

**Web Site & Web Based Hotel Reservation
Management System**

For

Sky Lodge Hotel

P. B. N. N. De Silva

2017 (December)



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**This dissertation is submitted in partial fulfillment of the requirement of the
Degree of Bachelor of Information Technology (External) of the
University of Colombo School of Computing**

DECLARATION

I certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and abstract to be made available to outside organizations.



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ABSTRACT

As a well-established facility provider, Sky Lodge hotel has decided to expand their guests from local to foreign and they needed better marketing solution to make the hotel popular among the foreign guests. Currently all the documentations and the transactions are handled manually. Due to the hotel's innovative concept, the workload has increased, accuracy of various tasks have reduced and therefore the management of the hotel found difficulties such as unexpected errors of room reservations and payment calculations, employees have to spent more time to complete the room reservation process , data can be easily damaged and low guests satisfaction.

So the highly anticipated Web Based Hotel Management System has introduced to the Sky Lodge Hotel to overcome the problems of the current manual system. Proposed system consists with some main functions such as hotel management to maintain the hotel rooms, booking management to handle the process of booking, employee management to handle process of employee registrations and leave, expenses management to handle the expenses of the hotel, administrator to handle administrative activities of the system.

Designing and development of application has done by using PHP, CSS, JQuery, Java Script and MY SQL.

By considering the drawbacks and the complications of the existing system, management of the Sky lodge hotel has decided to switch to the IT based solution. As the result of that proposed web based hotel reservation management system and the web site has designed and developed so that the management, employees and the guests could achieved the expected benefits.

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LIST OF ACRONYMS

AJAX-Asynchronous JavaScript and XML

CSS- Cascade Style Sheet

DSDM- Dynamic Systems Development Model

OOAD- Object Oriented Analysis and Design

OOP-Object Oriented Programming

PHP-Hypertext Preprocessor

RUP- Rational unified process model

SQL-Structured Query Language

SSADM- Structured System Analysis and Design Methodology

UML-Unified Modeling Language

XML-Extensive Markup Language

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Relaxation they say is the best medicine for the modern life style, which sharpens the quality of the lifestyle of an individual. Most of the people use to travel and spend time by living with the beauty of the nature. Therefore, the hospitality providers have taken measures to improve the best available solutions for this purpose.

Tourism is a fast growing industry in Sri Lanka, and it is one of the best contributors to the income of Sri Lanka. In nineteen sixty-six, the Government decided to develop tourism in a planned and a systematic manner, after identifying the need to set up an institutional framework. The Ceylon Tourist Board (created by the Ceylon Tourist Board Act Number ten of nineteen sixty-six) and the Ceylon Hotels Corporation (created by Ceylon Hotels Corporation Act of nineteen sixty-six) were set up duly. The Ceylon Tourist Board (CTB) was a statutory body that allowed greater freedom in decision-making and flexibility in financial management. The Ceylon Hotels Corporation was a Joint Stock Company with public and private sector involvement. It was intended to be the commercial arm of the Government for developing accommodation and other facilities for tourists.

The Sky Lodge is also a good hospitality provider for local and foreign travelers. Sky Lodge is located in the beautiful Gampola city in the ancient cultural district of Kandy, which is in the Central province of Sri Lanka. The most sacred temples like, The Tooth relic of lord Buddha (Sri Dhalada maligawa), Lankathilaka, Gadaladeniya, Embekka Devalaya, Muthiyangana Raja Maha Vihara and Bahirawakanda Temple, which is the omnipresent Buddha statue seen from Kandy, rambodagalla falls, Dunhinda waterfalls, View of the Kandy lake, botanical garden of Peradeniya, tea planter`s museum and the oldest surviving covered wooden bridge in the world the Bogoda Covered Bridge are the most beautiful, adventurous and relaxing places which has closes access from the hotel. The strong cultural sight, greenish mountains, breathtaking waterfalls, rivers, wildlife, polite and friendly people and adventures background have made the Sky Lodge an ideal place to spend one`s holidays with unforgettable experiences.

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The Sky Lodge is a resort type small sized hotel. The Hotel consist twenty beautifully designed comfortable rooms and fifteen employees working round the clock making guests comfortable and glad by providing attractive services and security which is the main motive of the hotel.

At present, the whole process of the hotel is handled manually. Therefore, the employees of the hotel face many difficulties while doing their duties. As a result, the proposed system will be introduced with two units.

1. The Sky Lodge web site with online-reservation system
2. Web based hotel management system

1.2 MOTIVATION FOR PROJECT

The Sky Lodge is completely depending on its valuable guests. Guest satisfaction will make the hotel more popular among the guests who have become the main target of hoteliers. The hoteliers have found some barriers with the existing manual system while following their targets. Those barriers can be shown as follows,

- Inaccuracy of the data will cause to overbook and abrupt cancellations. Since people are not perfect all the time some errors can be man-made with inaccurate details. This will affect the reputation of the hotel.
- Existing manual system consist lots of paper work. Therefore, it takes more time to keep records, to find information and also when mistakes are made or corrections are needed. Those files with papers can be easily damaged or misplaced. Therefore, it is hard to recover the damaged data without having any backup plan.
- Any unauthorized person can easily go through the records. Therefore, the security of the data is very low.
- Each and every processes are handled individually, so it is difficult to take daily, monthly or yearly reports where this would also affect the decision making process.
- Guests satisfaction is low
- Hotelier satisfaction is low

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Web based hotel management system has replaced with the existing manual system to overcome these matters.

1.3 AIM AND OBJECTIVES OF THE PROJECT

The main aim of this project is to adapt the newer technologies to provide better Hotel management system to overcome the difficulties of the existing manual system.

Objectives can be found as follows,

- Handle user logins and maintain the security of the system from unauthorized users.
- Increase the number of guest per day by using the website as a method of marketing solution.
- Reduce the errors that can be made by the hotel staff.
- Increase the efficiency of the process of room reservation by providing online reservation access for guest.
- Maintain the accuracy of the calculations of the guest payments.
- Increase the guest satisfaction towards the hotel.
- Increase the hotel staff satisfaction and the efficiency towards the duties handle by them and reduce.
- Generate reports easily and on time.

1.4 SCOPE OF THE PROJECT

Proposed system has mainly four user groups. Scope can be listed relevantly as follows;

1. **Guest/User:**

Guests are the general users who can access the web site. By accessing the website they can find the room details such as facilities, rates, number of guests can access the room. Room availability for the relevant dates according to the requirements can be easily find, Room reservations can be made without visiting the hotel, web site has facilitates to make the online payments, guests are provided space to post comments and ideas, contact details of the hotel can be found and has facilitated guests to contact with the staff of the hotel through the website.

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2. Manager and the front office staff

Manager and the front office staff (Receptionist) is the intermediate user who can access the web based hotel management system. The Manager can access the whole system while the receptionist cannot access the whole system except booking management. System consists with following modules.

Hotel Management

This module use to manage the functionalities of the website. By making changes in these modules website details can be edited easily. With this module manager and the front office staff can add new room categories to the system, add new sub room categories to the system, add new room description to the system, add new room inventory to the system, add room rates, add new room images to the system, add room facilities, edit room images, edit room categories and sub room categories name, edit room description, edit room facilities, edit room rates, edit room inventory, delete room images, delete room facilities, delete room descriptions, prepare reports regarding rooms.

Booking Management

This module facilitate to handle offline and online bookings such as, handle the new room booking, find the room availability, calculate the relevant payments, print the booking receipt, cancel the room reservation, handle the no show bookings, cancel booking receipts, receipts re-print, edit reservation details, preparing relevant reports for room reservation.

Employee Management

This module handles the employees of the hotel such as, handle new employee registration, leave application, edit employee details, delete employee details, generate reports relevant for employee management and edit user password to the system.

3. Administrator

Administrator is the most important role who can make the changes of the system and can access the whole system. Create new user accounts, approve the user access to the system or reject the user, delete user accounts from the

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system, handle details of resign and re-appointed employees, approve leave request, edit number of recommended leaves that provides by the hotel, approve or reject the comments provided through the website, delete approved comments, report generating relevantly are other functionalities of the administrator.

4. Accountant

Accountant takes the responsibility of module of the expenses management.

Expenses Management

Calculate and handle salary payments, add new salary increments for the relevant employee, add relevant salary advance details to the system, handle petty cash, calculate and handle the booking commissions, handle booking refunds for the canceled bookings, generate relevant reports are the functionalities handle by the expenses module.

1.5 STRUCTURE OF THE DISSERTATION

Developing process of the web based hotel management system can be explained using five chapters in this dissertation.

CHAPTER 1 - INTRODUCTION

This chapter contains the description of the clients and the problems of their existing process also solutions for problem domains. It also includes the motivation, scope and the objectives of the project.

CHAPTER2 - ANALYSIS

End of the chapter Introduction, dissertation starts with the chapter two-analysis, with the explanations of the current system and the functional and non-functional requirements that are expects from the new system.

CHAPTER 3 - DESIGN

Design chapter, gives the idea of the designing process of the system according to the analysis, which was done in chapter two. This contains some diagrams of system designing, database designing and user interface designing.

CHAPTER 4 – IMPLEMENTATION

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Codes, which have been used to develop the system, are explained in this chapter. In addition, the software and hardware expectations of the system have discussed in this chapter.

CHAPTER 5 – EVALUATION

Test plans and test cases, which are used to make sure that system works properly by fulfilling the requirements of the user, are explained in this chapter.

CHAPTER 6 – CONCLUSION

Finally, chapter six discuss the progress of the work done, lessons learnt during the development of the system and suggestions for the future improvements of the system.

CHAPTER 2: ANALYSIS

2.1. INTRODUCTION

This chapter clearly discusses the existing manual system by breaking the whole system in to different parts to analyze the situation. Requirement gathering is the main function of the analysis phase so this process is also known as requiring engineering.

This process is included with domain understanding, requirement gathering, data classification, structuring, prioritization and validation.

2.2. FACT GATHERING TECHNIQUES

To provide a better computer based solution for the existing manual system needs to collect facts and all relevant information. Success of the solution depends on the accuracy of the data. Therefore, there are certain methods to maintain the accuracy of the data, such as, Interview, Questionnaire, Record View and Observations.

When it comes to Sky Lodge, several techniques have been used to gather the requirements from different officers. The administrative and the management staff have been selected as the main fact providers.

As the Sky Lodge is a resort type small size hotel, it was easy to conduct face-to-face interview with the staff members individually. By using structured as well as the unstructured interviews it helped to give a clear understanding about the current system.

The records, files and documents have been reviewed when it was difficult to understand some procedures clearly.

Unlike other methods, observation helped to confirm the collected facts by visiting the hotel observe and understand the flow of work and the documentation currently going on.

2.3 ANALYSING THE CURRENT MANUAL SYSTEM

Use case diagram for the existing manual system can be shown as figure 2.1,

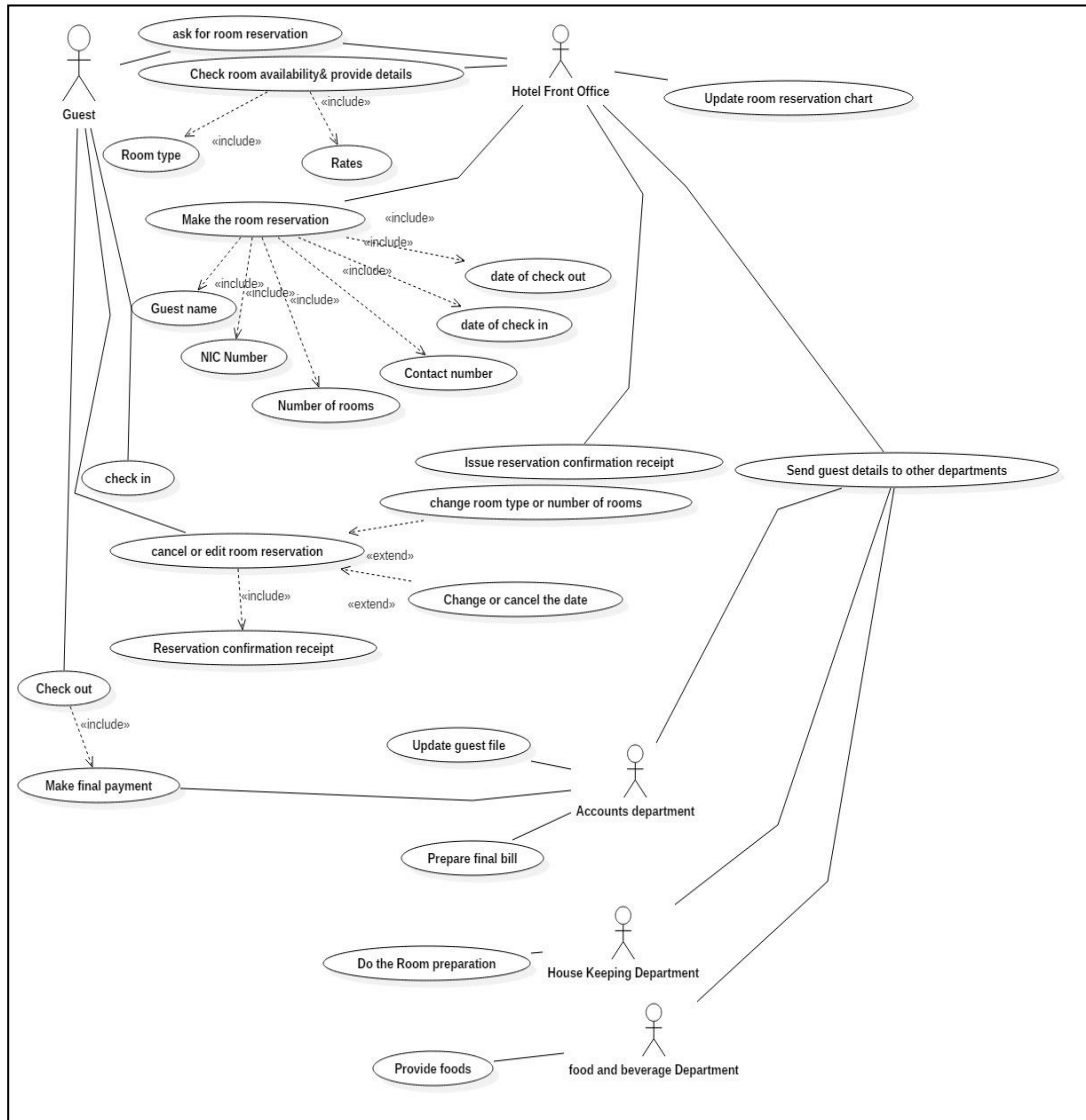


Figure 2.1 Use case for existing manual system

Gathered requirements lead to analyze the domain. The whole process of the domain had been handled manually since the day the hotel was established.

