway allows a computer to send or receive Short Message Service (SMS) transmission to or from a telecommunications network. Most messages are eventually routed into the mobile phone networks. Many SMS gateways support media conversion from email and other formats.

6.5.2 HUMAN RESOURSE MANAGEMENT

The system can manage the HR management of the system which will keep track of the salaries. Human Resource Management (HRM, or simply HR) is a function in organizations designed to maximize employee performance in service of their employer's strategic objectives.

6.5.3 ADDING RSS TO THE SYSTEM

RSS feeds enable publishers to syndicate data automatically. A standard XML file format ensures compatibility with many different machines/programs. RSS feeds also benefit users who want to receive timely updates from favorite websites or to aggregate data from many sites.

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APPENDIX A : SYSTEM DOCUMENTATION

This documentation provides guide lines and technical details to the users of the system and any other person interested on how to install in their pc or laptop including the hardware and the software requirements to operate the system.

This will be useful for initial installation of the system and any future modification to be done as well.

Hardware requirements

Hardware	Minimum requirements
Processor	Pentium 4 ,1GHz processor or grater
Memory	1GB RAM or higher
Hard disk Space	1GB or higher
Display	1024x768 or Higher
Internet	Minimum 512kbps
Printer	Dot-matrix printer or any

Table A-1 Hardware requirements for initial installation of the system

Software requirements

Software	Minimum Requirements
Operating System	Windows XP/ Windows 7 / Windows 8 / Windows 10
XAMPP	version 3.2.1/ Apache server 2.4.4/ MySQL 5.5.32/ PHP 5.4.19
Web Browser	Google Chrome. Firefox
Image editor	GIMP -2.8.22 / PhotoScape 3.7
SMS Server	

Table A-2 Software requirements

Skills required for development

Software	Minimum requirements
Software Languages	HTML, PHP, JQuery, CSS and MySQL.
Environment	Knowledge with working in the XAMPP server

Table A-3 Skills required for development

Install the relevant software

- Download XAMMP server from https://www.apachefriends.org/index.html and install it in the machine.
- Download the PHP mail server and install

Setting up LVHMS

- Open 'C:\XAMMP\htdocs' folder in XAMPP and paste the LVHMS folder in the CD_ROM
- Open the browser and open go to 'http: //localhost/phpmyadmin'.
- Create a new Database named LVHMS with the collation 'utf8_general_ci'.
- Open the newly created database and click the import tab given in the menu.

Figure A-1 Shows process of setting LVHMS DB.

Figure A-1 Setting up LVHMS database

- Browse and select the 'lvmanagementdb.sql' file from the CD-ROM and import.

Backup

In order to store the daily backups create a folder in the computer as LVHMS mysql_backup and make sure to copy it to an external disk as well.

Usage

Once the LVHMS folder is copied to the htdocs' folder and the database is imported as mentioned above the system is ready to use by typing the below URL in the web browser. [http://localhost/lvhms/internal/]

APPENDIX B : DESIGN DOCUMENTATION

USE CASE DESCRIPTIONS

The original developers may not be the ones who do all the modification to the system in future. Therefore storing and saving the vision of original developer is vital. The following diagrams depict the use case diagrams of each module and it also shows a clear picture of the whole system. Plus this will provide a better understanding about the modules of the system.

ROOM DETAILS MANAGEMNT

Figure B-1 Shows use case for manage room details.
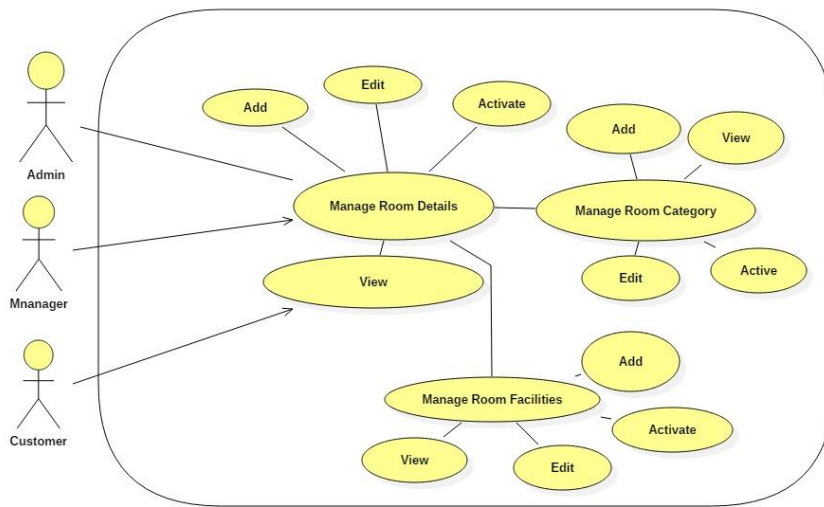
Figure B-1 Use case: Manage room details

Use-case Description for Manage Room Details.

Use-case	Manage Room Details.
Actor	Admin , Receptionist

Overview
Manage Room Details.
Precondition
System users should be log in to the system.
Flow of events
Customer view the facilities of the room.
Receptionist updates the room condition details.
Receptionist can be checking the usage of the rooms.
Post conditions
Room details can be used to generate reports on room usage.

Table B-1 Use-case Description for Confirm Reservation

ROOM RESERVATION MANAGEMNT

Figure B-2 shows use case for room reservation management
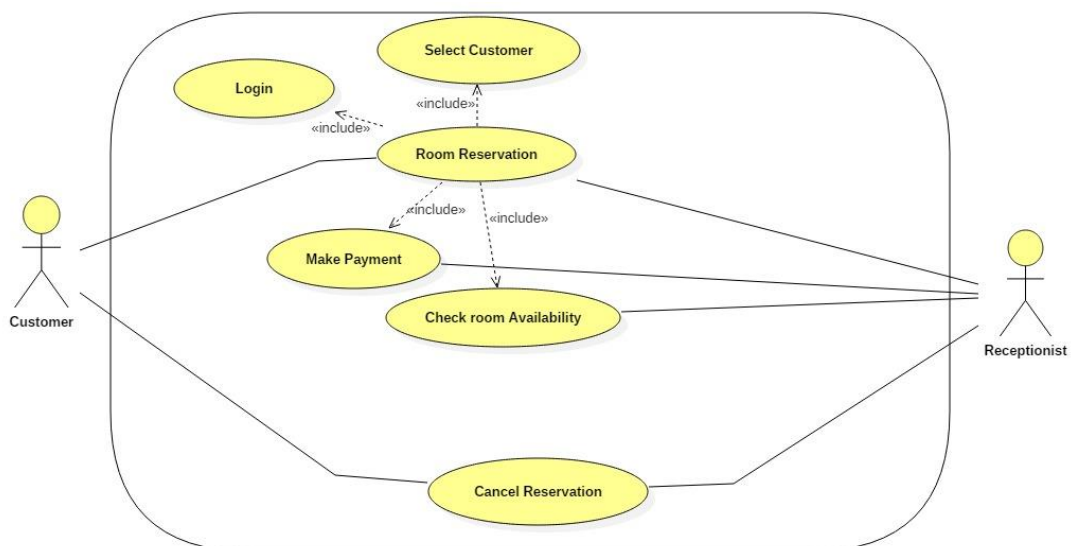
Figure B-2 Use case: Add room reservation.

Use-case Description for Add Room reservation.

Use-case	Add room reservation.
Actor	Customer , Receptionist
Overview	
Add room reservation.	
Precondition	
System users should be interacting with the system through internet.	
Flow of events	
User enters check in and checkout dates and click Book now button.	
System display available room types on requested date range.	
User select room type, meal packages.	
User enters user details and edits them.	
User makes payment or cancels the reservation.	
Post conditions	
Reservation data save in the database	

Table B-2 Use-case Description for Handle Room Details

SEQUENCE DIAGRAMS

ROOM RESERVATION

Figure B-3 shows sequence diagram for room reservation process
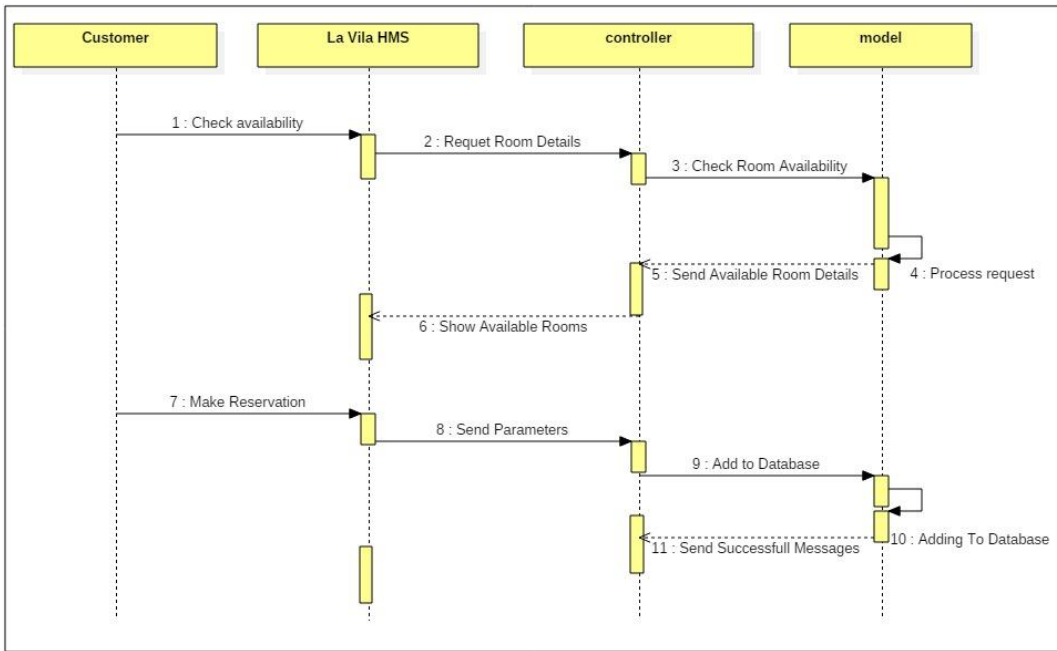
Figure B-3 Sequence Diagram: Room reservation processes