2.3.1 HUMAN RESOURCE MANAGEMENT

Sky Lodge is a resort type hotel with twenty guests rooms. Currently there are fifteen employees working in the Sky Lodge hotel. By considering, the organizational structure of the hotel can be found three levels of employees as follows,

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- I. Top level employees
- II. Middle level employees
- III. Operational level employees

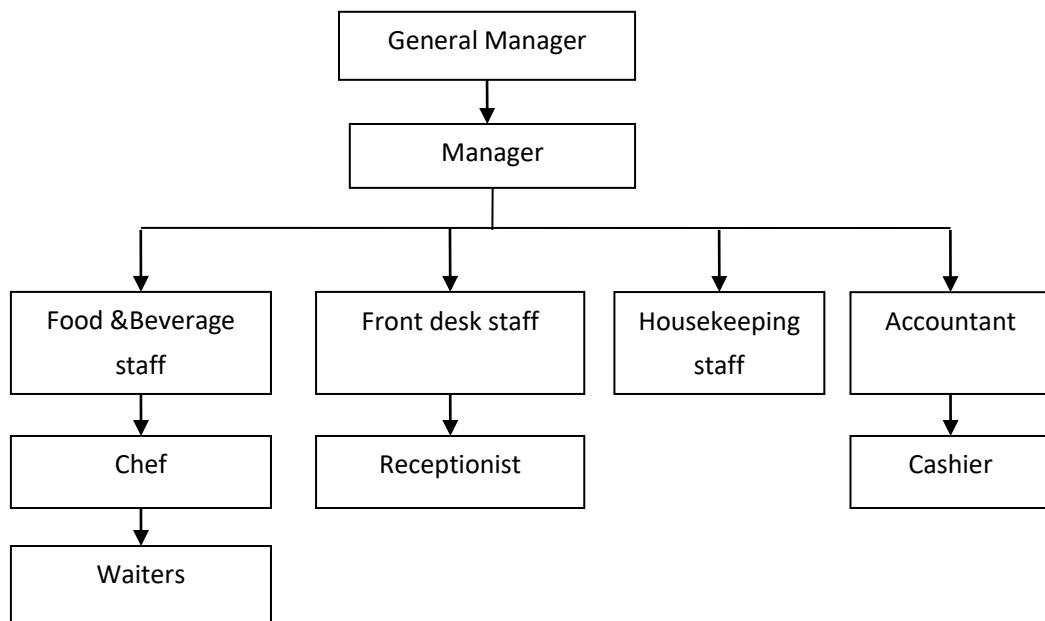


Figure 2.2 organizational structure of the Sky Lodge hotel

General Manager is the top person who takes the responsibility of whole decision making process of the Sky Lodge hotel. Manager takes the responsibility of whole process of the hotel and need to make general manager aware about the hotel and the process going on.

Food and beverage staff takes responsibility of preparing and serving foods. Front desk operators are taking care of handling the reservations. Room preparations and maintenances are done by housekeeping staff while Accountant and the cashier handling the salary payments, ETF and EPF calculations and the guests reservation payments. (Figure 2.2)

2.3.2 RESERVATION MANAGEMENT

When a guest comes to reserve a hotel room, Front desk officer or the receptionist is the first person who gives the fresh impression to the guest by guiding the guest to

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make the best choice in a polite manner. Once a guest asks for a hotel reservation, the front desk officer will provide the room details by checking the room availability from the logbook and the reservation chart.

The following table 2.1 shows currently available room details,

Room category	Sub room category	Description
Standard rooms	Single Room	Room size: 11 m ² Queen size bed Sleeps one person
	Double Room	Room size: 19 m ² King size bed Sleeps two people
	Family Room	Room size: 23 m ² King size and Queen size bed Sleeps maximum four people
Deluxe Rooms	Single Deluxe Room	Room size: 15 m ² Queen size bed Sleeps one person
	Double Deluxe Room	Room size: 22 m ² King size bed Sleeps two people
Suite Room	Junior Suite	Room size: 30 m ² King size bed Sleeps two people Sitting area is also available

Table 2.1 Room details

**Rates of the rooms can be varied due to the seasonal value.

After selecting a suitable room, guest registration needed to be done by entering their personal details like name, age, nationality, number of rooms they need, number of guests, room type, number of days they are going to stay in to a guest registration.

After confirming the reservation, a bill will be issued by mentioning relevant details. Front desk officer makes other divisions aware about the reservation by sending new

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guest registration details. Following table 2.2 shows the divisions and the information expects from the front office.

Division	Information needed from front office
Housekeeper	The room details of new guests for preparation purposes.
Filling department	For compilation purposes of the guest details
Food and beverage	Guest details for food preparation
Finance	Provide guest details to handle payments

Table 2.2 Information send from the front office

After completing the reservation task, updates reservation chart which helps to identify room availability.

Then the relevant day guest comes with the bill issued to the reception counter. By checking the details receptionist provides the keys for the reserved rooms and handover the updated details to the accounts department to handle payments.

2.3.3 PAYMENT MANAGEMENT

In the Accounts department, the guest file is updated daily basis according to the accommodation and the meals that they are occupying. All the meal details are receiving from the food and beverage department so that guest file can be updated. During the checking out of the guest, expenditure outlines are generated day before checkout. The guests receive their outlines at the account desk as they checkout, where they pay their bill.

2.3.4 CANCEL A RESERVATION

Any reservation can be canceled within three days after booking. When a guest expects to cancel his/her reservation, they have to visit the front officer with the reservation confirmation receipt and need to make a request for cancellation. Then the officer checks the reservation date and the reservation receipt number from their reservation log. After confirming reservation details front officer erase the reservation from the logbook by adding a note. After that front officer inform the cancelation details to the relevant departments, refunds of the payments can be made.

2.3.5 MAKE CHANGES OF A RESERVATION

To make changes of a reservation need to make a request from the front officer with the confirmation receipt. After that front officer checks the reservation that the guest

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makes according to the receipt number and the guest details. Then changes can be done according to the requirements of the guest. In addition, updated details send to the relevant departments.

2.4 FUNCTIONAL REQUIREMENTS

Functional requirement defines functions of a system or its components. That can be calculations, technical details, data manipulation, processing and other specific functionality that that define what a system is supposed to accomplish. [1]

Functional requirements can be shown as follows,

Sky Lodge web site with online reservation system

- Web site has provided guests to make aware about the hotel and the view around it.
- Online reservation system has facilitated guests to check room availability and make reservation on their own.
- Web site has provided a space for comments and ideas of guests.
- Guests can contact with hotel through the given space.

Web based hotel management system

- Hotel Management
 - Here the details of the rooms available in the Sky Lodge web site can insert and update like room type, sub room type, room description, rates of rooms and the images of the rooms.
 - Reports can generate for the room information above mentioned.
- Booking Management
 - Check room availability according to the guest requirements.
 - User can insert Booking details in to the system.
 - System facilitates to insert billing details with payment details and print the bill
 - User can find the booked date or arrival date of the guest by providing receipt details.
 - System facilitates to re-print the bill when in need.

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- Confirm the reservation by adding the priority type and the reservation type.
- System generates reports relevant to the room reservation like reports of booking receipt, reports of departure bookings, income.
- System supports to handle the process of booking cancellation and receipt cancellation.
- System has facilitated to handle bookings of guests who has not cancelled and has not come on the check-in date. (no show bookings)
- System supports to add new reservation types and edit the reservation commission.
- **Employee Management**
 - System can handle the new employee registration
 - User can search and generate reports of the employees working and the employees resigned.
 - User can search and edit employee details entered.
 - Employee leave applications
- **Administrator Activities**
 - Any user can create new users by allowing them to access the system by considering the security of the data in the system. Therefore, the every authorized user has valid user name and the password for the login purposes.
 - Administrator can edit booking commission.
 - Administrator can generate reports.
 - Administrator can deactivate user accounts or re-create them.
 - Approve or reject leaves
 - Administrator add re-appointed employees to the system and remove resigned employees from the system.
 - Administrator can edit number of recommended leave days for relevant leave type.
- **Accountant**
 - Handle employee salary payments

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- Handle petty cash
- Handle commission payments
- Generate relevant reports.

2.5 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with functional requirements that define specific behavior or functions. [2]

Usability

Most of the guest may not have best IT knowledge to access a website; therefore, content of the site has designed with attractive and simple form like background, navigation buttons and user interfaces. Language of the site content can be changed so that any guest can access the site. Site content has arranged in a structured way by making it easy to guest find the information.

When it comes to the reservation management system, it is also has designed in structured and attractive manner. Any user can access their authorized sections easily.

Availability

As this is a web based system any guest or user can access the site and the system any time of the day from anywhere of the world and can make a reservation as per their wish.

Accuracy

Accuracy is an important nonfunctional requirement, which should consider while handling the calculations and keeping the booking records.

Efficiency

Any guest can access the site to make a reservation without wasting time to visit the hotel to make a reservation. Hotel staff also can handle their duties within short time period and with the access of limited resources because of the system.

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Security

By providing customized user name and a password for the users system data can be secured from unauthorized persons. Password encryption mechanism has been used, since user cannot get the password.

Portability

The software, that have been used to develop this system is platform independent, Open source software like PHP, MySQL.

2.6 EXISTING SIMILAR SYSTEMS

By researching the existing similar system, we find many systems available in the market. Some of these systems have been designed with lots of unnecessary features, some of them are having fewer features, and some of them are very expensive. So the final decision was to create an own system for the client's specific requirements by gaining some ideas from the similar systems as follows,

1. RoomMaster

“RoomMaster offers a fully-integrated suite that includes front office and property management, central reservations, housekeeping, an online booking engine, guest relations management, core accounting and maintenance management.” [3] Figure 2.3 shows the sample forms of RoomMaster software.

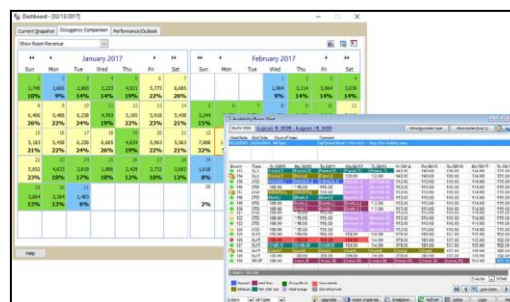


Figure 2.3: RoomMaster

2. Hoteliga

“Hoteliga cloud property management system is designed to manage hotel operations in the most comprehensive and user-friendly way. Our powerful cloud property

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management system meets the real needs of hoteliers and accommodation owners. Hoteliga property management system runs on the cloud, allowing hoteliers to manage their property from anywhere; is mobile friendly and has been tested and runs on smart phones and tablets. Together with hoteliers, we are constantly improving our system and we add new features while trying to keep it simple to use.” [4]

Figure 2.4 shows the sample form of the Hoteliga software.

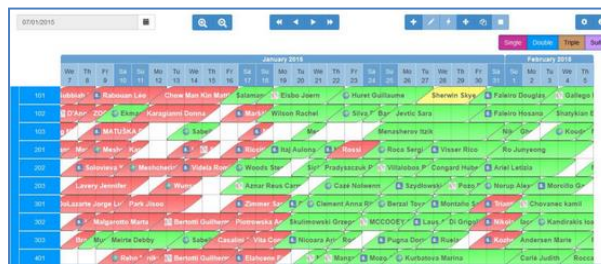


Figure 2.4:Hoteliga

2.7 SOFTWARE DEVELOPMENT METHODOLOGIES

A software development methodology or system development methodology in software engineering is a framework that is used to structure, plan, and control the process of developing an information system. There are the following methodologies: [5]

2.7.1 WATERFALL METHOD

The waterfall model often considered the classic approach to the systems development life cycle, describes a development method that is rigid and linear. Waterfall development has distinct goals for each phase of development where each phase is completed for the next one is started and there is no turning back.

In practice, waterfall development often falls short of expectations, as it does not embrace the inevitable changes and revisions that become necessary with most projects. Once an application is in the testing stage, it is very difficult to go back and change something that was not thought of in the concept stage. Alternatives to the waterfall model include joint application development (JAD), rapid application development (RAD), sync and stabilize, build and fix, and the spiral mode.

2.7.2 RAPID APPLICATION DEVELOPMENT (RAD) METHOD

RAD is a speedier implementation method than other traditional methods. Method is an incremental development method that has ability to shorten the construction cycle.

2.7.3 RATIONAL UNIFIED PROCESS (RUP) METHOD

Rational Unified Process (RUP) is an object-oriented and Web-enabled program development methodology. RUP establishes four phases of development, each of which is organized into a number of separate iterations that must satisfy defined criteria before the next phase is undertaken: in the inception phase, developers define the scope of the project and its business case; in the elaboration phase, developers analyze the project's needs in greater detail and define its architectural foundation; in the construction phase, developers create the application design and source code; and in the transition phase, developers deliver the system to users.

2.7.4 AGILE APPLICATION DEVELOPMENT METHOD

Agile software development is a conceptual framework for undertaking software engineering projects. There are a number of agile software development methodologies e.g. Crystal Methods, Dynamic Systems Development Model (DSDM), and Scrum. Most agile methods attempt to minimize risk by developing software in short time boxes, called iterations, which typically last one to four weeks. Each iteration is like a miniature software project of its own, and includes all the tasks necessary to release the mini-increment of new functionality: planning, requirements analysis, design, coding, testing, and documentation. While iteration may not add enough functionality to warrant releasing the product, an agile software project intends to be capable of releasing new software at the end of every iteration. At the end of each iteration, the team reevaluates project priorities.

2.8 DEVELOPMENT METHODOLOGY FOR THE PROPOSED SYSTEM

Development methodologies describe the ways that use to structure, plan and control process of developing an information system. One system development methodology is

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not necessarily suitable for use by all projects. Each of the available methodologies is best suited to specific kinds of projects, based on various technical, organizational, project and team considerations.

Rational unified process model (RUP) has recognized as the development method that satisfies the developing process of the proposed system, as it is an object-oriented and Web-enabled program development methodology. This model also helps software developer for providing them guidelines, templates, and examples for all aspects and stages of software development. RUP establishes four phases of development,

1. Inception phase:

In this stage, the project's business case is stated and the team decides if the project is worth doing or if it is even possible. It is important to the process to first formulate the scope of the project and determine what resources will be needed.

2. Elaboration phase:

In this stage, the developers take a closer look at the project to determine its architecture foundation and to evaluate the architecture in relation to the project. This stage is important to the RUP because it is here that developers analyze the risks associated with changing the scope of the project or adding new technologies along the way.

3. Construction phase:

In this stage, the development of the project is completed. The application design is finished and the source code is written. It is in this stage that the software is tested to determine if the project has met its goal laid out in the inception phase.

4. Transition phase:

In this stage, any fine-tuning is performed. Any final adjustments can be based on user feedback, usability or installation issues. [6]

Advantages of RUP Software Development Methodology:

- This methodology emphasizes on accurate documentation

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- It is proactively able to resolve the project risks that are associated with the clients evolving requirements for careful changes and request management
- Very less need for integration as the process of integration goes on throughout the development process. [7]
- Figure 2.5 shows iterative development of the proposed system.

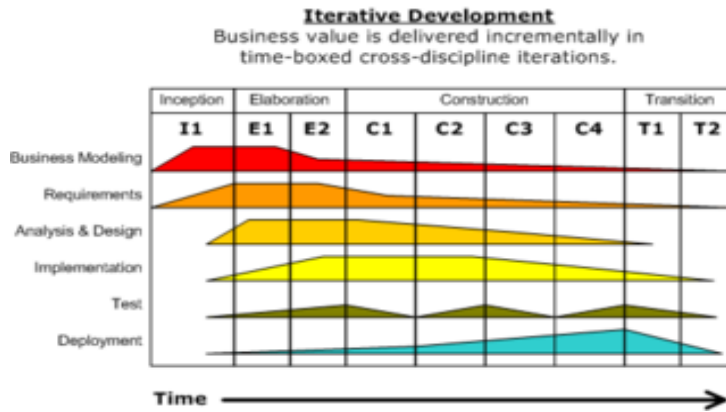


Figure 2.5: Iterative development of the proposed system

CHAPTER 3: DESIGN OF SOLUTION

3.1 INTRODUCTION

“Design is a meaningful engineering representation of something that is to be built. It can be traced to a customer’s requirements and at the same time assessed for quality against a set of predefined criteria for “good” design. In the software engineering context, design focuses on four major areas of concern: data, architecture, interfaces, and components. The concepts and principles discussed in this chapter apply to all four.” [8]

With this chapter, widely discuss about the suitable process model among the all process models currently using in the industry, suitable design technique between stand along and the object oriented technique and database design.

3.2 SYSTEM DESIGN METHOD FOR THIS SYSTEM

3.2.1 ALTERNATE SOLUTIONS

There can be different solutions to any problem. By considering the advantages, disadvantages and the usage make it easy to have the best choice among them. There can be found several alternate solutions like

- **Developing a stand-alone** system is a software program that does not expect any other software to run other than operating system. This system needs to be installed every system so it is hard to maintain. Limited access available and cannot access remotely available data. Therefore, this cannot be the best choice.
- **Buying several software to handle the tasks.** According to the requirements of the Sky Lodge, it is hard to manage the whole process buying a single software. Collection of software will support to handle the whole process.
 - Separate software to maintain guest registration
 - Another software to keep the records of reservation chart.
 - Software to handle calculations, billing process.
 - Software to report generation.

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In this case buying software is very expensive and not suit as the best solution for the Sky Lodge.

3.2.2 WEB BASED SYSTEM AS THE BEST SOLUTION

Web based system has been proposed as a solution for the requirements of the Sky Lodge. The reasons that affect to propose a web-based system can be shown as follow,

1. Flexibility to operate the system at any time (24/7)

Managing a hotel business is 24 hours a day and 7 days for week operation. Therefore, the system needs to be supportive to handle the operations even in busy environments. In addition, guests can independently reserve their rooms and can get details about the hotel anytime whenever needed.

2. Platform independent

Web based system can be accessed in any plat form. Unlike the standalone system, web based system can be used in any PC with an internet connection.

3. No need to be a IT expert to use the system

The system is user friendly and simple so that anyone can easily access.

4. Reduce the cost

It reduces the cost for support and maintenance.

5. Easy to manage and update

No need to install the system separately on each PC in the hotel, only need to install once on the company's server. That make easy to maintain and update the system.

3.3 SYSTEM DESIGN METHODS

Structured System Analysis and Design Methodology (SSADM) or Object Oriented Analysis and Design (OOAD) method can be used for system design.

Structured System Analysis and Design Methodology (SSADM) is a set of standards for systems analysis and application design. It uses a formal methodical approach to the analysis and design of information systems. SSADM follows the waterfall life cycle. SSADM breaks up a development project into stages, modules, steps and tasks. SSADM uses a combination of logical data modeling, data flow

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modeling and entity behavior modeling techniques. Focus on the process of the system and reusability is low. This method is suitable for well-defined projects with stable user requirements. [9]

Object Oriented Analysis and Design (OOAD) is a technical approach used in the analysis and design of an application or system through the application of the object-oriented paradigm and concepts including visual modeling. This is applied throughout the development life cycle of the application or system. Goal is to break down the problem or the system into smaller units, called objects that can stand on their own and can be changed without affecting the ones around them too much. This makes it easy to add functionality and behavior and allow the system to gracefully accept change. The concept of data classes allows a programmer to create any new data type that is not already defined in the language itself. The characteristic of OOAD is data hiding that provides greater system security and avoids unintended data corruption. Inheritance, this property of OOP forces a more thorough data analysis, reduces development time, and ensures more accurate coding. [10]

Object Oriented Design has taken as the best method to design the system.

The object modules have defined by Unified Modeling Language (UML). The object modules that has used in this system can be find as follows,

- Use case diagram
- Class diagram
- Sequence diagram

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3.3.1 HIGH LEVEL USE CASE DIAGRAM FOR THE HOTEL MANAGEMENT SYSTEM AND THE WEB SITE

Figure 3.1 shows the high level use case diagram for the hotel management system and the website.

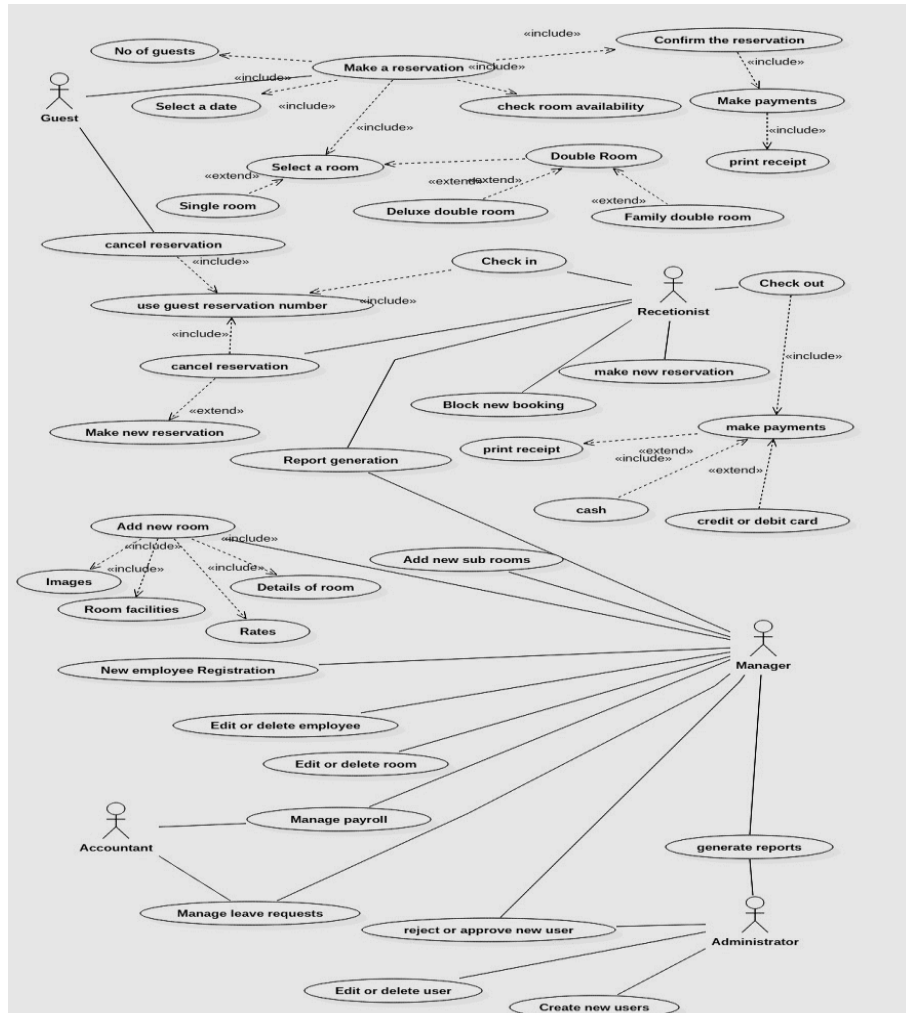


Figure 3.1: High level use case diagram for hotel management system and the website

Use Case diagrams usually use to describe the behavior of a system by using set of actions (use cases), External users (Actors) and relationships between them (Include Exclude, Generalization, and Association). The relationship can be vary according to the situation occurred.

According to the improved relationships between guests and the hotel staff, the system has divided in to main two modules as follows,

1. Sky Lodge web site with online reservation system.

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2. Web based hotel management system

- I. Hotel management.
- II. Booking management.
- III. Employee management.
- IV. Administrator
- V. Expenses Management.

Sky Lodge web site with online reservation system.

Web site and the online reservation system have designed to facilitate guests to make their own reservations. Guests can access the online reservation system through the Sky Lodge web site from anywhere in anytime. Within this system it is easy to check the room availability for a relevant date, the number of rooms available, rates for the reservation and once the reservation has made payments also can be made by online. After completion of the reservation process, the system will automatically update accordingly and receptionist and the manager can view the reservation details.

Reservation can be cancelled within 2 days after the reservation by sending the request to the front office staff. After review of the receptionist and the manager, reservation cancellation will be confirmed.

Figure 3.2 shows the use case diagram for the online reservation system. Table 3.1 shows process of online reservation.

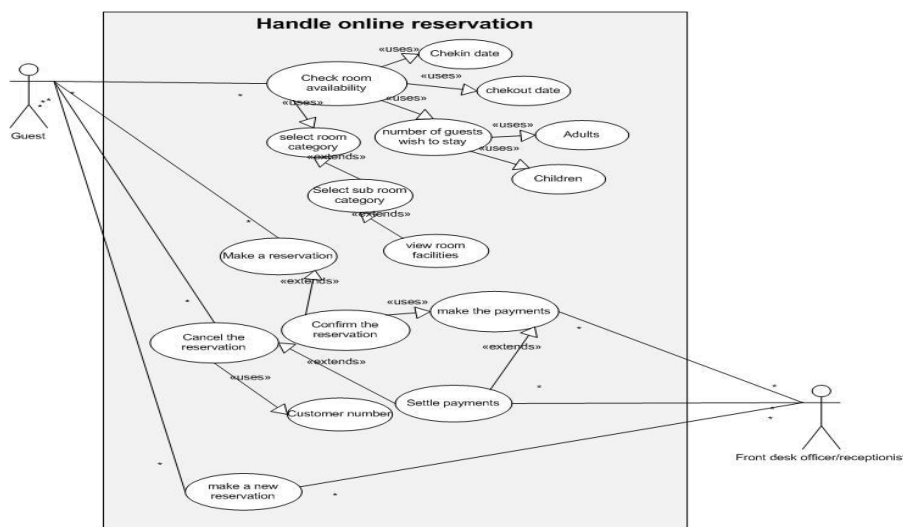


Figure 3.2: Use case diagram for reservation

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Use Case	Online reservation
Actors	Guests
Overview	
Any guest can make a reservation from anywhere in anytime.	
Pre-conditions	
None	
Flow Of events	
<ol style="list-style-type: none"> 1. Guest check the room availability for a relevant date (by considering the requirements of number of rooms, the number of guests and the room type) 2. If the requirements satisfies can make a reservation by adding relevant details. 3. Reservation details update in the system so that manager and the receptionist can view reservation details. 	
Post Conditions	
Guest can cancel the reservation within two days after the reservation.	

Table 3.1: Process of online reservation

3. Web based hotel management system

This system has design to manage the online reservation system and the internal process of the hotel.

I. Hotel management.

Hotel management module has designed to manage the hotel facilities. This module helps to update the web site and the online reservation system by adding new room types, new facilities available, images and other details of rooms. Manager can access hotel management module to update the relevant details. Following Figure 3.3 shows the use case diagram for the hotel management and Table 3.2 shows the process of add new room inventory.

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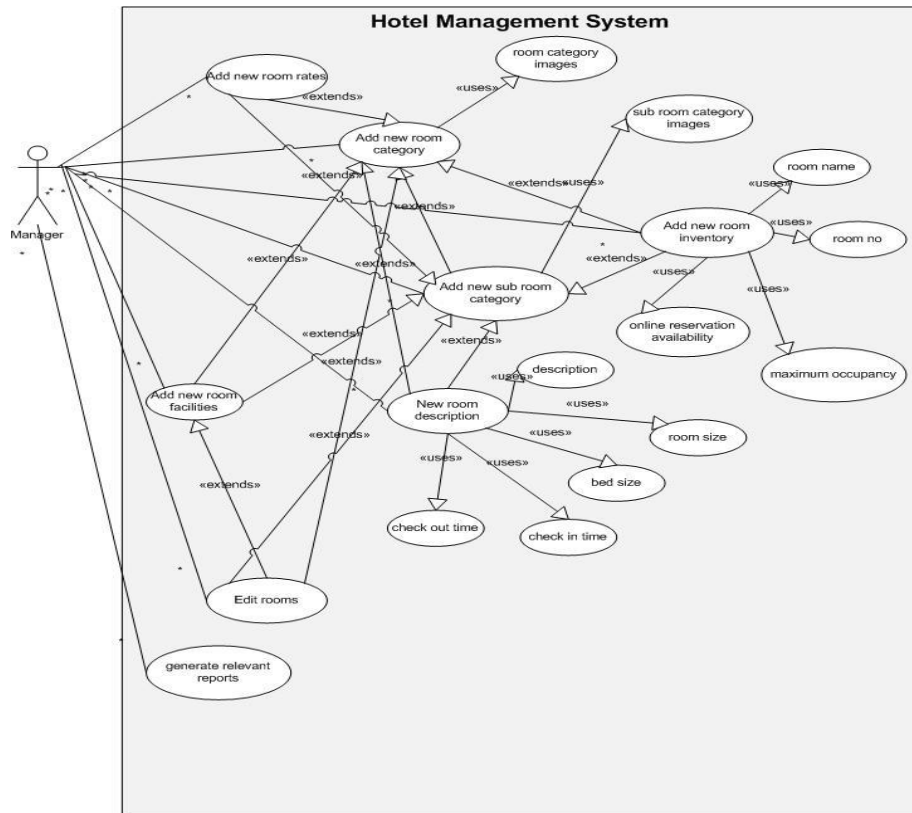


Figure 3.3:Use case diagram for hotel management

Use Case	Add new room inventory
Actors	Manager
Overview	
Only manager can update the system with new room details.	
Pre-conditions	
All the details can be added through the system.	
Flow Of events	
<ol style="list-style-type: none"> 1. Insert the new room details according to the main room type and the sub room type alone with room name, room number and maximum occupancy. 2. Provide the online booking facility. 3. Update the new room details. 	
Post Conditions	
Guests and receptionist can view new room details for booking purposes.	

Table 3.2 :Process of add new room inventory

II. Booking management.

Booking management module has designed to handle the booking process of the hotel. Manager and the receptionist has the accessibility to this module. Receptionist can block new bookings with the help of booking management module. Room availability, guest booking details and the payment calculations are easily handle by the system. Manager can easily search and get the relevant booking receipts for relevant guest by adding customer details. As the request made by the guest booking and the booking receipt can be canceled after taking the permission of the manager. Manager can view the reports of Booking receipts, pending bookings, denatured booking, booking income and also the chat that shows arrived booking for relevant time period which helps for decision making purposes. Figure 3.4 shows the use case diagram for booking management. Table 3.3 shows the process of booking cancellation.

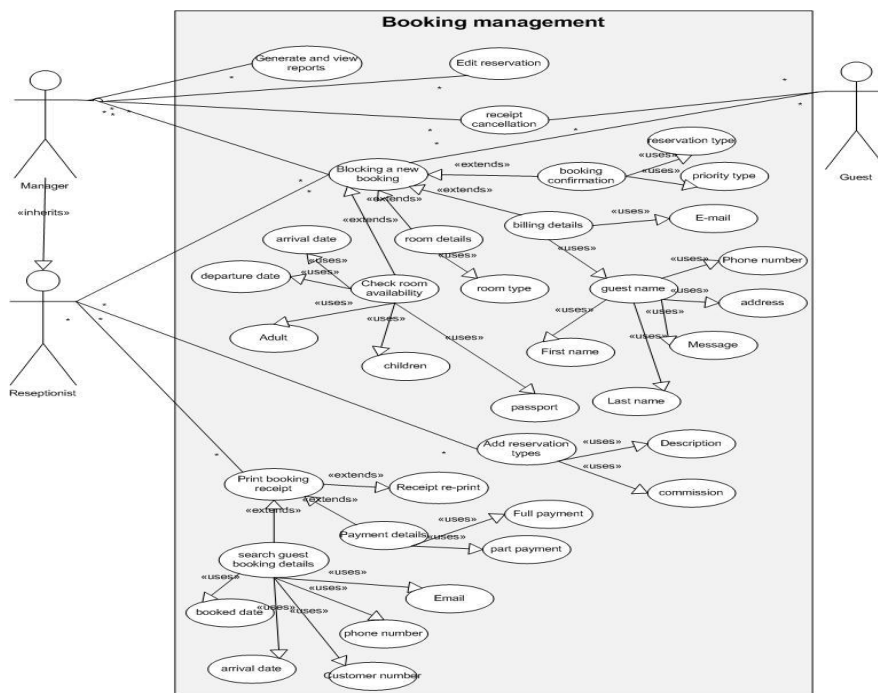


Figure 3.4: Use case diagram for booking management module

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Use Case	Booking cancellation
Actors	Manager, Guest
Overview	
Only manager can cancel the booking	
Pre-conditions	
Cancel can be done within two days after reservation	
Flow Of events	
<ol style="list-style-type: none">1. Guest can make a request for booking cancel.2. Receptionist inform about the booking cancellation to the manager.3. Manager will cancel the booking after checking the date of reservation.	
Post Conditions	
Guest can make a new reservation as their wish.	