ACTIVITY DIAGRAMS

USER MANAGEMENT

Figure B-4 shows activity diagram for user management
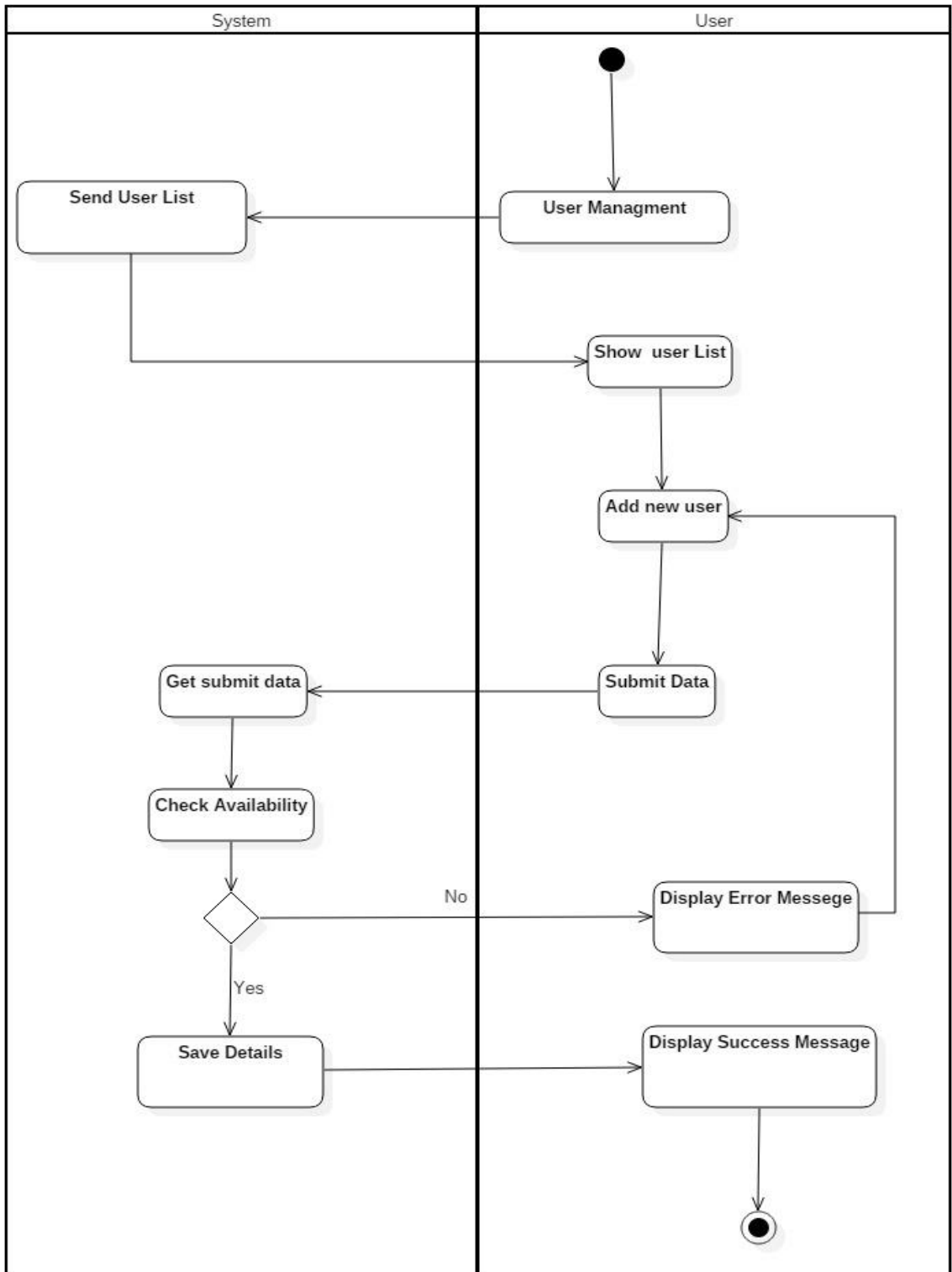
Figure B-4 Activity Diagram: User Management

DATABASE DESIGN

This shows the ER diagram in a much detailed form with their primary keys, foreign keys and relationships.

- **ER DIAGRAM SECTION FOR FOOD AND MEAL HANDLING**

Figure B-5 shows ER diagram section for food and meal handling
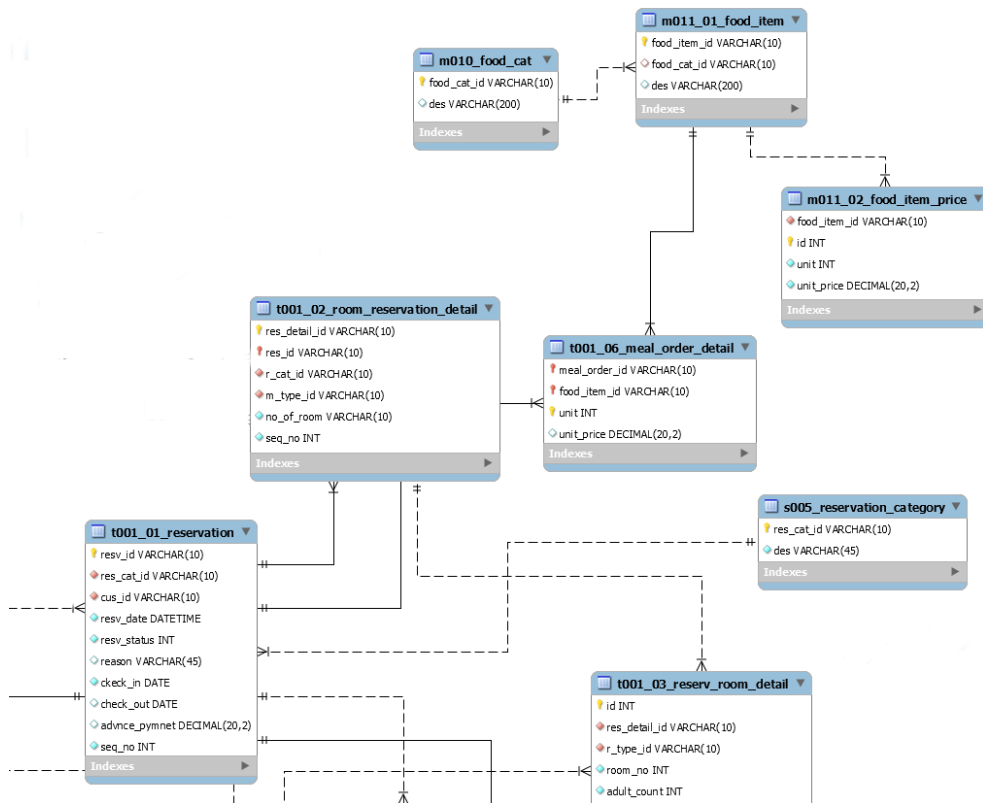
Figure B-5 ER diagram section for food and meal handling

- **ER DIAGRAM SECTION FOR ROOM RESERVATION MANAGEMENT**

Figure B-6 shows ER diagram section for room reservation management
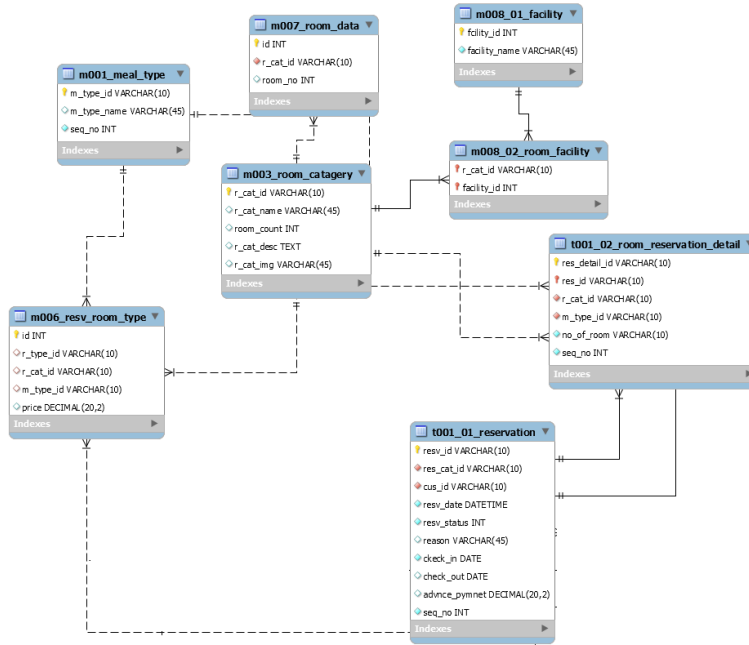
Figure B-6 ER diagram section for room reservation management

- **ER DIAGRAM SECTION FOR USER MANAGEMENT**

Figure B-7 shows ER diagram section for user management
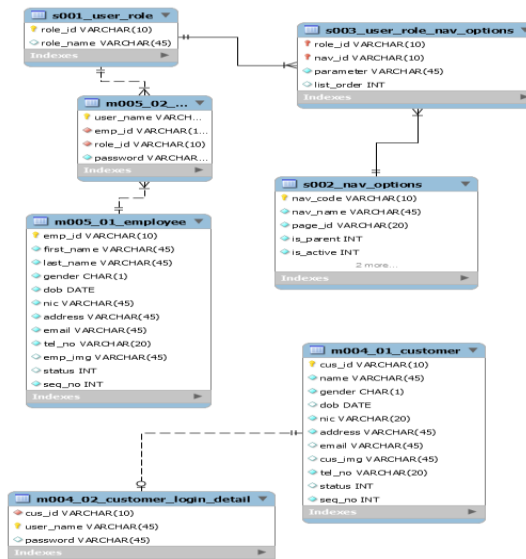
Figure B-7 ER diagram section for user management

APPENDIX C : USER DOCUMENTATION

The documentation bellow is for the users and the interested parties of the system and those who are using the LVHMS to understand the functionalities of the system and to use it efficiently. There are 8 major roles namely Administrator, General Manager, Banquet Manager, Restaurant Manager, Service Manager,Registered Customer and Receptionist.

The system privileges given to each of these roles differ as follows.

- **Manager** – Generate statistical charts, Generate system reports and prepare reports based on the conclusions
- **Administrator** - Check for reservations, Edit content, Add users to the system, Add rooms, Add Halls
- **Banquet Manager** – Handle banquet hall operations.
- **Restaurant Manager** – Handle restaurant operations.
- **Service Manager** – Handle spa service and tour services.
- **Registered customer** – Make online reservations, Do meal orders, Get special offers
- **Guest user** – Make online room reservations, view details
- **Receptionist-** Make reservations

GENERAL GUIDELINES TO DO A ROOM RESERVATION

- Fill up the check in and check out date fields and click on the make a reservation button in the home page. Home page is depicted in figure C.1

- The given dates for check in and check out fields were send to the reservation page in web site.

Figure C-1 shows home page of the web site
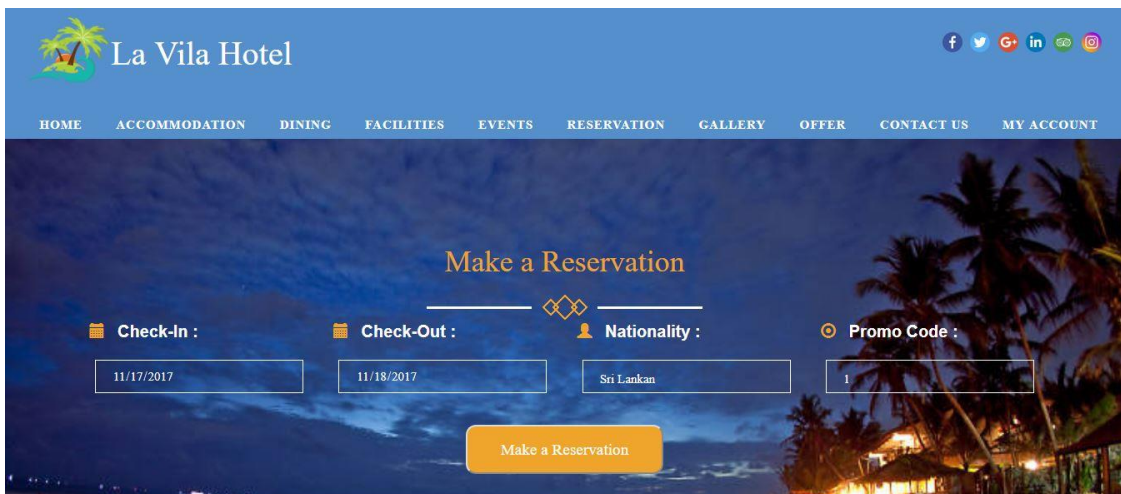
Figure C-1 Home page of the web site.