Table 3.3: Process of booking cancellation

III. Employee Management

Employee Management module has designed to handle the employee information. Manager has the complete accessibility to this module. Manager can make new employee registration by inserting employee details in to the system along with the personal details, salary details, the job title and the working department. Employee details can be easily edit when needed and can delete from the system after retire or resign of an employee. Anytime manager can view and get the reports of employees who has accessibility to the system (Active employees) and list of resign employees. Use case diagram for this module can be shown as figure 3.5. Process of new employee registration can be shown as table 3.4

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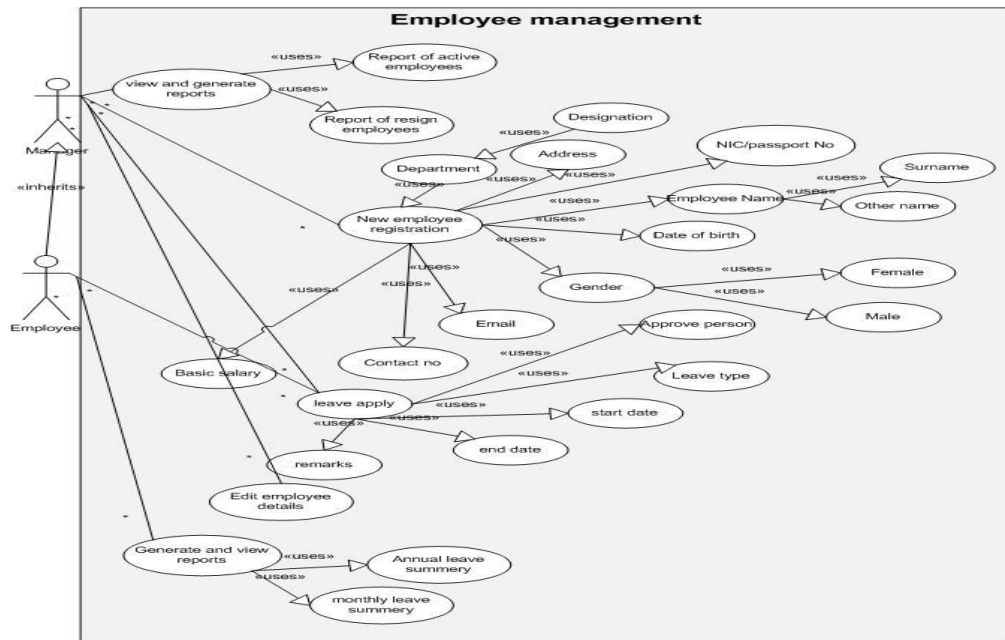


Figure 3.5: Use case for employee management module

Use Case	New Employee Registration
Actors	Manager
Overview	
Only manager can handle the new employee details	
Pre-conditions	
None	
Flow Of events	
1. After an employee has appointed the hotel, all the details of the employee need to be inserted in to the system.	
Post Conditions	
Manager can view employee details easily whenever needed.	

Table 3.4:Processof new employee registration

IV. Administrator Management

Administrator management handles the entire user accessibility in to the system. Any employee can create new user account but the administrator needs to approve or reject the user account to provide the accessibility to the system. Approved user accounts of the resigned employees can be deleted and edit the user accounts. Reports also can be generated for review of the manager. Above figure 3.6 shows the use

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case for the administration management module. Table 3.5 shows the process of create new user login.

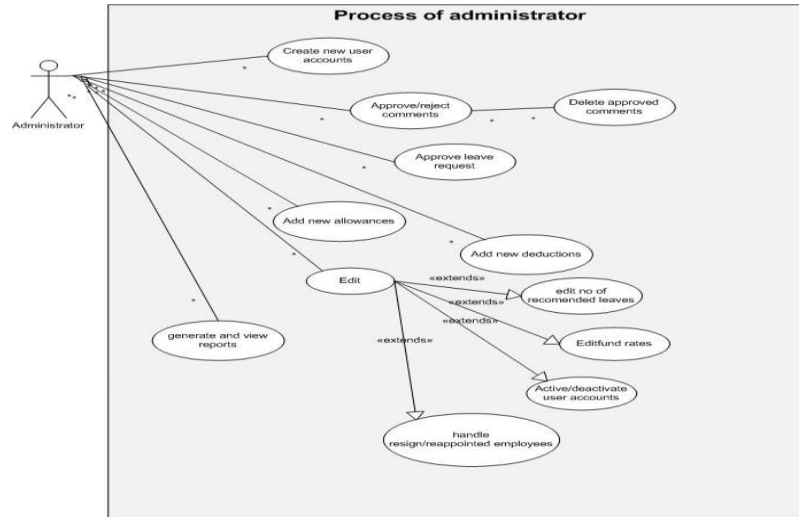


Figure 3.6: Use case for administrator module

Use Case	Create new user login
Actors	Any Employee
Overview	
Any user can create new user login.	
Pre-conditions	
Check whether the new user exists or not	
Flow Of events	
<ol style="list-style-type: none"> 1. Select Employee name and NIC number from given list. Insert User name , password, reenter password, Select the role of the employee from the given list 2. Then add the data in to the system. 	
Post Conditions	
Manager or Administrator need to approve the created user login.	

Table 3.5: Create new user login

V. Expenses Management

This module handles the some expenses of the hotel such as, salary and reservation commission payments. Petty cash also handle in this module. Figure 3.7 depicts the use case diagram for the expenses management. Table 3.6 illustrates the process of salary payments.

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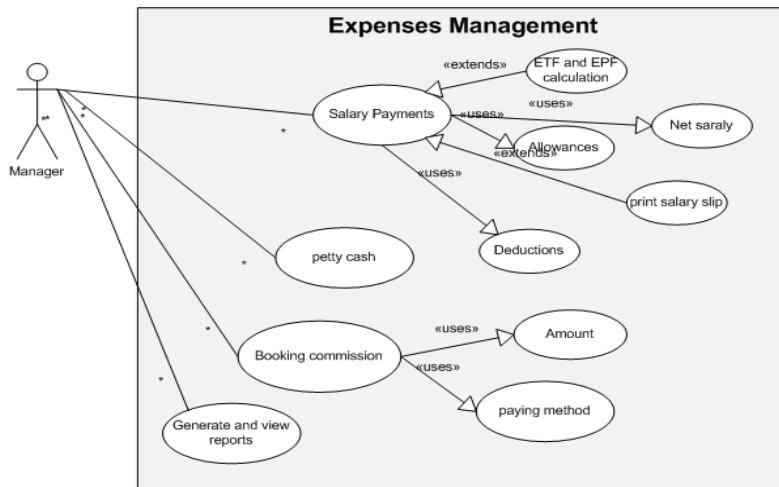


Figure 3.7:Usecase for expenses management

Use Case	Salary Payment
Actors	Manager/ Accountant
Overview	
Only Manager or Accountant can access the salary payment module	
Pre-conditions	
List provides currently active users only.	
Flow Of events	
<ol style="list-style-type: none"> 1. Select Employee name from given list. 2. Then select relevant additions and deductions from the given lists and enter the relevant amount in to the given spaces and process the calculations by clicking on the add button. 3. Relevant net salary can be viewed and payment can be confirmed by clicking on the add button. 4. By clicking on the Print salary slip button, salary slip can be printed. 	
Post Conditions	
Manager or Administrator need to approve the created user login.	

Table 3.6: Process of salary payment

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3.3.2 CLASS DIAGRAM OF THE SYSTEM

Class diagram displays the modeled structure of the system with attributes, relationships and operations. The following figure 3.8 class diagram describes the whole process of the system.

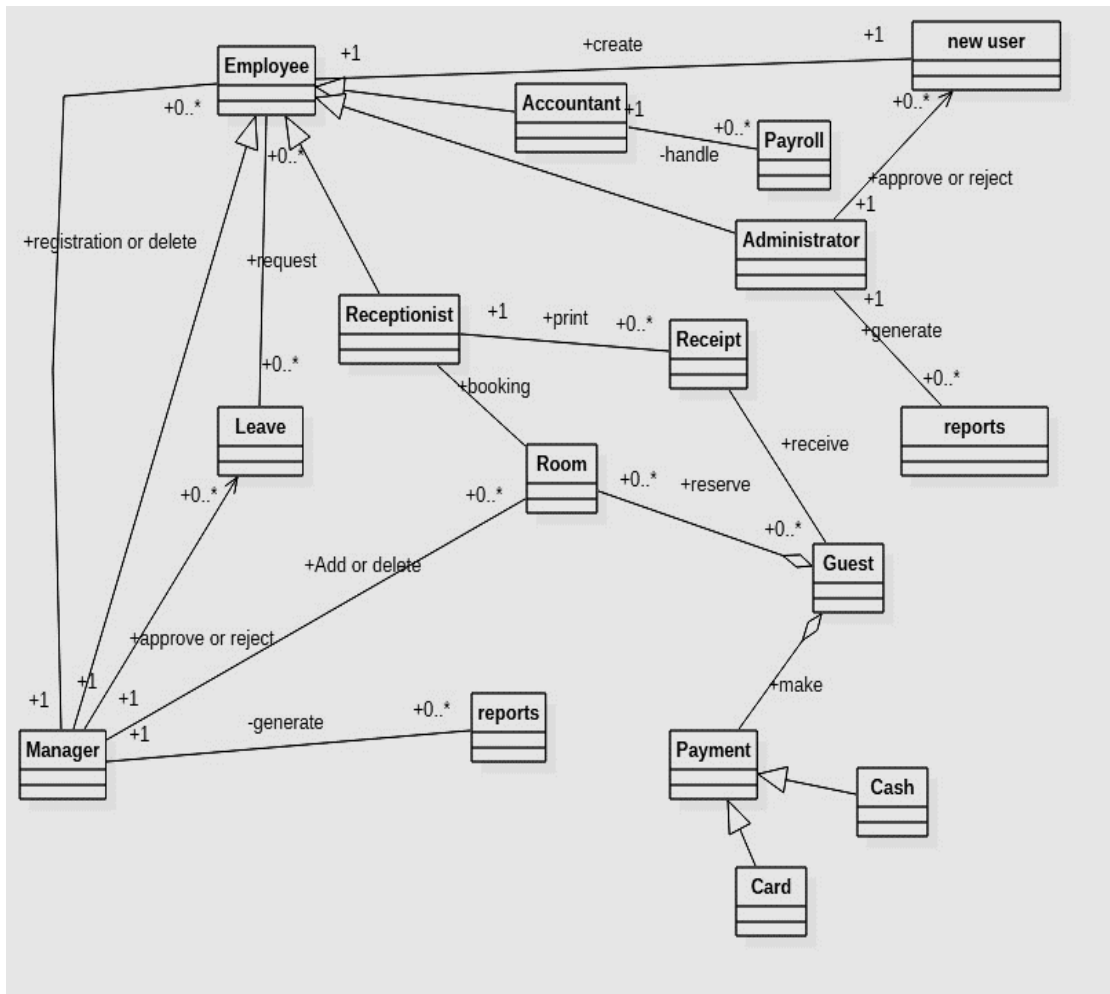


Figure 3.8:Class diagram for the whole system

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3.3.3 SEQUENCE DIAGRAM FOR HANDLING ONLINE BOOKING

Process of online booking can be illustrated as shown in the figure 3.9.

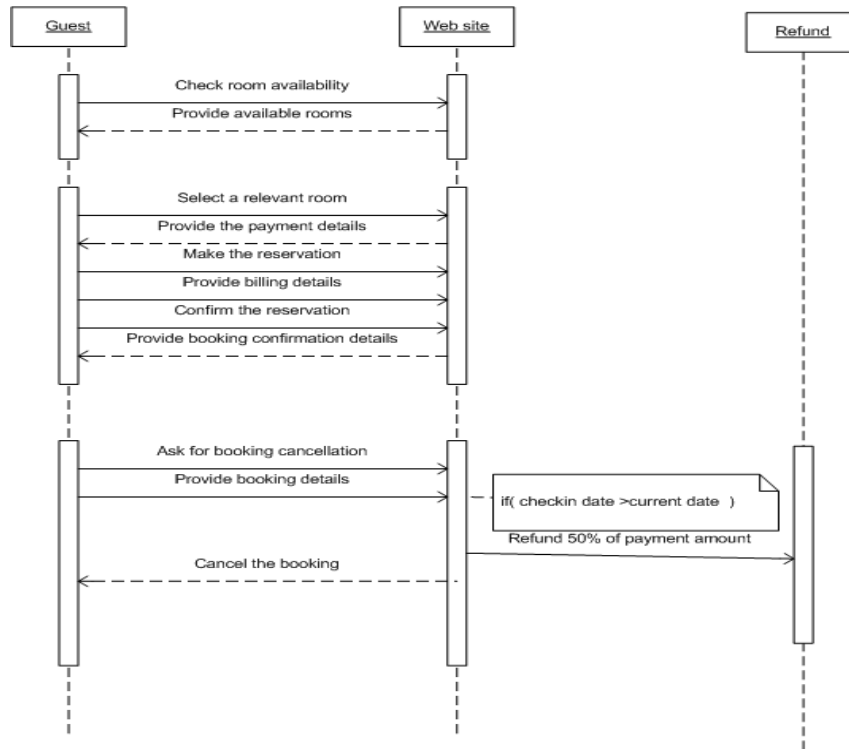


Figure 3.9 Sequence diagram for online booking

3.3.3 SEQUENCE DIAGRAM FOR HANDLING WEB CONTACT

Process of online booking can be illustrated as shown in the figure 3.10.

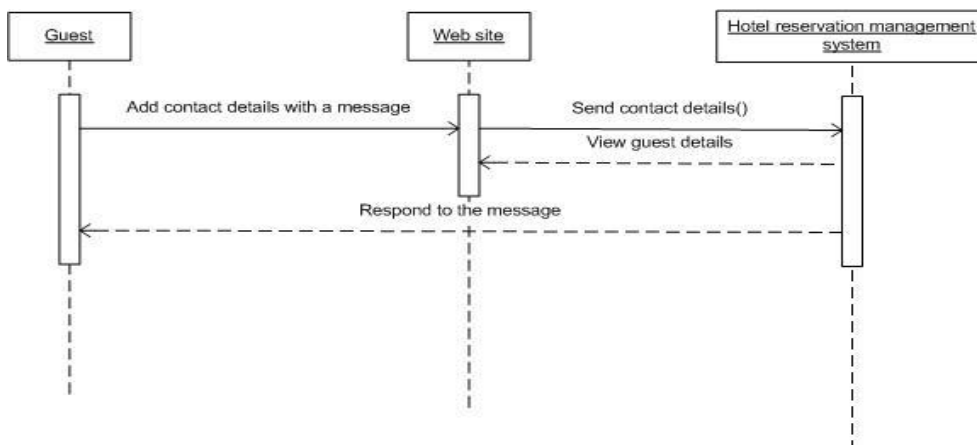


Figure 3.10 Sequence diagram for handling web contacts

3.4 DATABASE DESIGN

Database design is the process of producing a detailed data model of database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The process of doing database design generally consists of a number of steps, which will be carried out by the database designer. Usually, the designer must:

- Determine the data to be stored in the database.
- Determine the relationships between the different data elements.

Superimpose a logical structure upon the data based on these relationships [11] (Figure 3.11)

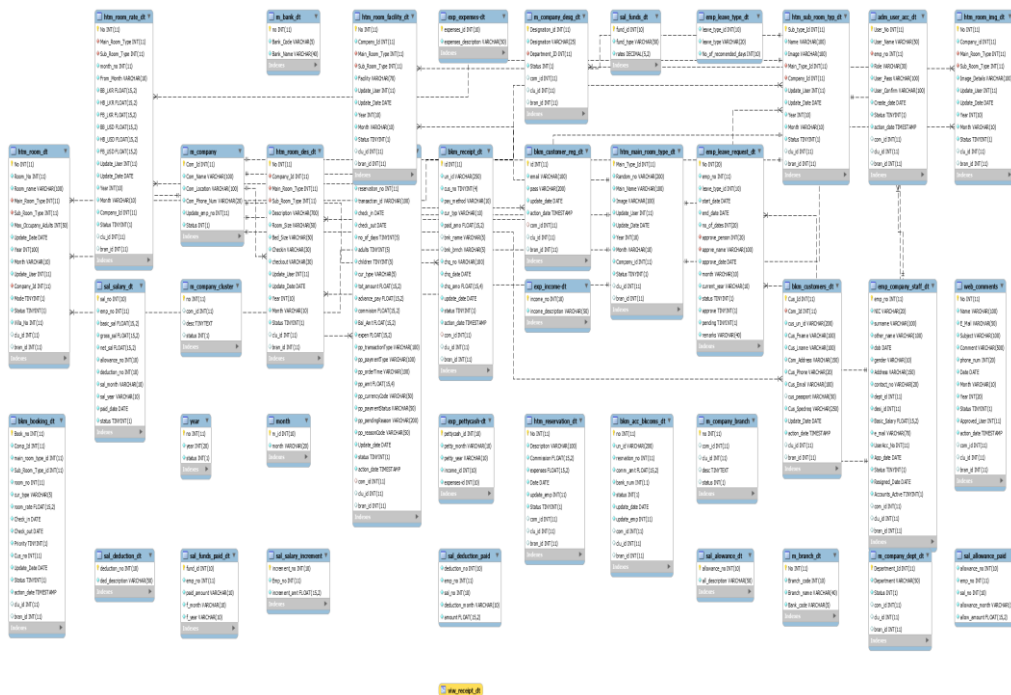


Figure 3.11:Database design of whole system

3.5 USER INTERFACE DESIGN

“Indicates User interface design creates an effective Communication medium between a human and a computer.” [8]

User interface acts as a middle layer between the user and the application by covering most of the user related tasks. The elements that are available in the user interface make it easy to access, understand and maintain the flexibility of the software.