- The given check in and check out dates are forward to Reservation page as follows.

Figure C-2 shows reservation page of the web site
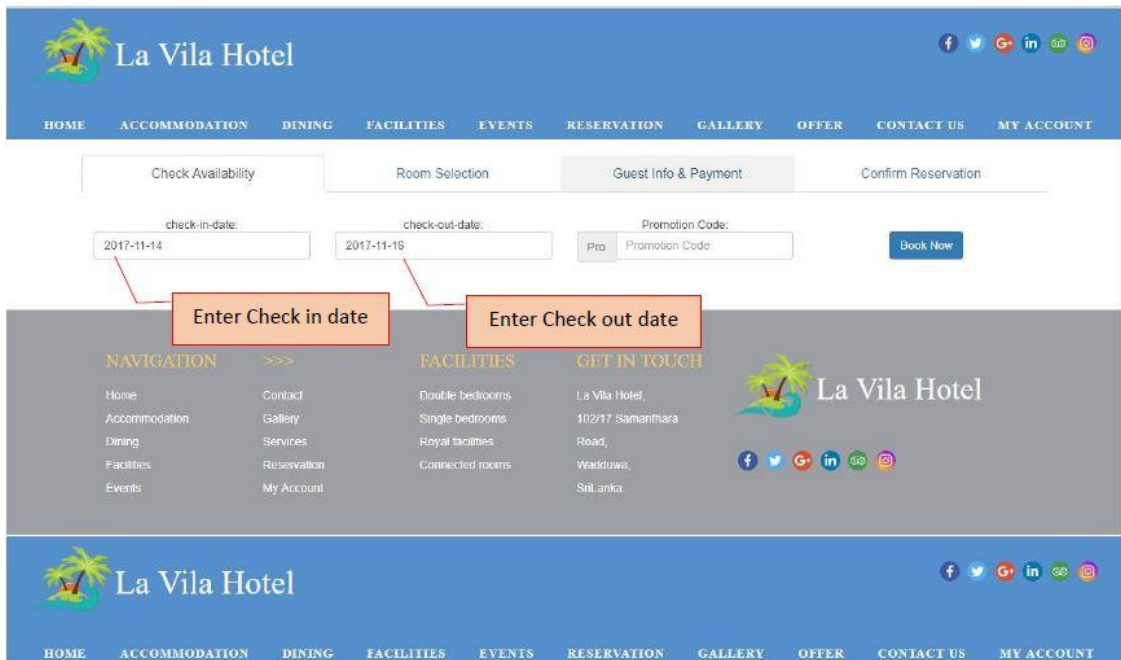
Figure C-2 Reservation Page of the web site.

- User can change the check in and check out date fields in this stage again and click on book now to continue reservation process.

Figure C-3 shows reservation page of the web site for add room
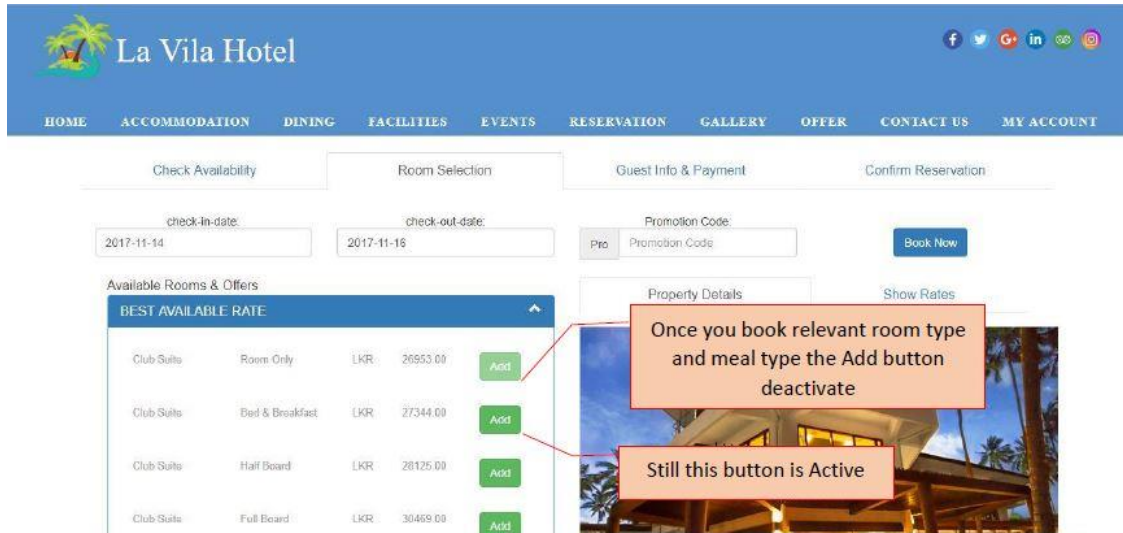
Figure C-3 reservation page of the web site – add room

- The system provides Available room and offers for the selected date rage. Price are given for a particular room type and meal type in a list.
- If user select particular room type once he can't select same room type with meal type again.
- The ADD button get deactivated as the shown in the figure above.

Figure C-4 shows reservation page of the web site for select occupancy and select multiple rooms.

Figure C-4 Reservation page of the web site – select occupancy and multiple rooms

- For selected room type User can select available rooms and bed type or each select room. No of Adults and Children amount vary from the selected bed type.

Figure C-5 shows reservation page of the web site for calculate total price.
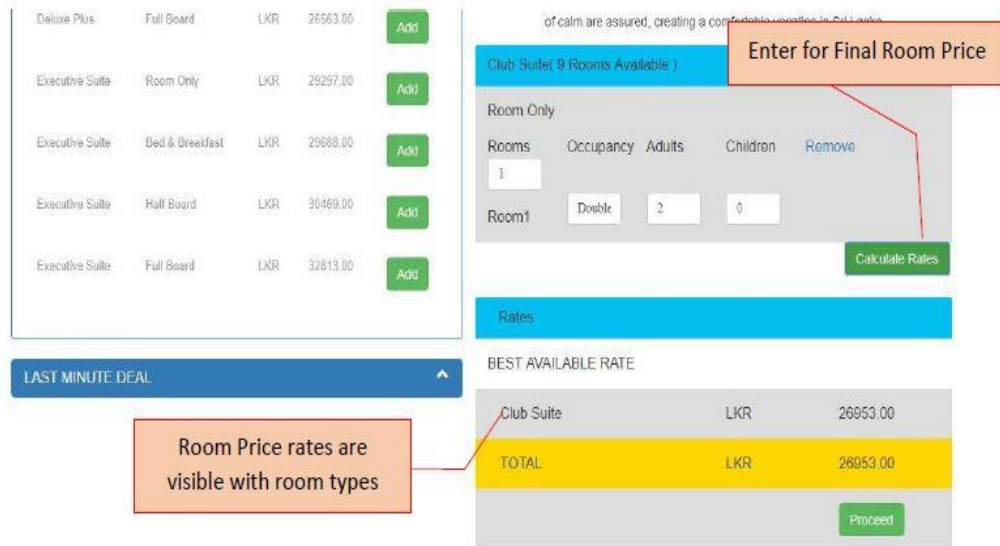
Figure C-5 Reservation page of the web site – calculate total price

- By clicking calculate rate the user get the final Amount for the room reservation and proceed for getting customer details.

Figure C-6 shows reservation page of the web site for room reservation summery.
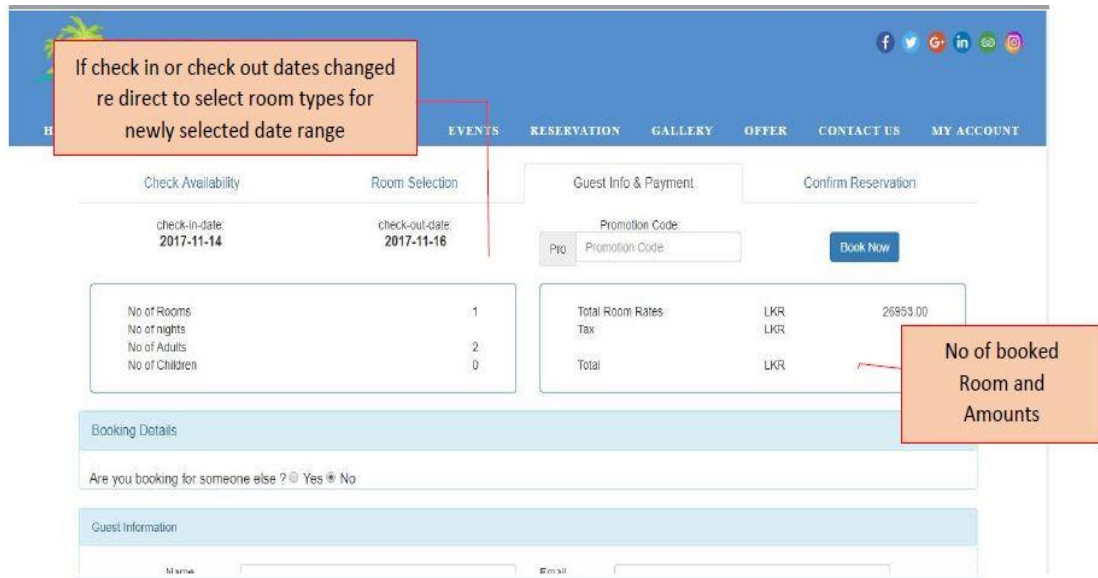
Figure C-6 Reservation page of the web site – view room reservation summery

- If customer is not the guest boath customer and guest details are colect by the sytem.
- After proceeding the payment can be done with cash or card with payment gateway.

Figure C-7 shows reservation page of the web site for enter guest information details.

Figure C-7 Reservation page of the web site – enter guest information details

When the customer check in the hotel the receptionist can view the reservations and details for a specific reservations with this interface.

Figure C-8 shows the reservations and details for a specific reservation.

Figure C-8 Room Reservation management details

ROOM RESERVATION FORM (Guest info and payment)

When making a reservation, customer needs to fill guest information and select payment type. If guest is not the booking person, booking persons details must enter as Customer information.

The customer must select whether the payment is done via card or by cash. If it is via card the transaction will be done through the web. If customer paid with cash the customer can do payment when he arrived to the hotel there self.

Figure C-9 shows the guest information and payment form.

Figure C-9 Guest info and payment form

ACCOMODATION PAGE OF THE WEB SITE

Clear descriptions about room categories are available in this page. The customer can select a room and try to get the reservation idea from this page.

Figure C-10 shows the Accommodation page of the web site.

Figure C-10 Accommodation page of the web site

CONTACT US PAGE OF THE WEB SITE

In this page customer can view the route map, address and contact numbers and email address for the hotel La Vila. Customer can select inquiry category and make inquiries using the inquiry form on this page via submitting inquiry form.

Figure C-11 shows the Contact Us page of the web site.
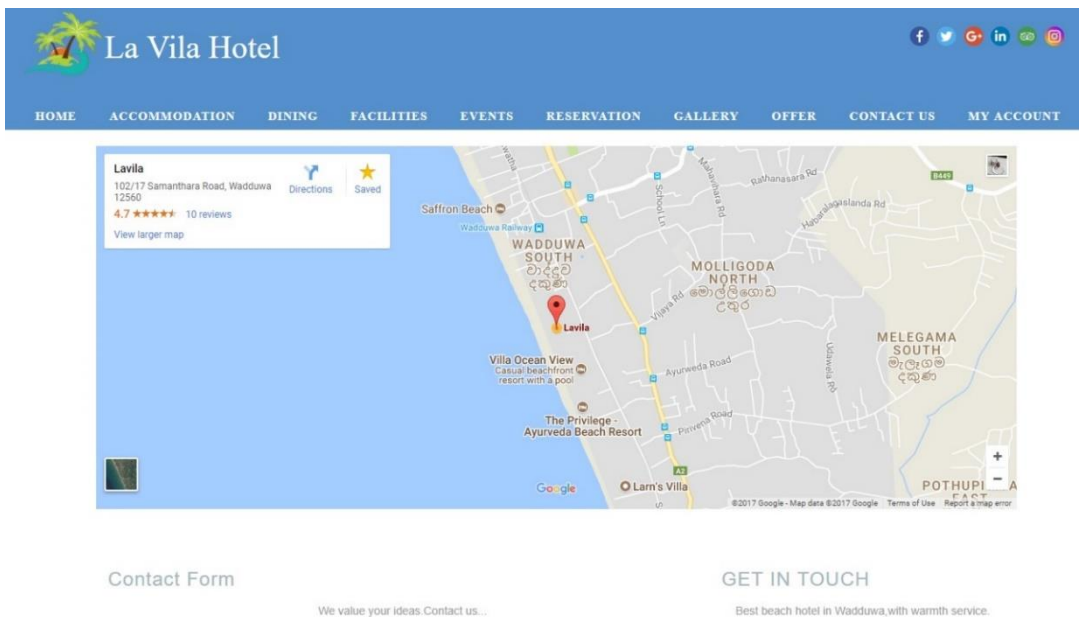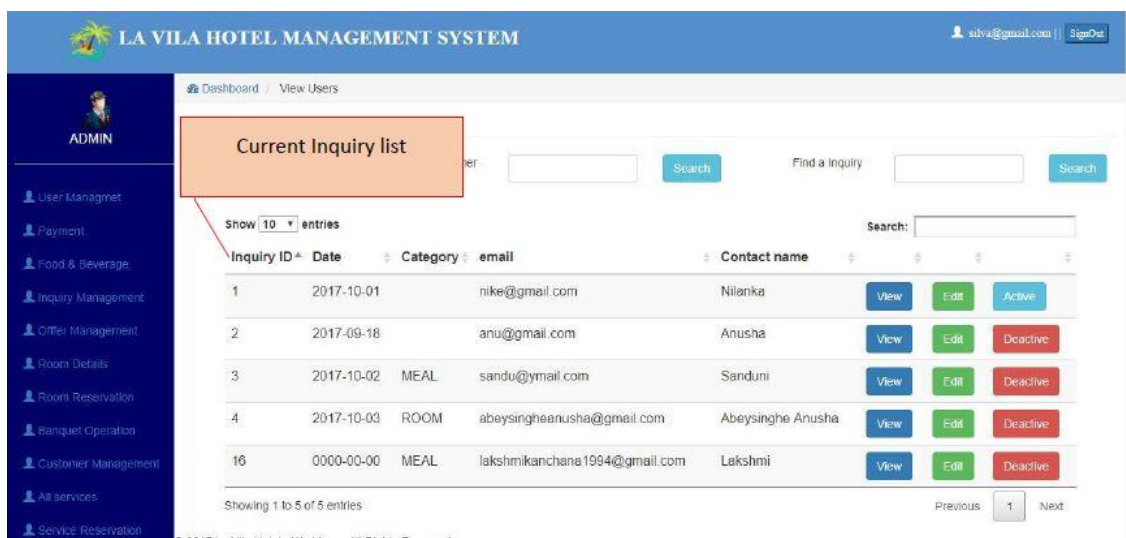
Figure C-11 Contact us page of the web site

GENERAL GUIDELINES TO COLLECT CUSTOMER INQUIRIES.

- This Interface shows the customer inquiries make through the web site. The customer can send message via the inquiry and system user in hotel can view the inquiry details and reply for the inquiry.

Figure C-12 shows the inquiry list of LVHMS.

Figure C-12 Inquiry list

- This web interface provide Customer to communicate with the hotel in efficeient way.
- Customer can enter name,email,category and the message and send.

Figure C-13 shows the inquiry form of La Vila Hotel Web site.
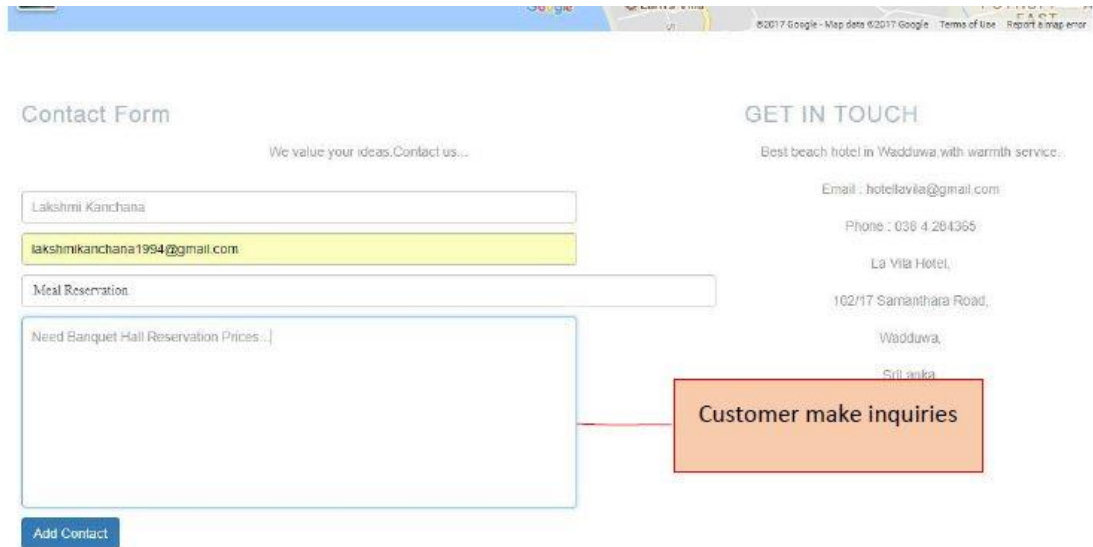
Figure C-13 inquiry form in the web site

GENERAL GUIDELINES TO FOOD AND BEVERAGE HANDLING.

- The Restaurant manager can view the current meal orders and Add a new meal order from this interface.
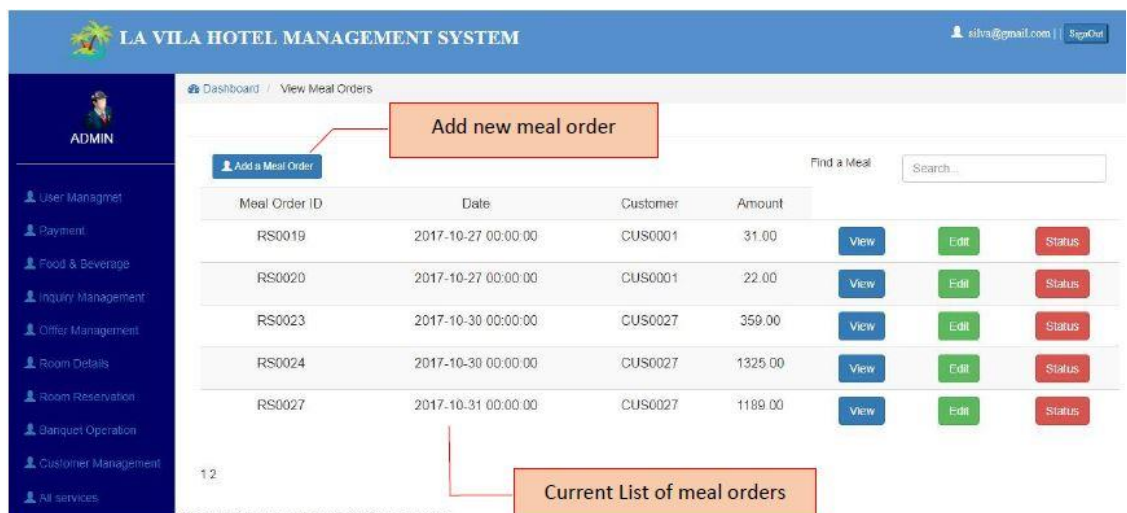
Figure C-14 shows the meal order list of LVHMS.

Figure C-14 Meal order list

- When adding a new meal order System user has to select date, customername food category. According to selected food category user get food items.
- With the chosen food item user can select the unit and the price will appear in the interface.
- The user have to add quantity of food item and the price will added to the meal Order wise food item.

Figure C-15 shows the meal order form of LVHMS.

Figure C-15 Add meal order form.