3.5.1 MAIN INTERFACES

Home Page – Website and the online reservation system

Target user of this page is the guests. Guests can easily check the room availability and have a brief description about the Sky Lodge hotel facilities and the environment around it. Page has provide access to some other pages like,

- About- More details about the hotel
- Rooms- Description about the available room types
- Gallery- images of the hotel
- Attraction- To make guests aware about the beautiful and important places they can visit.
- Comment- Space has provided to collect ideas of guests about the hotel and the facilities.
- Contact us- this page has provided contact details of the hotel and has provided a space to send message.
- Book Now- this page has facilitated to guests check the room availability and to make their own reservation.

Figure 3.12 shows the home page of the web site.

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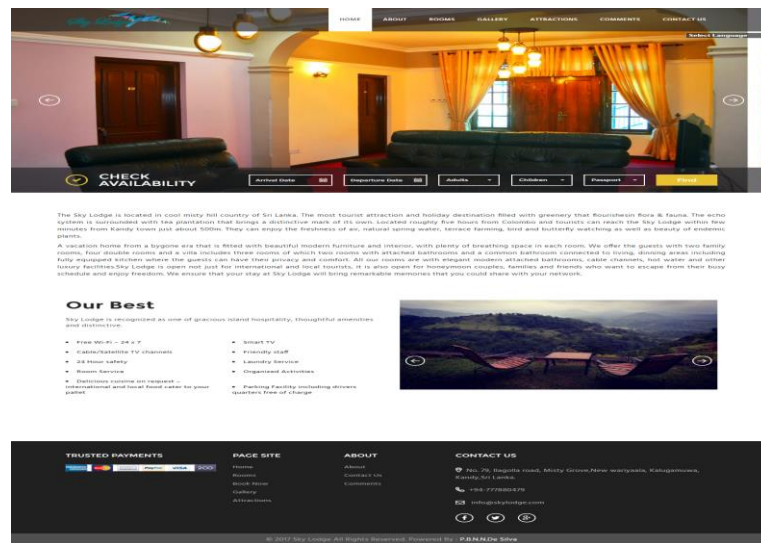


Figure 3.12: Home page of the sky lodge web site

Web based Hotel management system

1. Login Page

Login page is the main page that allows user to access the system by entering user name and the password.

This helps to secure the data from the unauthorized persons. Figure 3.13 shows the login page of the hotel management system.

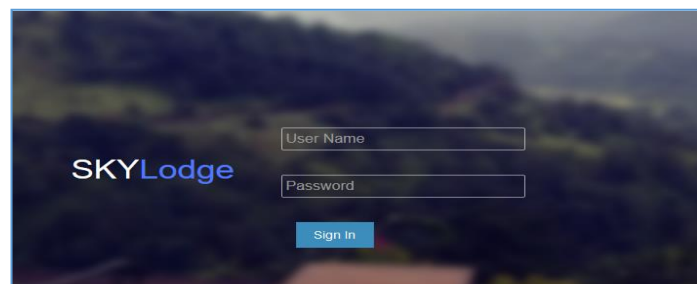


Figure 3.13: Login page

2. Dashboard

Dashboard provides all the links and menus to make user easy to navigate through the system. Some important modules display on the dashboard for easy reference of the user. Figure 3.14 shows the dashboard of the system.

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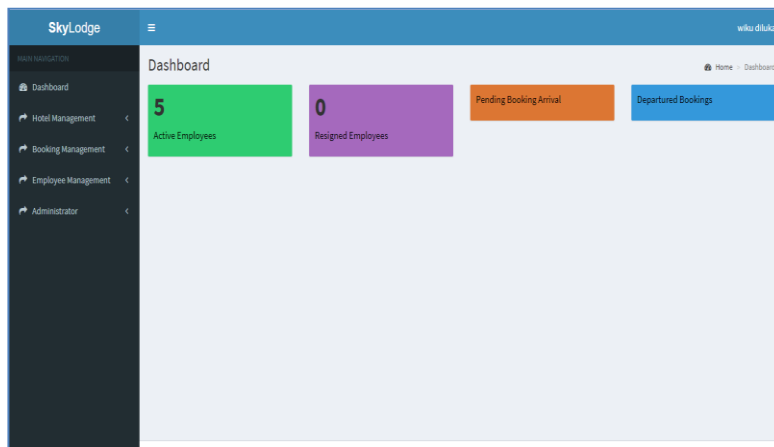


Figure 3.14: Dashboard

3. New room blocking

This module uses a form to collect data, these data validated by both client side javascript and server side PHP to make sure the correct data is included. Cascading style sheet has given attractive view and the simplicity to the module. Figure 3.15 shows the form for the blocking a new booking.

The screenshot displays the 'New Room Blocking' form. It is divided into several sections: 'Check Availability' with 'Arrival Date*' and 'Departure Date*' fields; 'Adults' and 'Children' dropdowns; a 'Passport*' dropdown; 'Rooms' section with 'Deluxe Double Room', 'Family Double Room', and 'test' dropdowns; 'Booking Details' section with 'Arrival Date', 'Departure Date', 'Adults', 'Children', 'Passport', 'Deluxe Double Room', 'Family Double Room', 'Total Rooms', and 'Payment in LKR' (with 'USD' sub-fields); 'Billing Details' section with 'First Name*', 'Last Name*', 'Address*', 'Email*', 'Phone*', and 'Message' fields; and a 'Confirmation' section with 'Reservation Type' and 'Priority Type' dropdowns. A 'Block Room' button is at the bottom left and a 'Reset' button is at the bottom right.

Figure 3.15: New room blocking

CHAPTER 4: IMPLEMENTATION

4.1 INTRODUCTION

Implementation is the process of converting the finalized design in to code. This chapter discuss about the code and the module structures, which describes the implementation process.

The hotel management system and the website have been implemented using appropriate tools and the techniques. Code has included in readable format and changes can be made according to future requirements.

4.2 IMPLEMENTATION ENVIRONMENT

Software and hardware requirements are most considerable aspects in implementation process. According to the behavior of the website and the hotel management system, implementation environment can be shown as follows (Table 4.1);

Hardware	Software
<ul style="list-style-type: none">• Intel® core™ i5 CPU M450 @ 2.40 GHz	<ul style="list-style-type: none">• Microsoft Windows 7 Professional 64-bit operating System
<ul style="list-style-type: none">• 4GB RAM	<ul style="list-style-type: none">• XAMPP server-3.2.2<ul style="list-style-type: none">○ Apache 2.2.12○ Php 5.6.24○ PhpmyAdmin 5.1.37
<ul style="list-style-type: none">• 250GB Hard Disk	

Table 4.1 :Implementation environment

Development Tools

- Adobe Dreamweaver CS6- for coding
- StarUML for UML diagram creation
- Microsoft Project for charts
- Microsoft Visio

Technologies

- PHP (Hypertext Pre Processor) – Main development language
- MySQL- Handle database

Web site& Web based Hotel Reservation Management System

- Bootstrap- design the interface of the system
- CSS- Make the interface more attractive to the user
- JavaScript- Used to get data from the server without refreshing it repetitively.
- JQuery

4.3 NETWORK IMPLEMENTATION

Following figure 4.1 shows the network implementaion of the system.

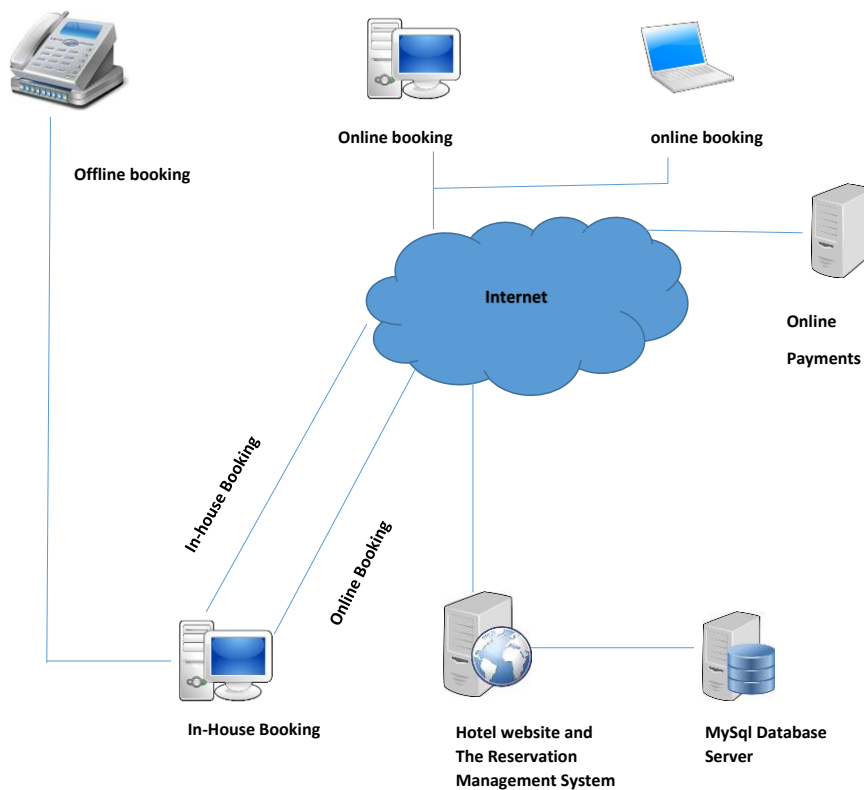


Figure 4.1: Network diagram

The system has allocated a server for the website and the Hotel management system and for the database. Offline booking can handle without internet but external users and the internal users require internet to access the website and the reservation management system.

4.5 MAJOR CODE SEGMENTS

Database Connection

```
<?php
date_default_timezone_set('Asia/Colombo');
class dbConnection{
    private $iSERVER;
    private $iUSER;
    private $iPASS;
    private $iDATABASE;
    function __construct(){
        $this->iSERVER = "localhost";
        $this->iUSER = "root";
        $this->iPASS = "";
        $this->iDATABASE = "sky_lodge";}
    function getCon(){
        $con = mysqli_connect($this->iSERVER,$this->iUSER,$this->iPASS,$this->iDATABASE) or die("SERVER Error ".mysqli_error());
        return $con;}}
?>
```

This code segment shows the database connection of the system. This helps to manage the connection by passing four parameters (Server, user name, password and the database name) with their values.

User Login

Code for the interface of the login page can be illustrated using the index.php. Login page consists with the form, which provides spaces to users to enter user name and the password.

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```
<div class="body"></div>
    <div class="grad"></div>
    <div class="header">
        <div>SKY<span>Lodge</span></div>
    </div><br>
    <div class="login">
<!--<p class="form-title"><h4>SIGN IN</h4></p>-->
<form action="lib/log" method="POST" id="formCont1">

        <div class="form-group has-feedback">
            <input type="text" name='usrName' class="form-control" placeholder="User Name"
required="required" />
            <label id="usrName" class="errCon"></label>
        </div>

        <div class="form-group has-feedback">
            <input type="password" name='password' class="form-control" placeholder="Password"
required="required" />
            <label id="password" class="errCon"></label>
        </div>

        <div class="col-xs-4">
            <button type="submit" id="submit" class="btn btn-primary btn-block btn-flat">Sign
In</button>
        </div>
    </div>
```

Validation of the data entered by the user has done by the page. Code as shown in Loginhandle.php as in below, shows the checking data availability of the database with the passed form data, which helps to identify the authorized users for the system.

Check whether the entered user name and password are correct or not by searching the relevant employee details from the “emp_company_staff_dt” table, “adm_user_acc_dt” table and “m_company_desg_dt” table.

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```
$usrName = $_POST["usrName"];
$Password = $_POST["password"];
if($usrName!="" && $Password!=""){
$dbobj = new dbConnection();
$con = $dbobj->getCon();
$sql = "SELECT `adm_user_acc_dt`.`User_Name`, `User_No`,`Designation`,
`emp_company_staff_dt`.`emp_no`,`adm_user_acc_dt`.`Status`,
`surname`,`other_name`,`dept_id`,`desi_id`,`App_date`,
`NIC` FROM `adm_user_acc_dt`,`emp_company_staff_dt`,`m_company_desg_dt` where
`emp_company_staff_dt`.`desi_id`=`m_company_desg_dt`.`Designation_id` and
`adm_user_acc_dt`.`emp_no`=`emp_company_staff_dt`.`emp_no` and
`adm_user_acc_dt`.`User_Name`=`$usrName` and `User_Pass`=sha1(MD5(".$Password."))
and
`User_Confirm`=sha1(MD5(".$Password.")) and `adm_user_acc_dt`.`Status`=1;";
try{ $result = mysqli_query($con,$sql);
$nor = $result->num_rows;
if($nor>0){ $rec = mysqli_fetch_assoc($result);
```

If the relevant details are available, keep the record of employees as shown in below,

```
$User_Name=$rec["User_Name"];
$surname=$rec["surname"];$App_date=$rec["App_date"];
$User_No=$rec["User_No"];$other_name=$rec["other_name"];
$Designation=$rec["Designation"];$User_NIC=$rec["NIC"];
$Role=$rec["Role"]; $emp_no=$rec["emp_no"];
$_SESSION["skylodge"]["User_No"]=$User_No;
$_SESSION["skylodge"]["Emp_No"] =$emp_no;
$_SESSION["skylodge"]["Designation"] =$Designation;
$_SESSION["skylodge"]["App_date"] =$App_date;
$_SESSION["skylodge"]["surname"] =$surname;
$_SESSION["skylodge"]["other_name"] =$other_name;
$_SESSION["skylodge"]["User_Name"] =$User_Name;
$_SESSION["skylodge"]["User_NIC"] =$User_NIC;
$_SESSION["skylodge"]["role"]=$Role;
```

Manage Record Insertion: Add New Employee

Following code shows the record insertion to the system,

```
if (isset($_GET['AddStaff'])) {
    $User_No=$_SESSION["gsp"]["User_No"]; $NiC = $_POST["NiC"];
    $Surname = $_POST["Surname"]; $othername = $_POST["othername"];
    $datOfBirth = $_POST["datOfBirth"]; $Gender = $_POST["Gender"];
    $Address = $_POST["Address"]; $contactNum = $_POST["contactNum"];
    $email = $_POST["email"]; $Department = $_POST["Department"];
    $Designation = $_POST["Designation"]; $basicSal = $_POST["basicSal"];
if($NiC !="" and $Surname!="" and $othername !="" and $datOfBirth !="" and $Gender!=""
and $Address !="" and $contactNum !="" and $Department !="" and $Designation!=""
and $basicSal!=""){
        $curntdate=date('y-m-d');
        $month = date("F");
        $Curyrs = date("Y");
        $dbobj=new dbConnection();
        $con=$dbobj->getcon();
        $sql="INSERT INTO `emp_company_staff_dt`(`NIC`, `surname`, `other_name`,
`dob`, `gender`, `Address`, `contact_no`, `dept_id`, `desi_id`, `Basic_Salary`,
`e_mail`,
`UserAcc_No`,`App_date`,`Status`,`Accounts_Active`)VALUES('$NiC','$Surname',
'$othername','$datOfBirth','$Gender','$Address'$contactNum','$Department','$Designa
tion','$basicSal','$email','$User_No','$curntdate',1,0)";
        $result=mysqli_query($con,$sql);
        if($result>0){
            echo json_encode('success');}
        else{
            echo json_encode('error');
            mysqli_close($con);}
        else {echo json_encode('req');}
        exit();
    }
}
```