LOGIN INTERFACE FOR REGISTERED CUSTOMERS

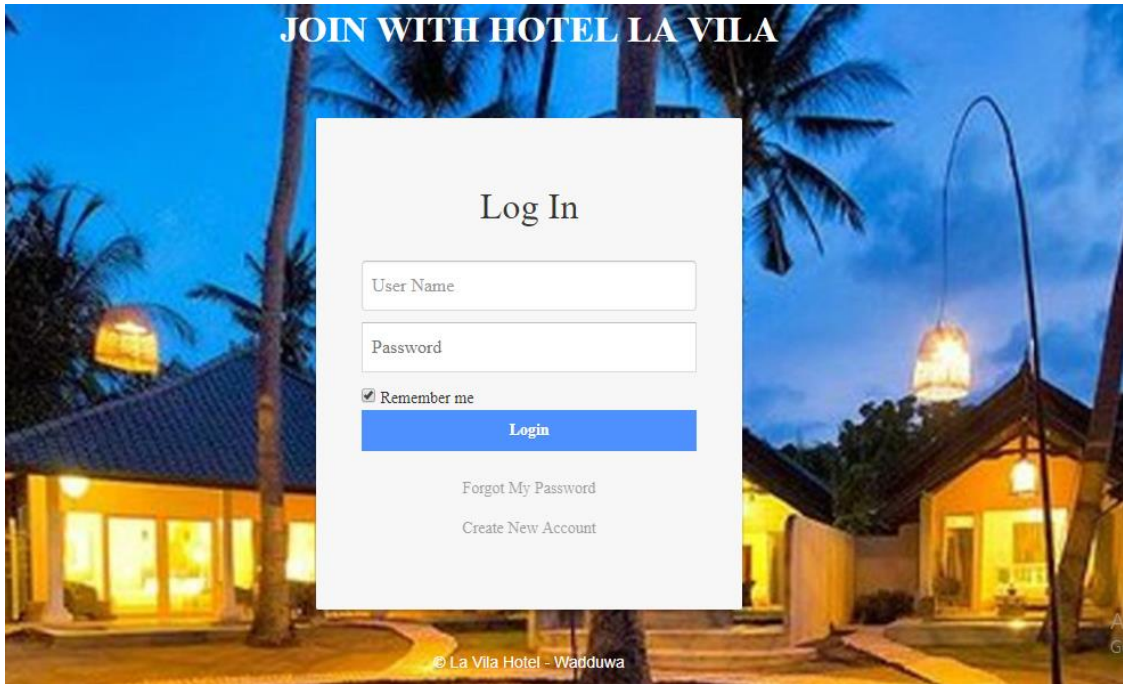Figure C-16 shows the customer login interface for LVHMS.

Figure C-16 Login interface for customer login.

RESERVATION PAYMENT DETAILS FOR RESERVED CUSTOMERS.

Figure C-17 shows the reservation payment details form in LVHMS.
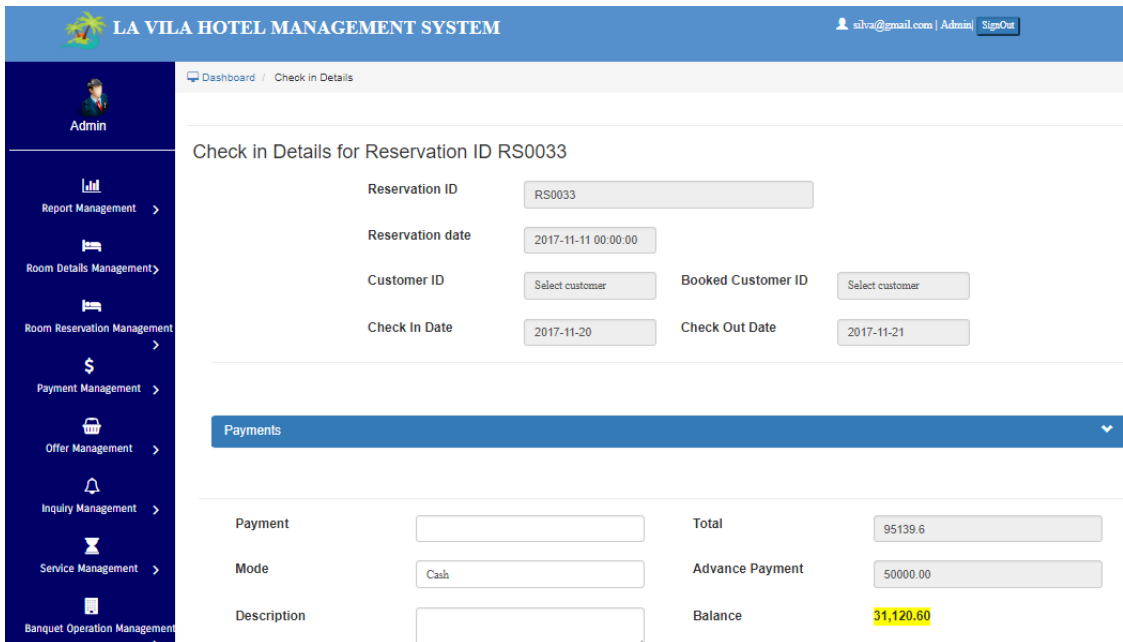

Figure C-17 Reservation Payment details for reserved customers.

ROOM STATUS OF THE HOTEL.

Figure C-18 shows the room status detail interface of LVHMS.

Figure C-18 Room status details of the hotel.

MANAGE ROOM CATEGORY DETAILS OF THE HOTEL.

Figure C-19 shows the room category list interface for LVHMS.

Figure C-19 Manage room category details interface.

MANAGE ROOM FACILITY DETAILS OF ROOM CATEGORIES.

Figure C-20 shows the room facility management form interface for LVHMS.

Figure C-20 Room Facility management interface.

MANAGE RESERVATION ROOM DETAILS.

Figure C-21 shows the room reservation rates detail list interface for LVHMS.

Figure C-21 Room reservation detail management.

MANAGE INQUIRY DFETAILS

Figure C-22 shows the inquiry list interface for LVHMS.

Figure C-22 Manage inquiry details interface.

APPENDIX D : MANAGEMENT REPORTS

The system allows the hotel management to generate useful reports that will help in the future management decision making.

- **Total reservation by service types**

This Report generated according to the selected date range in given date pickers by analyzing total reservations by category types. Category types are represent with percentages.

Figure D-1 shows the total reservations by category types for LVHMS.
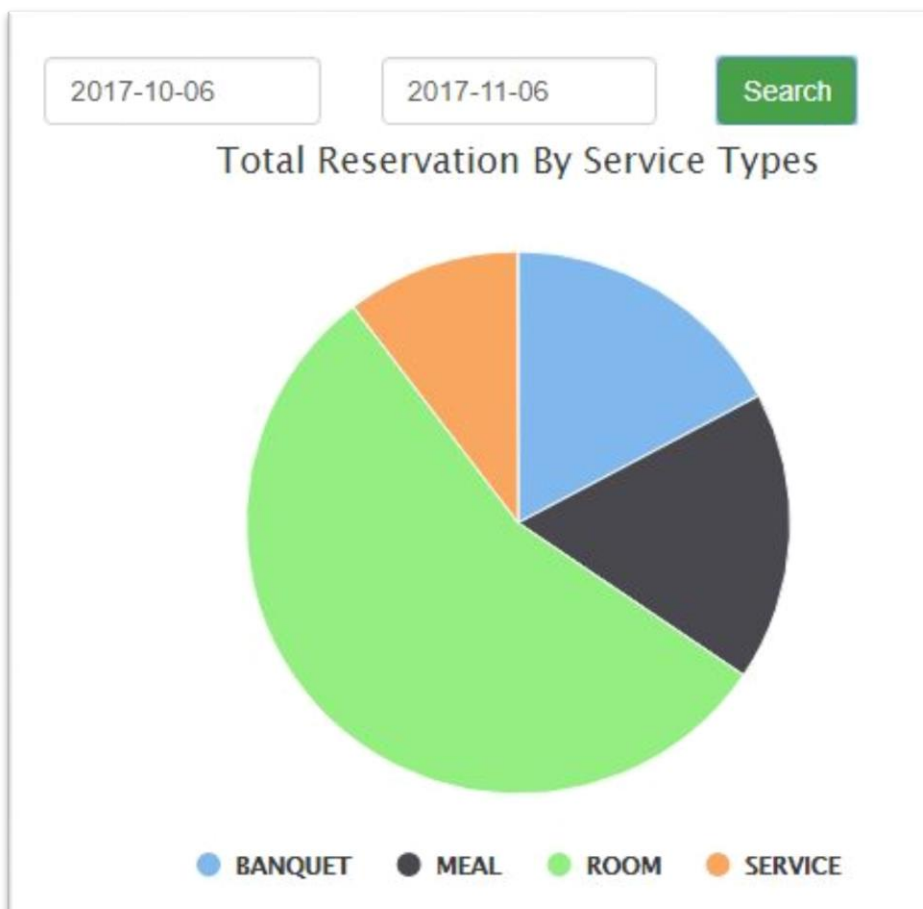
Figure D-1 Total reservation by room types.

- **Total room reservation by room category types**

This Report generated for a year by analyzing total room reservations by room type. Room types are present monthly wise.

Figure D-2 shows the annual room reservation by category types for LVHMS.
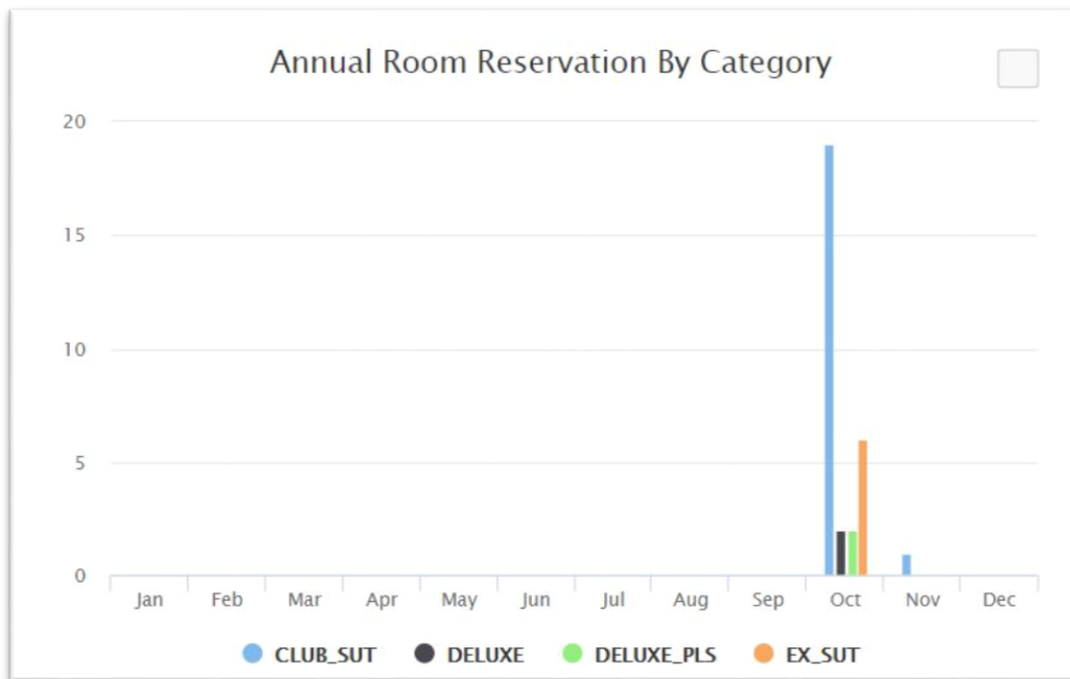
Figure D-2 Room Rservation By Category Chart.

REPORTS

All the reports are generated in pdf format so the management can take printouts of necessary reports or download them and save it in the PC.

Room reservation list report

This will generate a report based the selected date range reservations and the total income. This report is useful to get a brief idea of the income as well as to get a count of the reservations handled in a particular month.

Figure D-3 shows the room reservation report for LVHMS.

Figure D-3Room reservation list report

Banquet reservation list report

This will generate a report based the selected date range banquet hall reservations. This report is useful to get a brief idea of the income as well as to get a count of the banquet reservations handled in a particular month.

Figure D-4 shows the room reservation report for LVHMS.