Record Updating: Handle Disable Room Category

The record updating of the system can be shown as follows. First this code describes the getting details of the relevant room category which need to disable.

```
if(isset($_POST["DisableMainType"])){  
    $Emp_No=$_SESSION["gsp"]["Emp_No"] ;  
    $companyId = $_POST["companyId"];  
    $mainRoomType = $_POST["mainRoomType"];
```

Check whether the relevant room category details are available or not and open the sql connection.

```
if($companyId != "" and $mainRoomType!=""){  
    $curntdate=date('y-m-d');  
    $month = date("F");  
    $Curyrs = date("Y");  
    $dbobj=new dbConnection();  
    $con=$dbobj->getcon();
```

Then update the relevant tables as shown below,

Update `htm_room_des_dt` table

```
$sqlupdateDesc = "UPDATE `htm_room_des_dt` SET `Status`=0  
WHERE `Main_Room_Type`='$mainRoomType' and `Status`=1;";  
$resultupdateDESC = mysqli_query($con,$sqlupdateDesc);
```

Update `htm_room_dt` table

```
$sqlupdateDetails = "UPDATE `htm_room_dt` SET `Status`=0 WHERE  
`Main_Room_Type`='$mainRoomType' and `Status`=1;";
```

Update `htm_room_facility_dt` table

```
$resultupdateDetails = mysqli_query($con,$sqlupdateDetails);  
$sqlupdateFACility = "UPDATE `htm_room_facility_dt` SET `Status`=0 WHERE  
`Main_Room_Type`='$mainRoomType' and `Status`=1 ;";
```

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```
$resultupdateFac = mysqli_query($con,$sqlupdateFAcility);
```

Update `htm_room_img_dt` table

```
$sqlupdateImg = "UPDATE `htm_room_img_dt` SET `Status`=0 WHERE  
`Main_Room_Type`='$mainRoomType'and`Status`=1 ;";  
$resultupdateImg = mysqli_query($con,$sqlupdateImg);
```

Update `htm_room_rate_dt` table

```
$sqlupdateRate = "UPDATE `htm_room_rate_dt` SET `Status`=0 WHERE  
`Main_Room_Type`='$mainRoomType' and `Status`=1 ;";  
$resultupdateRate = mysqli_query($con,$sqlupdateRate);
```

Update `htm_sub_room_typ_dt` table

```
$sqlupdateSubtype = "UPDATE `htm_sub_room_typ_dt` SET `Status`=0  
WHERE `Main_Type_Id`='$mainRoomType' and `Status`=1 ;";  
$resultupdateSubtype= mysqli_query($con,$sqlupdateSubtype);
```

Update `htm_main_room_type_dt` table

```
$sqlupdateMaintype = "UPDATE `htm_main_room_type_dt` SET `Status`=0 WHERE  
`Main_Type_Id`='$mainRoomType' and `Status`=1 ;";  
$resultupdateMaintype= mysqli_query($con,$sqlupdateMaintype);
```

Close the connection and display the relevant validation messages as shown below,