Figure D-4 Banquet reservation list report.

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APPENDIX E : TEST RESULTS

ADMINISTRATION

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
	Test Cases For Administration (General Manager)		
1	Adding new users (staff members)	Fill the required field and giving the users a unique Employ Id and a password	A new staff member is added.
2	Validating the email.	Add the email in the field	If the email already exist error message display.
3	Edit users details	Make changes required for the user details of a particular user.	The user details will be edited and a success alert will be displayed.
4	Active / Deactivate user details	In process of edit user details of a particular user check the check box or remove the check for make the user active.	The user will be active or deactivate and a success alert will be displayed.
5	View registered customer details.	Click on customer management	View the registered customer details.
6	Adding new room.	Fill the required field and click add.	A new room is added for a room type creating a unique room id.

7	Edit room details	Make changes required for the room details of a particular room.	The room details will be edited and a success alert will be displayed.
8	Change the status of the room	In process of edit room details of a particular room check the check box or remove the check for make the room status available.	Selected room will be deactivate from the system.
9	Add new hotel service	Fill the required filed and click add.	A new hotel service is added creating a unique hall id.
10	Edit current hotel services	Make changes for particular hotel services.	The hotel service details will be edited and a success alert will be displayed.
11	Active and deactivate hotel service.	In process of edit room details of a particular hotel service check the check box or remove the check for make the hotel service active or deactivate.	Selected hotel service will be deactivate from the system.
12	Add new food item	Fill the required filed and click add.	A new food item is added creating a unique food id.
13	Edit current food item	Make changes for particular food item.	The food item details will be edited and a success alert will be displayed.

14	Active and deactivate food item.	In process of edit food item details of a particular food item check the check box or remove the check for make the food item active or deactivate.	Selected food item will be deactivate from the system.
15	Add new meal order	Fill the required filed and click add.	A new meal order is added creating a unique meal order id.
16	Edit current meal order	Make changes for particular meal order	The meal order details will be edited and a success alert will be displayed.
17	Active and deactivate meal order	In process of edit meal order details of a particular meal order check the check box or remove the check for make the meal order active or deactivate.	Selected meal order will be deactivate from the system.

Table E-1 Test Cases for Administration (Owner)

TEST CASES FOR BANQUET HALL RESERVATION

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
Test cases for Banquet Hall Reservation		
1	Choose the banquet hall	Choose the banquet hall from the given list	Default unit and unit price changes according to the selected banquet hall

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
2	Validate when the number of days are not given	Enter the no of days for the selected banquet hall	If ignored a message will appear says that select no of days. According to the given no of days total payment has been calculated.
3	Validate when the customer is not selected	Select the customer from the given list.	If ignored a message will appear saying select the customer
4	Enter advance payment for banquet hall	Enter amount that pay as advance payment	Calculate the payable amount that have to be paid in future.

Table E-2 Test cases for Banquet Hall Reservation

FOOD AND BEVERAGES

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
Test cases for add a meal order.			
1	Choose the food or beverage category	Choose the food or beverage category from the drop down list	Get all the food items that related for the selected food category
2	Choose the food item	Choose the food item from the drop down list	Get units for the selected food item
3	Choose the food unit	Choose the food unit from the drop down list	Unit price changes according the given unit of the selected food
4	Food item added to the meal order	User enter quantity of units for required food category item and unit	The selected food order details are added to the table of the customer

5	Validate when the customer is not selected	Select the customer from the given list	If ignored a message will appear saying that the customer has not been selected.
6	Validate when food category is not selected	Select the needed food category from the given list	If ignored a message will appear saying that select the food category
7	Validate when the food unit was not selected	Select the needed food unit from the given list.	If ignored a message will appear saying that select the food unit
8	Validate when the quantity of food is not selected	Enter the number of quantity for the selected food	If ignored a message will appear saying that select the food quantity
9	Order the food item	Click add button to add the meal item to the meal order.	The selected food item will added to the meal order table Total Payment is calculated and display at the bottom of the page

Table E-3 Test cases for food and beverages

TEST CASES FOR SYSTEM LOGIN

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
Test cases for system login.			
1	Validate User input Details	Enter correct User name Enter correct Password	Successfully login to the system And Show Dashboard Welcome Message

2	Validate User input Details	Submit Form keeping all fields empty.	Display Error Message "Please Enter Username", "Please Enter Password".
3	Validate User input Details	Enter wrong User name Enter correct Password	Redirect to the Login page
4	Validate User input Details	Enter wrong User name Enter wrong Password	Redirect to the Login page
5	Validate User input Details	Enter wrong User name(not an email address)	Display Error Message "Please Enter email address".

Table E-4 Test Cases for system Login

TEST CASES FOR USER MANAGEMENT

	TEST DESCRIPTION	STEPS	EXPECTED RESULTS
Test cases for user management.			
1	Validate User Details Adding	Enter correct Details for all the fields.	Display "Successfully inserted" Message and redirect to the User list Page.
2	Validate User Details Adding	Submit Form keeping all fields empty.	Display Error Messages for required fields.
3	Update User Information	Select user from User List ,click on the Edit button , update user information and submit	Display "Successfully Updated" Message and redirect to the User list Page.
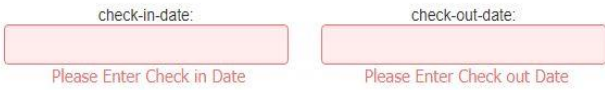
4	Update User Information	Select user from User List ,click on the Edit button , update user information and submit	Display "Record Not Updated" Message and redirect to the User list Page.

Table E-5 Test cases for User Management Module

TEST DATA AND TEST RESULTS

Testing process mock data is added and the validations are done in required points, pop up reconsidering messages in delectation and popping up error messages given at various functionalities. Common messages were reused in similar functionalities.

TEST RESULTS FOR ROOM RESERVATION

TEST ID	TEST DATA & TEST RESULT (Test results for room reservation)	STATUS
1	Leave empty field check-in-date: [ ] *Please Enter Check in Date* check-out-date: [ ] *Please Enter Check out Date*	Pass
2	• Minimum check in date that can be select should be Current date. • Minimum Check out date should be greater than the selected check in date. 	Pass
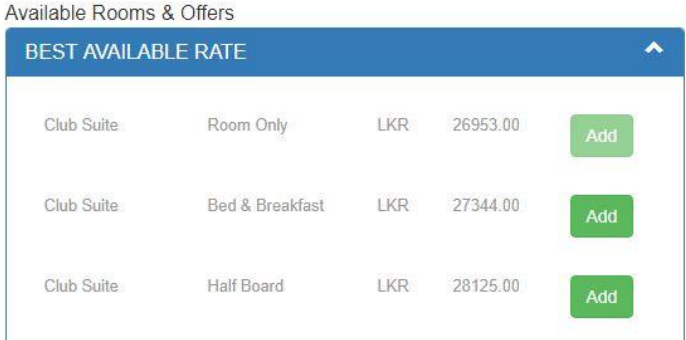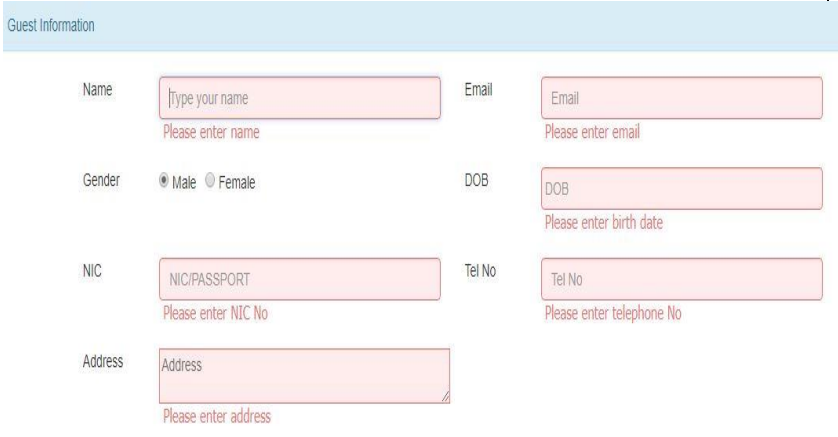
3	• Once user add Specific room type and bed type user could not add the dame room type again in same check in and check out date range. Available Rooms & Offers **BEST AVAILABLE RATE** ˄ Club Suite Room Only LKR 26953.00 Add Club Suite Bed & Breakfast LKR 27344.00 Add Club Suite Half Board LKR 28125.00 Add	Pass

4	• Leave reservation guest information details empty display error messages.
	
	Guest Information
	
	Name [Type your name] Email [Email]
	    Please enter name Please enter email
	
	Gender ⦿ Male ◯ Female DOB [DOB]
	            Please enter birth date
	
	NIC [NIC/PASSPORT] Tel No [Tel No]
	    Please enter NIC No Please enter telephone No
	
	Address [Address]
	    Please enter address
		Pass

5	localhost says: ✕ Please accept our terms and conditions OK	Pass

Table E-6 Test results for room reservation

FOOD AND BEVERAGES

TEST ID	TEST DATA & TEST RESULT (Test results for add a food item)	STATUS
1		Pass

Table E-7 Test results for administration
-

TEST RESULTS FOR BANQUET RESERVATION

TEST ID	TEST DATA & TEST RESULT (Test results for banquet reservation)	STATUS
1	**Leave empty field**	Pass
2	• Date from date should be today or greater than today. • Date to date should be today or greater than today. 	Pass
3	• According to the selected banquet type the unit and unit price get changed.	Pass

4
- According to given number of days Total price will calculated automatically by the system. | Pass |

Table E-8 Test results for room reservation

TEST RESULTS FOR FOOD AND BEVERAGE MANAGEMENT

TEST ID	TEST DATA & TEST RESULT (Test results for food management)	STATUS
1	**Leave empty field**	Pass
2	- Selected Unit and Unit price add to the	Pass

Table E-9 Test results for room reservation

RESULTS FOR USER ACCEPTENCE TESTING

Higher management member such as owner, banquet manger, Restaurant manager, Service manager, General Manager and receptionist interact with the internal system directly.

At the analyzing stage, it was identified that the co-workers have poor knowledge about using computer technology (company observation technique has helped to get that information).

Therefore, interaction is only with the higher management levels and external parties. It was informed that external parties could not participate at the testing session and the testing criteria had been informed to the proprietor.

The overall system including external parties' criteria had been tested by the proprietor; other workers of the second level management and receptionist for third level management of the company were tested and gave their feedback.

Feedbacks were collected by using set of questions.

Managerial levels that used in user acceptance testing

Figure E-5 shows managerial levels used in acceptance testing.
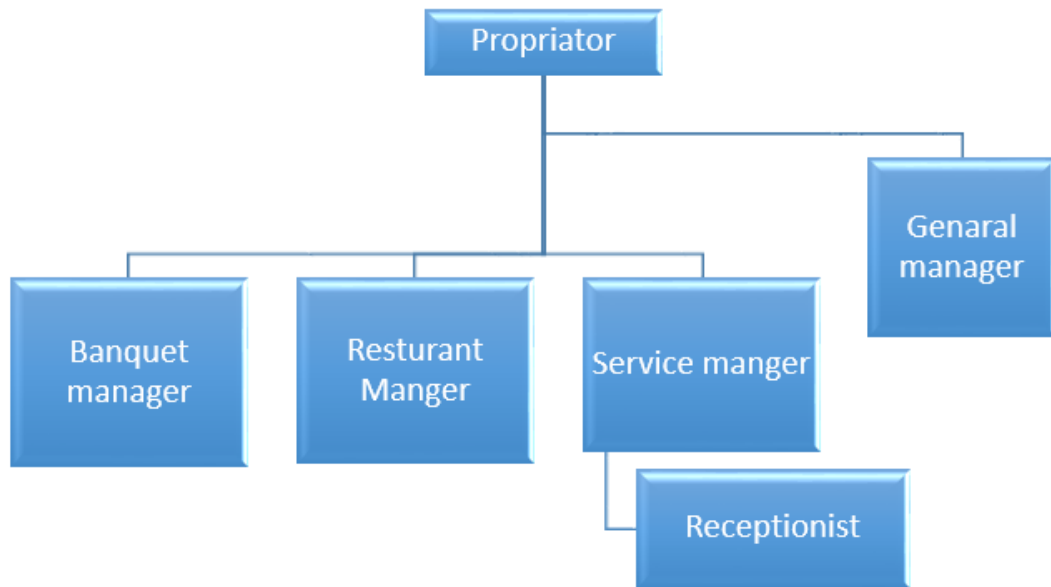
Figure E-1 Managerial Levels used in acceptance testing

Summary of Feed Back

Figure E-6 shows feedback summery chart of the acceptance testing.
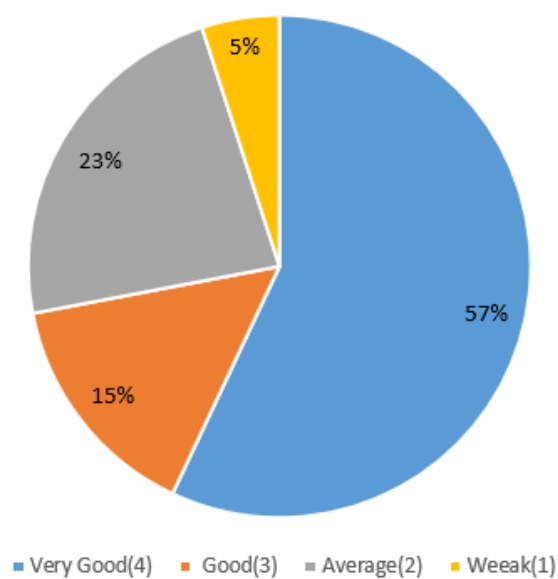
Figure E-2 Summery of feedback

Sample feed Back form – Use for Acceptance testing

Figure E-7 shows feedback form used in acceptance testing.

<u>**User feedback form for Web based Hotel management system and**</u>
<u>**La Vila Hotel web site.**</u>

Name of the Employee : ...N.S. Silva......................................

Designation : ...Chairman......................................

No	Question	Feedback			
	Internal System	4	3	2	1
1	User friendly system interface	✓			
2	Navigation is easy		✓		
3	Levels of user privileges	✓			
4	Easy data entering		✓		
5	Easy report and chart generation	✓			
6	Easiness on view and edit details	✓			
7	Easy on generating bills	✓			
	Web Site				
	Attractiveness and usability of following web pages				
8	• Home		✓		
9	• Accommodation	✓			
10	• Dining		✓		
11	• Facilities		✓		
12	• Events		✓		
13	• Reservation	✓			
14	• Gallery			✓	
15	• Offer	✓			
16	• Contact us	✓			
17	• My account	✓			

Are You Satisfied with the developed web base internal system and intended system functionalities?

Yes, With the attractiveness and usability of the website & internal System as the Chairman of the hotel I recommend this to use in my hotel.

....2017/10/23...

En...LAVILA BEACH Date
102/17,Samanthara Road,
Molligoda, Wadduwa,
Sri lanka.
E-mail : lavila_Wadduwa@yahoo.com

LAVILA BEACH
102/17,Samanthara Road,
Molligoda, Wadduwa,
Sri lanka.
E-mail : lavila_Wadduwa@yahoo.com

Figure E-3 User feed back form

APPENDIX F : CODE LISTING

MANAGE CHECKIN RESERVATION DETAILS

Figure F-1 shows code segment for manage check in reservation details.

```php
function index($id) {
    $data['main_content'] = 'chkin_chout_management/chk_in_frm';
    $this->load->model('reservationmodel');
    $data['rs_rooms'] = $this->reservationmodel->get_res_room($id);
    $srch_dtls = array('id' => $id);
    $res_dtls = $this->reservationmodel->get_res_by_type('ROOM', $srch_dtls);
    if (count($res_dtls) > 0) {
        $_POST = $res_dtls[0];
    } else {
        set_alert('', '');
        redirect('checkin');
    }
    $this->load->view('public/template', $data);
}
```

Figure F-1 code segment for manage check in reservation details

MANAGE NEW SERVICE RESERVATION

Figure F-2 shows code segment for manage new service reservation.

```php
function insert_serv_resrvation($data) {
    $is_success = false;
    $res_id = generate_id('RS', RSRVTION, 'seq_no');
    $seq_no = generate_seq_no(RSRVTION, 'seq_no');

    $sql_res = 'INSERT INTO ' . RSRVTION . '(resv_id,res_cat_id,cus_id,resv_date,resv_status,seq_no)values'
        . '("' . $res_id . '","SERVICE","' . $data['customer_id'] . '","' . date('Y-m-d') . '",1,' . $seq_no . ')

    if (mysqli_query($this->db, $sql_res) > 0) {
        $sql_srvs_dtl = 'INSERT INTO ' . SERV_RES_DTLS . '(sev_res_id,from_date,to_date,htl_srvce_type_id,'
            . 'unit_price)values'
            . '("' . $res_id . '","' . $data['from_date'] . '","' . $data['to_date'] . '","' . $data['service'] .
            '","' . $data['unit_price'] . '")';
        $is_success = mysqli_query($this->db, $sql_srvs_dtl) > 0;
    }

    return $is_success;
}
```

Figure F-2 Code segment for manage new service reservation

MANAGE OFFERS

Figure F-3 shows code segment for manage offers.

```php
function insert_offer($data, $files) {
    $seq_no = generate_seq_no(OFFER, 'seq_no');
    $offer_id = generate_id('OF', OFFER, 'seq_no');
    $sql = 'INSERT INTO ' . OFFER . ' (offer_id,offer_title,start_date,valid_to,offer_code)'
        . 'values("' . $offer_id . '","' . $data['offer_title'] . '","' . $data['from_date'] . '",'
        . '"' . $data['to_date'] . '","' . $data['offer_code'] . '")';
    $res = mysqli_query($this->db, $sql)or die(mysqli_error($this->db));

    $sql2 = 'INSERT INTO ' . OFFER_DTLS . ' (offer_id,m_type_id,r_type_id,r_cat_id,price)'
        . 'values("' . $offer_id . '","' . $data['mtype'] . '","' . $data['rtype'] . '","' . $data['rcat'] . '",'
        . '"' . $data['price'] . '")';
    $res2 = mysqli_query($this->db, $sql2)or die(mysqli_error($this->db));
}
```

Figure F-3Code segment for manage offers

MANAGE MEAL ORDERS

Figure F-4 shows code segment for manage meal orders.

```php
function meal_order_form() {
    $data['main_content'] = 'food_management/meal_order_mgt_form';
    $this->load->model('customermodel');
    $this->load->model('foodmodel');
    $f_cats = $this->foodmodel->get_food_cats();
    $itm_list = $this->foodmodel->get_all_foods();
    $data['customers'] = $this->customermodel->get_all_customers();
    $data['f_cats'] = $f_cats;
    $data['itm_list'] = $itm_list;
    $this->load->view('public/template', $data);
}
function get_foods_by_ref() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_all_foods($_POST));
}
function get_fd_units() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_fd_units($_POST));
}
function get_fd_units_price() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_fd_units_price($_POST));
}
function add_meal_order() {
    $this->load->model('foodmodel');
    $res = $this->foodmodel->insert_meal_order($_POST);
    redirect('food/meal_order_list');
}
```

Figure F-4 Code segment for manage meal orders

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MANAGE FOOD ITEMS

Figure F-5 shows code segment for manage food items.

```php
function get_food_list($data) {
    $sql = "select * from " . FD_ITM_PRIC . ' fp JOIN ' . FD_ITM . ' i  ON i.food_item_id=fp.food_item_id ';

    $where = '';
    if (isset($data['item_name']) && $data['item_name'] != '') {
        $where = ' where  i.des like"%' . $data['item_name'] . '%"   ';
    }
    if (isset($data['cc']) && $data['cc'] != '') {
        if ($where == '') {
            $where = 'where ';
        } else {
            $where = $where . ' and ';
        }
        $where = $where . ' i.des like"%' . $data['item_name'] . '%"   ';
    }

    $sql = $sql . $where;
    $result = mysqli_query($this->db, $sql);
    $item_list = array();
    while ($row = mysqli_fetch_assoc($result)) {
        $item_list[] = $row;
    }
    return $item_list;
}
```

Figure F-5Code segment for manage food items

FOOD AND BEVERAGE MODULE

Figure F-6 shows code segment for manage food items.

```php
function meal_order_form() {
    $data['main_content'] = 'food_management/meal_order_mgt_form';
    $this->load->model('customermodel');
    $this->load->model('foodmodel');
    $f_cats = $this->foodmodel->get_food_cats();
    $itm_list = $this->foodmodel->get_all_foods();
    $data['customers'] = $this->customermodel->get_all_customers();
    $data['f_cats'] = $f_cats;
    $data['itm_list'] = $itm_list;
    $this->load->view('public/template', $data);
}
function get_foods_by_ref() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_all_foods($_POST));
}
function get_fd_units() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_fd_units($_POST));
}
function get_fd_units_price() {
    $this->load->model('foodmodel');
    echo json_encode($this->foodmodel->get_fd_units_price($_POST));
}
function add_meal_order() {
    $this->load->model('foodmodel');
    $res = $this->foodmodel->insert_meal_order($_POST);
    redirect('food/meal_order_list');
}
```

Figure F-6Code segment for manage food and beverages

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SESSION HANDLING PAGE

Figure F-7 shows code segment for session handling.

```php
public function __construct() {
    if (!isset($_SESSION)) {
        session_start();
    }
}
public function set_userdata($data) {
    foreach ($data as $key => $value) {
        $_SESSION[$key] = $value;
    }
}
public function get_userdata($key) {
    return isset($_SESSION[$key]) ? $_SESSION[$key] : '';
}
function set_alert($type, $msg) {
    $_SESSION['alert'] = array('type' => $type, 'msg' => $msg);
}
function get_alert() {
    $alert_res = isset($_SESSION['alert']) ? $_SESSION['alert'] : array();
    $this->remove_alert();
    return $alert_res;
}
function remove_alert() {...5 lines }
public function signout($key = '') {
    unset($_SESSION[$key]);
    session_destroy();
}
```