```
mysqli_close($con);  
header("Location:../HMgtD2?DSMR=1");  
}  
else  
{  
header("Location:../HMgtD2?DSMR=2");  
}  
}
```

4.6 MODULE STRUCTURE DESCRIPTION FOR THE SYSTEM

Figure 4.2 describes the way that the system has structured as a set of codes or data units that has to be constructed.

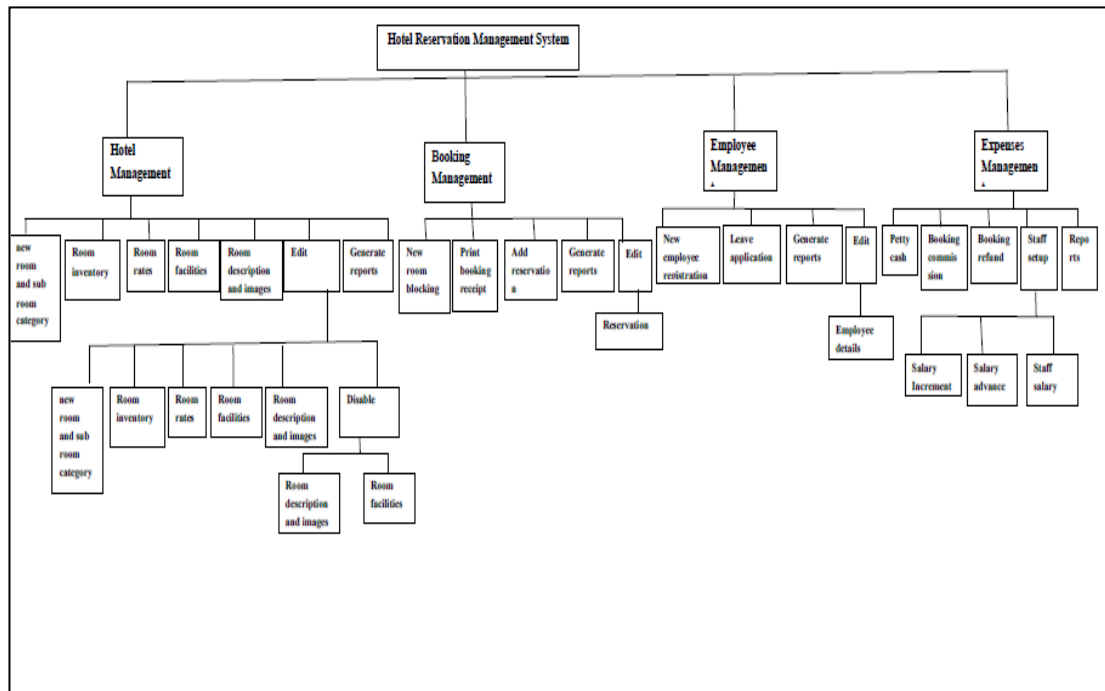


Figure 4.2 Module structure for the system

4.7 REUSED MODULES

- JQuery calendar
- Validation messages
- Session variables

More code segments are available at Appendix-F

CHAPTER 5: EVALUATION

5.1 INTRODUCTION

Evaluation is the best assessment to determine whether software has satisfied the requirements of the client. This assessment gives the measurement of the quality of the software. Software testing is a method, which ensures the quality of the software.

“Testing can only show the presence of errors, not their absence” [12]

Testing is part of a broader process of software verification and validation (V & V).

Verification and validation are not the same thing, although they are often confused.

Verification and validation processes are concerned with checking that software being developed meets its specification and delivers the functionality expected by the people paying for the software. These checking processes start as soon as requirements become available and continue through all stages of the development process. [12]

- ‘Validation: Are we building the right product?’ [12]
- ‘Verification: Are we building the product right?’ [12]

5.2 TEST STRATEGIES

Typically, a software system has to go through three stages of testing,

1. **Development testing**

Development testing, where the system is tested during development to discover bugs and defects. System designers and programmers are likely to be involved in the testing process.

During development, testing may be carried out at three levels of granularity: [12]

- **Unit testing**, where individual program units or object classes are tested. Unit testing should focus on testing the functionality of objects or methods. [12]
- **Component testing**, where several individual units are integrated to create composite components. Component testing should focus on testing component interfaces. [12]

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- **System testing**, where some or all of the components in a system are integrated and the system is tested as a whole. System testing should focus on testing component interactions. [12]

2. Release testing

Release testing, where a separate testing team tests a complete version of the system before it is released to users. The aim of release testing is to check that the system meets the requirements of system stakeholders. [12]

- **Requirement based testing**- A general principle of good requirements engineering practice is that requirements should be testable; that is, the requirement should be written so that a test can be designed for that requirement. A tester can then check that the requirement has been satisfied. [12]
- **Scenario testing** is an approach to release testing where you devise typical scenarios of use and use these to develop test cases for the system. A scenario is a story that describes one way in which the system might be used. [12]
- **Performance tests** have to be designed to ensure that the system can process its intended load. This usually involves running a series of tests where you increase the load until the system performance becomes unacceptable. [12]

3. User testing

User testing, where users or potential users of a system test the system in their own environment. For software products, the ‘user’ may be an internal marketing group who decide if the software can be marketed, released, and sold. Acceptance testing is one type of user testing where the customer formally tests a system to decide if it should be accepted from the system supplier or if further development is required. [12]

In practice, there are three different types of user testing:

- **Alpha testing**, where users of the software work with the development team to test the software at the developer’s site. [12]
- **Beta testing**, where a release of the software is made available to users to allow them to experiment and to raise problems that they discover with the system developers. [12]

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- **Acceptance testing**, where customers test a system to decide whether or not it is ready to be accepted from the system developers and deployed in the customer environment. [12]

5.3 TEST PLAN AND TEST CASES

Test Plan is a document describing the scope, approach, resources and schedule of intended test activities. It identifies amongst others test items, the features to be tested, the testing tasks, who will do each task, degree of tester independence, the test environment, the test design techniques and entry and exit criteria to be used, and the rationale for their choice, and any risks requiring contingency planning. It is a record of the test planning process. [13]

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. The process of developing test cases can also help find problems in the requirements or design of an application. [13] Some test cases for the system can be shown as follows,

5.3.1 LOGIN MODULE

Following table 5.1 depicts the test description and the expected output for the login module.

No	Test Description	Expected Output
01	Click login button without entering user name and password	Each field displays a message by saying “This field is required”.
02	Click login button by entering valid username and invalid password	Invalid User name or Password
03	Click login button by entering invalid username and valid password	Invalid User name or Password
04	Click login button by entering invalid username and invalid password	Invalid User name or Password
05	Click login button by entering valid username and valid password	Successfully login

Table 5.1:Test case for login module

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5.3.2 NEW USER ACCOUNT MODULE

Following table 5.2 depicts the test description and the expected output for the new user account module.

NO	Test Description	Expected Output
01	Click Add button without selecting any field of the new user Account module.	Each fields display messages as follows, <ul style="list-style-type: none"> • User Name, Role and Employee Name & NIC No/Passport No fields-“This field is required”. • Password field- “Please provide a password” • Confirm Password field-“ Please confirm a password”
02	Click Add button, by only selecting Employee Name & NIC No/Passport No field	Each fields except Employee Name & NIC No/Passport No display messages as follows, <ul style="list-style-type: none"> • User Name, Role fields-“This field is required”. • Password field- “Please provide a password” • Confirm Password field-“ Please confirm a password”
03	Click Add button, by only entering data to User Name field and Employee Name & NIC No/Passport No field	Each fields except User Name field and Employee Name & NIC No/Passport No field display messages as follows, <ul style="list-style-type: none"> • Role fields-“This field is required”. • Password field- “Please provide a password” • Confirm Password field-“ Please confirm a password”

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04	Click Add button, by only entering data to User Name field, Employee Name & NIC No/Passport No field and Password field	Each fields except User Name field and Employee Name & NIC No/Passport No field and Password field display messages as follows, <ul style="list-style-type: none"> • Role fields-“This field is required”. • Confirm Password field-“ Please confirm a password”
05	Click Add button by entering characters less than 8 in to the Password field.	Password field displays a message “Your password must be at least 8 characters long”
06	Click Add button, by only entering data to User Name field, Employee Name & NIC No/Passport No field, Password field and Confirm Password field.	Role filed displays a message “This field is required”.
07	Click Add button, by not entering the same password as Password field in to the Confirm Password field.	Confirm Password field displays a message “Please enter the same password as above”
08	Click Add button, by entering characters less than 8 in to the Confirm Password field.	Confirm Password field displays a message “Your password must be at least 8 characters long”
09	Click Add button by entering correct details in to all the fields.	Display a message “Successfully Add a user”

Table 5.2:Test case for add new user account module

5.3.3 LEAVE REQUEST MODULE

Following table 5.3 depicts the test description and the expected output for the leave request module.

NO	Test Description	Expected Output
01	Click Add button without selecting any field of the leave request module.	<ul style="list-style-type: none"> • Each filed display a message “This field is required”. • Pop-up message come with warning message “Please fill all required fields”.
02	Click Add button by only selecting a value for Employee Name field.	<ul style="list-style-type: none"> • Each filed except Employee Name field display a message “This field is

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		<p>required”.</p> <ul style="list-style-type: none">• Pop-up message come with warning message “Please fill all required fields”.
03	Click Add button by only selecting a value for Employee Name and Leave type fields.	<ul style="list-style-type: none">• Each filed except Employee Name and Leave type fields display a message “This field is required”.• Pop-up message come with warning message “Please fill all required fields”.
04	Click Add button by only selecting a value for Employee Name, Leave type and Start Date fields.	<ul style="list-style-type: none">• End Date field display a message “This field is required”.• Pop-up message come with warning message “Please fill all required fields”.
05	Click Add button by only entering relevant values for all fields of the leave request module.	<ul style="list-style-type: none">• Display a message “successfully send the leave request”

Table 5.3:Test case for leave request module

5.4 TEST DATA AND TEST RESULTS

Functionalities of each module have been tested by using sample data collected from the previous documents. Relevant fields of the individual forms have tested with the dummy data to understand the working condition of the forms.

Various kinds of error messages have been used in relevant places to make user aware about the functionalities of the system and reduce the confusion.

The test results of important test cases are added to Appendix - E includes some screen shots.

5.5. ACCEPTANCE TESTING

This is the final stage in the testing process before the system is accepted for operational use. The system is tested with data supplied by the system customer rather than with simulated test data. Acceptance testing may reveal errors and omissions in the system requirements definition, because the real data exercise the system in different ways from the test data. Acceptance testing may also reveal requirements problems where the system’s facilities do not really meet the user’s needs or the system performance is unacceptable. [12]

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Alpha testing process continues until the system developer and the client agree that the delivered system is an acceptable implementation of the requirements. [12]

Beta testing involves delivering a system to a number of potential customers who agree to use that system. They report problems to the system developers. This exposes the product to real use and detects errors that may not have been anticipated by the system builders. After this feedback, the system is modified and released either for further beta testing or for general sale. [12]

Feedback gathering tool is the questionnaire, which describes each functionalities of the system and has provided space to give user feedback. According to the proposed system, two types of users can be found,

- Hotel employees who has accessibility to the hotel management system.
 - Administrator
 - Manager
 - Front desk operator / receptionist
- Guests who need to access the Sky Lodge website to make their own reservation.

Further, client certificate has added to the Appendix G.

Test results of the acceptance test

Figure 5.1 and Figure 5.2 illustrate the sample questionnaires that have given to the target users to get the proper user evaluation. Result of the user evaluation has summarized as figure 5.3 in feedback graph.

USER EVALUATION QUESTIONNAIRE						
Name: R.S. Samarasinghe						
Role: Front desk operator						
Date: 02/10/2017						
NO	Evaluating Item	Very Good	Good	Acceptable	Poor	Very Poor
1	Ease of understanding the modules in the system		✓			
2	Ability to read characters		✓			
3	Interface and the colour scheme			✓		
4	Ability to navigate through the system		✓			
5	Ease of entering data through the forms	✓				
6	Ease of understand messages provided by the system	✓				
7	Ease of handling calculations		✓			
8	Ease of generating relevant reports		✓			
9	Ease of learning the system		✓			
10	Speed of transaction					
• Comments:						

Figure 5.1: User Evaluation questionnaire-I

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USER EVALUATION QUESTIONNAIRE

Name: A. Kumari
 Role: Administrator
 Date: 02/10/2017

NO	Evaluating Item	Very Good	Good	Acceptable	Poor	Very Poor
1	Ease of understanding the modules in the system		✓			
2	Ability to read characters	✓				
3	Interface and the colour scheme	✓				
4	Ability to navigate through the system	✓				
5	Ease of entering data through the forms		✓			
6	Ease of understand messages provided by the system	✓				
7	Ease of handling calculations	✓				
8	Ease of generating relevant reports		✓			
9	Ease of learning the system		✓			
10	Speed of transaction	✓				
• Comments:						

Figure 5.2:User Evaluation Questionnaire-II

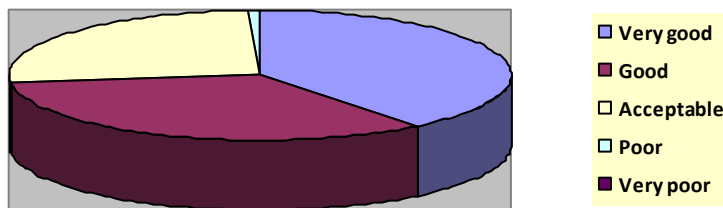


Figure 5.3: User feedback graph

CHAPTER 6: CONCLUSION

6.1 CRITICAL EVALUATION OF THE SYSTEM

Taking a web-based solution for the existing manual system is a beneficial and valuable decision, which helps successfully overcome from the critical problems. Most important and the main business process of the Sky Lodge is room reservation and the booking. All the bookings and the calculations has under taken by manually. Receptionist or the front officer, take the responsibility to handle the booking process. By keeping a log book (log the reservation) , reservation chart(check the room availability) and the guest registration(to keep the details of the guests who confirm the reservation) manually handle the booking process and it's documentation.

People are not perfect all the time and mistakes can be made with the details, they are working with. So the inaccuracy of data will guide to overbooking and abrupt cancellations. Inaccuracy calculations are also cause to make guest unhappy and that will highly affect to the profit and the reputation of the hotel.

However, the web site and the web based hotel management system provide best mechanism to handle not only for the offline but also for online bookings and the reservations. Web site has provided space to guests to check room availability and make room reservations by themselves. Calculations for the booking charges are automatically done according to the requirements of the guest. When it comes to the hotel reservation management system, also facilitate handle the offline check room availability, room reservation, booking, to the accurate calculations for the payments and bill generation. This helps to prevent the overbooking, abrupt cancellation and the inaccurate calculations. As a result of this, guest satisfaction and the employee satisfaction cause to gradually increase the high profit margin of the company.

New door has opened to spread the business among guests other than struggling with the manual system.

6.2 FUTURE IMPROVEMENTS

The proposed system has implemented within limited time constraint according to the current requirements of the client. Further, discussion with the client helps to gather some idea of the future requirements and improvements as follows,

- Add account management module to handle accountancy process of the hotel and generate reports of the trial balance, Profit and loss statement for given period.