Figure F-7 Code segment use for session handling

VALIDATE USER

Figure F-8 shows code segment for validate user

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```javascript
$(function() {
    $('#user-form').validate({
        rules: {
            first_name: {
                required: true
            },
            email: {
                required: true,
                email: true
            },
            last_name: {...3 lines },
            password: {...3 lines },
            dob: {...3 lines },
            nic: {...3 lines },
            tel_no: {...3 lines },
            address: {...3 lines },
            role_id: {
                required: true
            }
        },
        messages: {
            first_name: {
                required: "Please Enter First Name"
            },
            email: {
                required: "Please Enter Email",
                email: "This is not email address"
            },
            last_name: {...3 lines },
            password: {...3 lines },
```

Figure F-8Code segment for validate adding a user

FOOD ITEM SEARCH

Figure F-9 shows code segment for search food item

```php
function get_food_list($data) {
    $sql = "select * from " . FD_ITM_PRIC . ' fp JOIN ' . FD_ITM . ' i  ON i.food_item_id=fp.food_item_id ';
    $where = '';
    if (isset($data['item_name']) && $data['item_name'] != '') {
        $where .=' des LIKE "%' . $data['item_name'] . '%" ';
    }
    if (isset($data['f_cat']) && $data['f_cat'] != '') {

        if ($where != '') {
            $where . ' and ';
        }

        $where .= ' food_cat_id = "' . $data['f_cat'] . ' "';
    }
    $sql = $where != '' ? $sql . ' where ' . $where : $sql;

    $result = mysqli_query($this->db, $sql);
    $item_list = array();
    while ($row = mysqli_fetch_assoc($result)) {
        $item_list[] = $row;
    }
    return $item_list;
}
```

Figure F-9 Code segment for search food item.

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GENERATE BANQUET RESERVATION REPORT

Figure F-10 shows code segment for generate banquet reservation report.

```php
function gen_bqt_resvtion_report($data) {
    $sql = ' SELECT * FROM t001_01_reservation r JOIN m004_01_customer c '
            . 'ON r.cus_id=c.cus_id where r.res_cat_id="BANQUET" AND '
            . 'r.resv_date between  "' . $data['from_date'] . '"  and "' . $data['to_date'] . '"  ';
    $res = mysqli_query($this->db, $sql)or die(mysqli_error($this->db));

    $items = array();
    while ($row = mysqli_fetch_array($res)) {
        $items[] = $row;
    }
    return $items;
    echo '<pre>';
    print_r($items);
}
```

Figure F-10 Code segment for generate banquet reservation report

DATEPICKER VALIDATION FOR DATE RANGE SELECTION

Figure F-11 shows code segment for validate date range selection.

```javascript
$(function() {
    $('#from_date').datepicker({
        startDate: new Date(),
        format: 'yyyy-mm-dd'
    }).on('changeDate', function(a, b) {
        var frmtd_date = moment(a.date).format('YYYY-MM-DD')
        $('#to_date').datepicker('setStartDate', frmtd_date)
        $('#to_date').datepicker('update', frmtd_date)


        var now = moment($('#to_date').val()); //todays date
        var end = moment(a.date); // another date
        var days = now.diff(end, 'days')
        $('#qty').val(days + 1)

        var item = $('#banquet').val()
        if (item != '') {...6 lines }
    })
    var set_start_date = $('#from_date').val();
    $('#to_date').datepicker({...5 lines }).on('changeDate', function(a, b) {
        var now = moment($('#to_date').val()); //todays date
        var end = moment($('#from_date').val()); // another date
        var days = now.diff(end, 'days')
        $('#qty').val(days + 1)

        var item = $('#banquet').val()
        if (item != '') {

            var unit_prcice = parseFloat($('#unit_price').val())
            var total_amnt = parseInt($('#qty').val()) * unit_prcice;
```

Figure F-11 Date picker validation
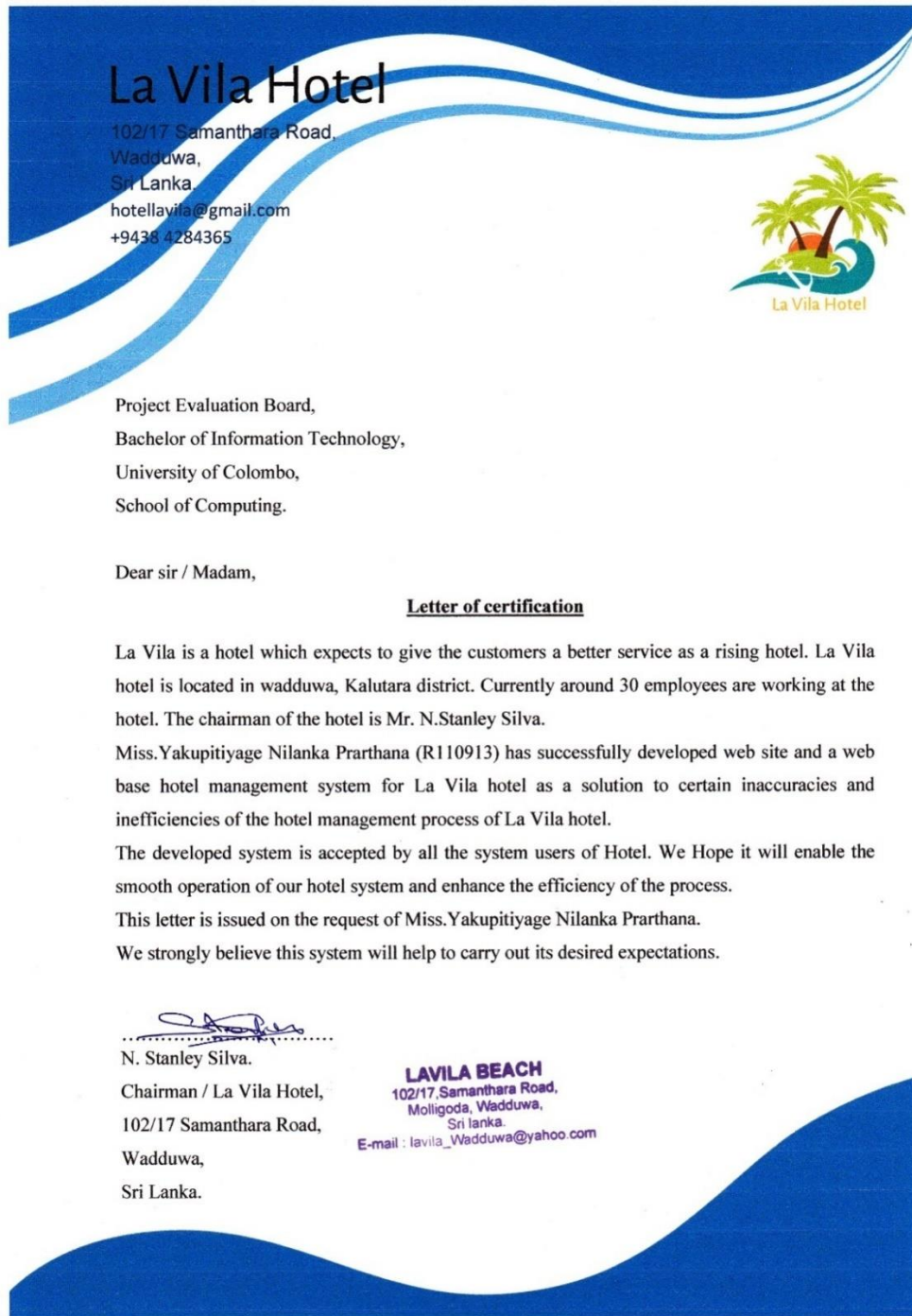
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APPENDIX G : CLIENT CERTIFICATE

La Vila Hotel
102/17 Samanthara Road,
Wadduwa,
Sri Lanka.
hotellavila@gmail.com
+9438 4284365

Project Evaluation Board,
Bachelor of Information Technology,
University of Colombo,
School of Computing.

Dear sir / Madam,

Letter of certification

La Vila is a hotel which expects to give the customers a better service as a rising hotel. La Vila hotel is located in wadduwa, Kalutara district. Currently around 30 employees are working at the hotel. The chairman of the hotel is Mr. N.Stanley Silva.

Miss.Yakupitiyage Nilanka Prarthana (R110913) has successfully developed web site and a web base hotel management system for La Vila hotel as a solution to certain inaccuracies and inefficiencies of the hotel management process of La Vila hotel.

The developed system is accepted by all the system users of Hotel. We Hope it will enable the smooth operation of our hotel system and enhance the efficiency of the process.

This letter is issued on the request of Miss.Yakupitiyage Nilanka Prarthana.

We strongly believe this system will help to carry out its desired expectations.

N. Stanley Silva.
Chairman / La Vila Hotel,
102/17 Samanthara Road,
Wadduwa,
Sri Lanka.

LAVILA BEACH
102/17,Samanthara Road,
Molligoda, Wadduwa,
Sri lanka.
E-mail : lavila_Wadduwa@yahoo.com

Figure G-1Client Certificate

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GLOSSRY

1. **Asynchronous JavaScript and XML (AJAX)**

   Ajax is a group of interrelated web development techniques used on the client-side to create asynchronous web applications. With Ajax, web applications can send data to, and retrieve data from, a server asynchronously (in the background) without interfering with the display and behavior of the existing page. Ajax is not a single technology, but a group of technologies. HTML and CSS can be used in combination to mark up and style information.

2. **Apache HTTP Server**

   An open source HTTP web server which is a project of Apache Foundation.

3. **Cascade Style Sheet (CSS)**

   Cascading Style Sheet (CSS) is a simple mechanism for adding style (e.g : fonts, colors, spacing, etc..) to Web documents.

4. **Database**

   An organized collection of data

5. **Graphical User Interface**

   This is a visual way of interacting with a computer using items such as windows, icons and menus, used by most modern operating systems.

6. **Hypertext Processor**

   PHP is a server side scripting language designed for web development but also used as a general purpose programming language.

7. **Hypertext Transfer Protocol Secure (HTTP)**

   This is a set of standards that allow users of the World Wide Web to exchange information found on web pages.

8. **Internet**

   A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.

9. **JavaScript**

   An object oriented computer programming language commonly used to create interactive effects within web browsers.

10. **JQuery**

    This is a cross platform JavaScript library designed to simplify the client-side scripting of HTML.

11. **Md5**

    MD5 message-digest algorithm is a widely used cryptographic hash function producing a 128-but (16-byte) hash value, typically expressed in text format as a 32 digit hexadecimal number.

12. **Rapid Application Development (RAD)**

    A software development methodology that involves methods like iterative development and software prototyping.

13. **Secure Hash Algorithm (SHA-1)**

    A cryptography hash function designed by the United States National Agency which produces a 160-bit message digests.

14. **Unified Modeling Language (UML)**

    This is a general purpose modeling language in the field of software engineering, which is designed to provide a standard way to visualize the design of a system.

15. **World Wide Web (WWW)**

    This is a system of interlinked hypertext documents that are accessed via the Internet.

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