- Add inventory management module to maintain the inventory of the hotel and track inventory levels, handle orders and handle bill payments.
- Prepare notification management module to make guests aware about the new facilities and the new booking rates and discounts by sending Short Message Service (SMS) and E-mail.

6.3 PROBLEMS ENCOUNTERED AND LESSONS LEARNT

Preparation of proposed Web site and the hotel management system was the turning point to improve knowledge and the skills. The course of the project was not an easy task but could add new pages to book of knowledge.

Project selection was a very difficult task. By referring past projects and related books and sites could gain knowledge of the area that going to touch. By making appointments and conducting discussion regarding the project was help me to understand the behavior of professional meetings.

In the stage of system analysis, could improve interpersonal skills by communicating with various kind of people to gather requirements. Requirement gathering techniques like interview, questionnaire and observation help to gather requirements and gather relevant details of the hotel. Making appointments with client, making client understand the technical terms and new technologies suits for the system, understanding and making changes of the requirements was not an easy at first. Later it taught to adjust to working environment and work patiently.

Designing phase, guided to draw designing diagrams like, Use case, Class diagrams, Activity, ER diagrams. By solving database normalization issues, could improve the knowledge of database. Interface designing abilities was increased.

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In the implementation stage, was the most difficult and interesting stage which gave huge chance to convert the theoretical knowledge in to practical knowledge. Latest programming languages like JQuery, PHP, AJAX, MySQL (XAMPP server), Bootstrap and development tools and technologies were implemented and tested by gaining more knowledge.

Further, writing skills were improved by writing the dissertation within the given frame of writing. Time management was another lesson learnt.

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APPENDIX A : SYSTEM DOCUMENTATION

Minimum Hardware Requirements

- Pentium IV or 1 GHz Processor or greater.
- 256 MB RAM or greater.
- Mouse
- Keyboard.
- 1280x800 screen resolution or greater
- CD-ROM drive
- 1GB hard disk space

Minimum Software Requirements

- Microsoft Windows XP or higher
- XAMP – 3.2.2
- Php 5.6.24
- Apache 2.2.12
- PhpMyadmin 5.1.37
- Firefox v5.0 or Google chrome v12.0.742.112 or higher web browser

Additional Software Requirements

- Adobe Dreamweaver
- Adobe Photoshop
- StarUML
- Microsoft Project
- Microsoft Visio

Installation of the Hotel management system

Process of the installation can be group in to three stages,

1. Software Installation.
2. Database Installation.
3. System Installation.

Software Installation

- **XAMPP server Installation**

Download the XAMPP latest version for windows form the www.apachefriends.org and install it in to the computer by giving a suitable path. Installation guide which has provided in above website will provide more instructions.

- **Web Browser Installation**

Download and install the latest version of a suitable web browser from relevant web site.

(Mozilla Firefox from www.mozilla.com or Google chrome from www.google.com.)

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Database Installation

- Open the web browser and type <http://localhost/> or <http://127.0.0.1/> in the URL and press Enter. Then you can see XAMPP home page on the web browser.
- Select phpMyAdmin tool from the Xampp home page.
- Click on the database tab button which can find in the phpMyAdmin window
- Type “Sky_Lodge” in the database text box and click on the create button to create a new database.
- Now click on the “Import” tab from the tabs located in the top of the window and click on the “Chose file” button. It will give you a browsing window.
- Insert the “HMS” CD in to your CD-ROM. Open the CD-ROM and select the “Sky_Lodge.sql” and press “Open” button.
- Press “Go” button located in the bottom left corner.

System installation

- Browse the HotelManagementSystem, Locate the folder “SkyLodge” from the path: Y:\ HotelManagementSystem/ SkyLodge / (Y is your CD-ROM drive letter).
- Copy the entire folder and paste it in the following location Y:\xampp\htdocs\ SkyLodge (Y is your xampp folder location).

Launching The System

- Before launching the system, start the XAMPP for windows to make sure that the Apache and MySQL are running in the system.
- Click on the XAMPP panel and check whether the Apache and MySQL services are running in the background.
- Type <http://localhost/SkyLodge> in the URL and press Enter to launch the SkyLodge website.
- Now type” <http://localhost/SkyLodge/coins/> ” in the URL and press Enter to launch the Hotel Management System.

Please refer the Appendix-C User documentation for detailed guidance on how to use the system.

APPENDIX B : DESIGN DOCUMENTATION

1. Use Case diagram for Process of leave handling

Figure B.1 use case diagram describes the process of leave handling.

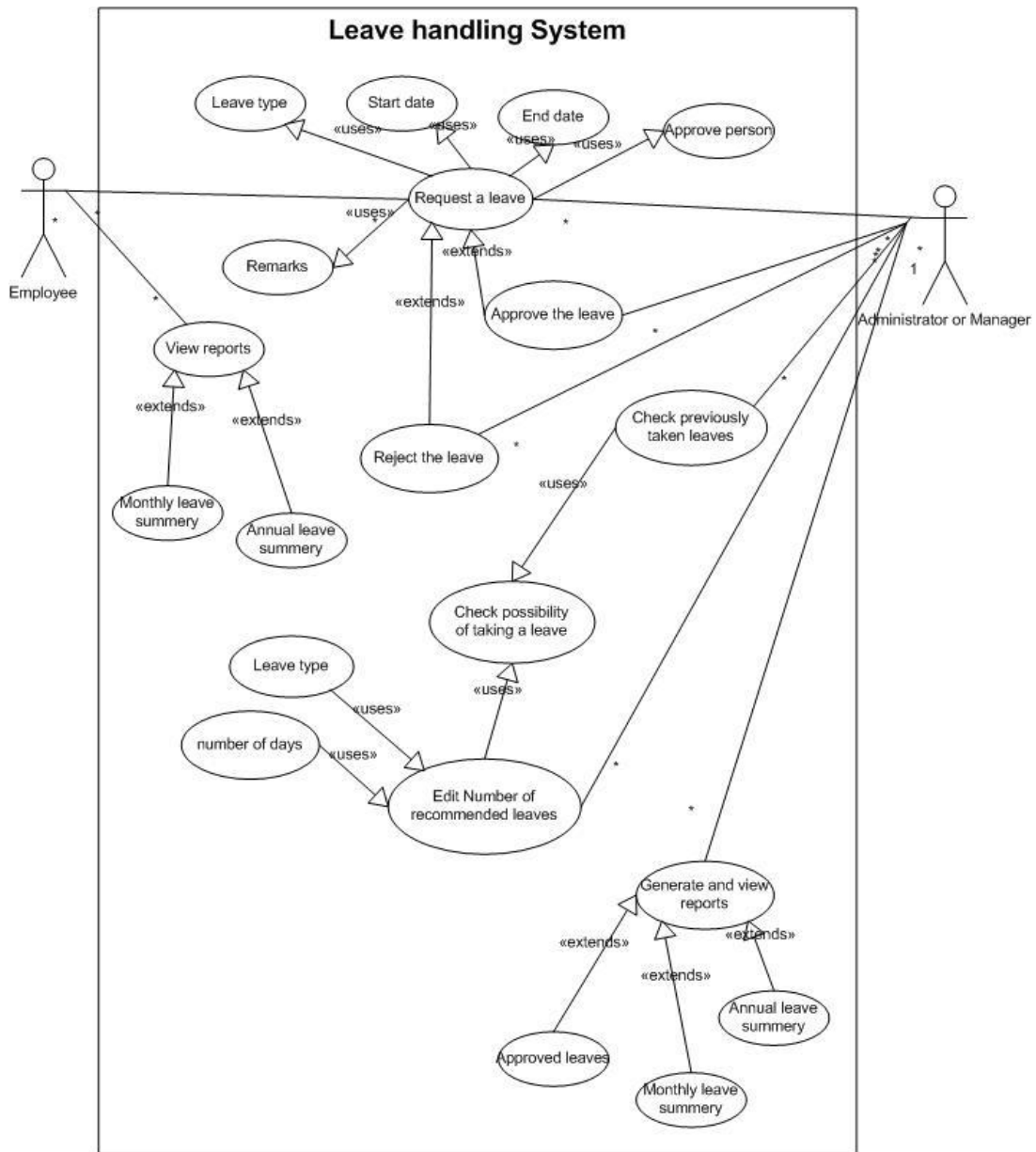


Figure B.1:Use case for Leave handling

Table B.1 explains the process of leave handling

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Use Case	Leave handling
Actors	Any Employee and Administrator or Manager
Overview	
<ul style="list-style-type: none"> • Any user can access the system to send a leave request. • Only recommended approve person can view and approve or reject the leave request. 	
Pre-conditions	
Check already taken leaves from the relevant employee for the relevant year.	
Flow Of events	
<ol style="list-style-type: none"> 1. Employee can request a leave by providing the leave type, start date, end date, Approve person and the remarks (reason) for the given spaces in leave request form. 2. Then the requested leave can be viewed only by the approve person who has mentioned in the leave request form. 3. System will automatically check that the numbers of currently taken leaves have exceeded the number of recommended leaves for a relevant year. <ol style="list-style-type: none"> I. If the number of currently taken leaves has exceeded the recommended leaves, approve person can approve the leave. II. If the number of currently taken leaves has not exceeded the recommended leaves, system will send a message by saying the employee has exceeded the recommended leaves. 4. Administrator or manager can change the number of recommended leaves whenever needed. 	
Post Conditions	
Manager or Administrator need to reject or approve the leave request.	

Table B.1: Process of leave handling

2. Use case diagram for Comment handling

Following figure B.2 depicts the use case diagram for the process of handling comments.

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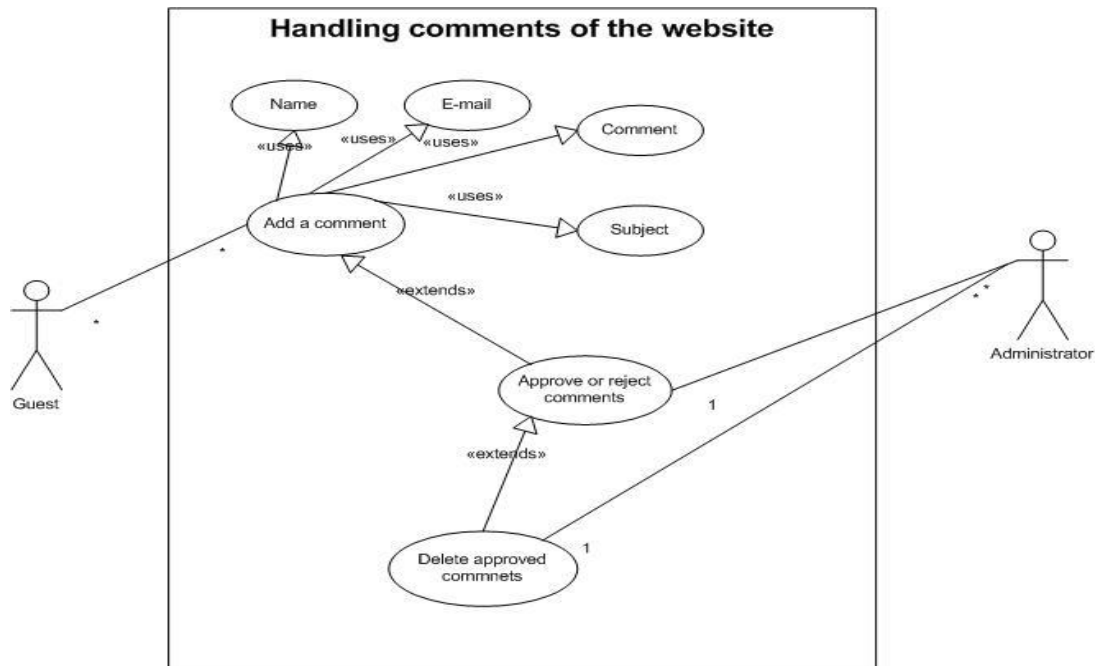


Figure B.2: Use case diagram to handle process of adding comments

Following table B.2 depicts the process of comment handling

Use Case	Comments handling
Actors	Guests and Administrator
Overview	
<ul style="list-style-type: none"> Any user or guest can add a comment in to the comment page of the website. Comments cannot publish without the permission of the administrator. 	
Pre-conditions	
Comments that has sent through the website can be viewed by the administrator.	
Flow Of events	
<ol style="list-style-type: none"> Any user or guest can add a comment by filling the name, E-mail, subject and the comment fields with relevant details. After that administrator can view the comment. Administrator can approve or reject the comment by considering the comment. <ol style="list-style-type: none"> Approved comments can be viewed in the comment page in the web site. Rejected comment automatically deleted by the system. Administrator can delete approved comments, whenever needed. 	
Post Conditions	
Administrator need to approve the comment to publish it in the website.	

Table B.2: Handling process of add comments

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3. Sequence diagram for handling user account for the hotel management system

Figure B.3 illustrates the process of handling user accounts as follows,

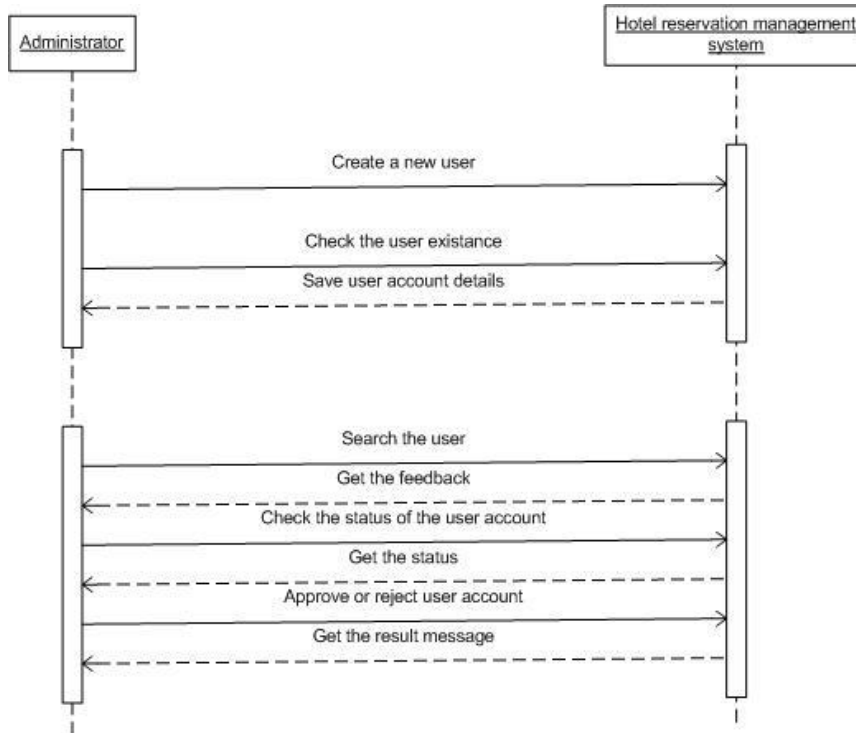


Figure B.3:Sequence diagram for handling user accounts

4. Sequence diagram for handling process of employees

Process of employees can be illustrated as shown in the figure B.4.

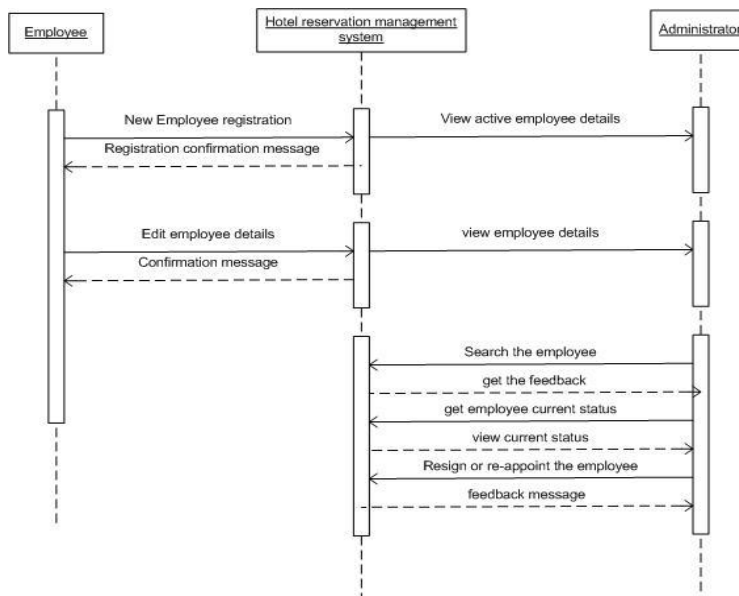


Figure B.4:Sequence diagram for handling process of employees

APPENDIX C : USER DOCUMENTATION

User documentation can be describe by dividing in to two sections as follows,

1. Hotel management system
2. Sky Lodge Website

Hotel management system

Main Login

Main login page for the hotel management system can be shown as in figure C.1. By entering the authorized user name and password for the given spaces, users can log in to the system.

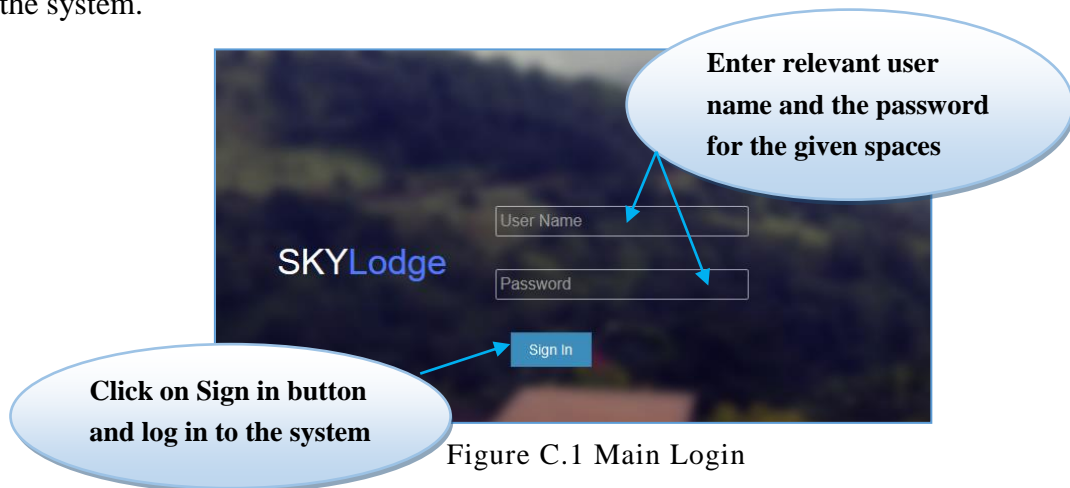


Figure C.1 Main Login

Dashboard

This is the first page you can view, once after logged in to the system. Dashboard is the main page which support user to navigate through the system. Moreover, make user aware about important alerts. (Figure C.2).



Figure C.2: Dashboard

Main Navigation Bar and Sub Navigation Bar

This helps to navigate and the access the main menus of the system (Figure C.3). Figure C.4 illustrate the sub navigation bar.

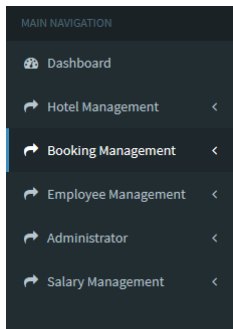


Figure C.3: Main Navigation bar

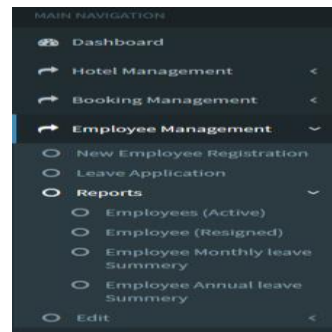


Figure C.4 :Sub navigation bar

New Room Category

This Form helps to add new room details in to the system as shown in figure C.5. To view the form click on the, Hotel Management main menu => New Room Category Sub menu

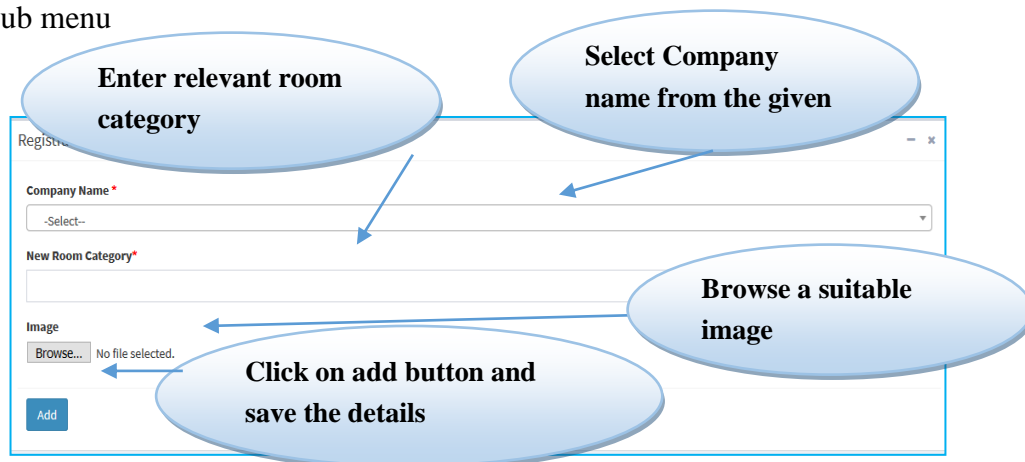


Figure C.5 : Add new room category

New Room Facility

Figure C.6 illustrate the form of the add new room facility. After clicking on the view button, you can get the spaces to add relevant facilities for the room categories. (Figure C.7)Form can be viewed by clicking on the,

Hotel Management main menu => New room facility sub menu.

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Registration Form

Company Name *
-Select--

New Room Category *
-Select--

New Sub Room Category *
-Select--

Facilities * : [] View

Select company name, room category and the sub room category from the given lists

Click and get the spaces to add facilities

Figure C.6 :Add new room facility-I

Facilities * : 2 View

No Facility Description

1 []

2 []

Add

Add facilities in the given

Click add button to send details

Figure C.7: Add new room facility-II

New Room Rates

By using this form, you can add the new room rates according to the food type and the month. (Figure C.8). Form can be viewed by clicking on,

Hotel Management main menu => new room rate sub menu

*** There are three meals types available in the hotel. They can be illustrate as follows,

- BB- Bed and Breakfast: Breakfast, Beverages (free food only during breakfast - tea, coffee, water)
- HB-Half Board: breakfast and dinner, beverages (tea, coffee and water) are free on breakfast, but are to be paid on dinner.
- FB-Full Board: breakfast, lunch, dinner; beverages (tea, coffee, water) are for free on breakfast, but are to be paid on lunch and dinner.

After entering relevant data you can save the details by clicking on the “Add”button.

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No	Month	BB (LKR)	HB (LKR)	FB (LKR)	BB (USD)	HB (USD)	FB (USD)
1	January	0.00	0.00	0.00	0.00	0.00	0.00
2	February	0.00	0.00	0.00	0.00	0.00	0.00
3	March	0.00	0.00	0.00	0.00	0.00	0.00
4	April	0.00	0.00	0.00	0.00	0.00	0.00
5	May	0.00	0.00	0.00	0.00	0.00	0.00
6	June	0.00	0.00	0.00	0.00	0.00	0.00

Figure C.8: Add new room rates

Edit Room Facility

Edit room facility form appears with the currently available room categories and sub room categories with edit button. (Figure C.9) By clicking on the edit button, you can get the editable form. (Figure C.10)The form can be viewed by clicking on the, Hotel Management Main menu =>Edit sub menu =>Room Facility sub menu.

Room Category	Sub Room Category	Action
Deluxe Room	Twin room	Edit
Deluxe Room	Tripple room	Edit
Room Cate...		Action

Figure C.9:Edit room facilities-I

No	Facility
1	Flat Tv
2	Ironing facilities
3	Free toiletries
4	Toilet
5	Microwave
6	Bathroom

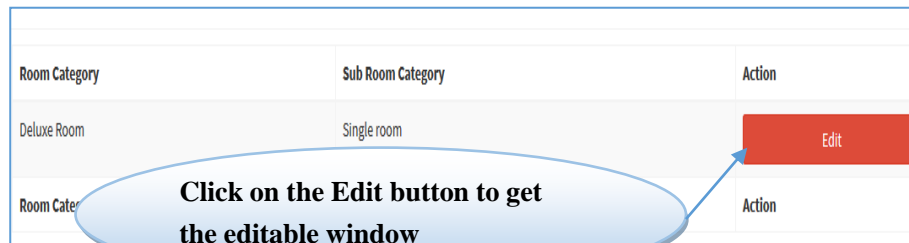
Figure C.10:Edit room facilities-II

Edit Room Rate

Edit rates form support to make changes of the currently available room rates (Figure C.11 and Figure C.12).

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You can get the relevant form by clicking on the ,Hotel Management main menu=> Edit Sub menu=>Room rates sub menu.



Room Category	Sub Room Category	Action
Deluxe Room	Single room	Edit
Room Cate		Action

Figure C.11: Edit Room rates-I

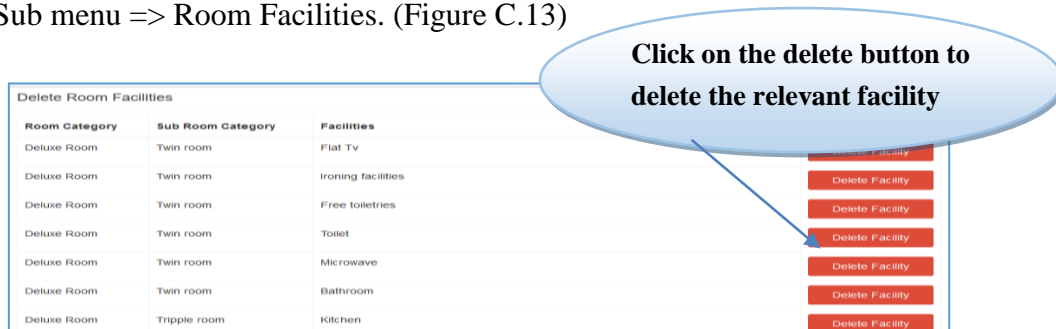


No	Month	BB (LKR)	HB (LKR)	FB (LKR)	BB (USD)	HB (USD)	FB (USD)
11	November	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
12	December	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00

Figure C.12: Edit room rates-II

Disable Room Facilities

Previously added room facilities can be deleted by using this form. Form can be viewed by clicking on the,Hotel Management Main menu =>Edit sub menu => disable Sub menu => Room Facilities. (Figure C.13)



Room Category	Sub Room Category	Facilities	Action
Deluxe Room	Twin room	Flat Tv	Delete Facility
Deluxe Room	Twin room	Ironing facilities	Delete Facility
Deluxe Room	Twin room	Free toiletries	Delete Facility
Deluxe Room	Twin room	Toilet	Delete Facility
Deluxe Room	Twin room	Microwave	Delete Facility
Deluxe Room	Twin room	Bathroom	Delete Facility
Deluxe Room	Tripple room	Kitchen	Delete Facility

Figure C.13:Disable room facilities

New room blocking

Offline new room blocking can be done using this form. By clicking on the Booking Management main menu => new room blocking sub menu you can get the form.

This form consists with five sections as follows,

Check availability

Before making a room reservation you need to check the room availability that can satisfy the requirements of the guest. Figure C.14 shows the relevant section to handle the process of checking room availability.

Web site& Web based Hotel Reservation Management System

The image shows a 'Check Availability' form with five numbered callouts: 1 points to the 'Arrival Date*' field, 2 to the 'Departure Date*' field, 3 to the 'Adults*' dropdown menu, 4 to the 'Children' dropdown menu, and 5 to the 'Passport*' dropdown menu. Each field contains a placeholder text '--Select here--'.

figure C.14:Check availability for new room blocking

- 1- Select the date that guest wish to check in
- 2-Select the date that guest wish to check out
- 3-Select the number of adults wish to stay from the given list
- 4- Select the number of children wish to stay from the given list
- 5- Select the citizenship of the guest from the given list.

Rooms

If the rooms are available for the relevant date, you can select suitable rooms from the given lists. (Figure C.15)

The image shows a 'Rooms' selection form with a list of room types and corresponding dropdown menus. The 'Twin room' dropdown is currently selected with the value '1'. The other dropdowns are set to '--Select here--'.

Room Type	Selection
Single room	--Select here--
Double room	--Select here--
Single Deluxe room	--Select here--
Double Deluxe room	--Select here--
Twin room	1
Tripple room	--Select here--
Superior Double room	--Select here--
Junior Suite room	--Select here--
Standard Suite room	--Select here--
Super Suite room	--Select here--
single	--Select here--

Figure C.15: Rooms in new room blocking

Booking Details

Booking details section automatically fills given spaces according to the details given in the check availability section and the room section. No one can make any changes in these fields. Payments for the relevant booking also calculates automatically and display in this form. (Figure C.16)

The image shows a 'Booking Details' summary table with the following data:

Field	Value
Arrival Date	10/22/2017
Departure Date	10/24/2017
Adults	2
Children	1
Passport	SL
Single room	0
Double room	0
Single Deluxe room	0
Double Deluxe room	0
Twin room	1
Tripple room	0
Superior Double room	0
Junior Suite room	0
Standard Suite room	0
Super Suite room	0
single	0
Total Rooms	1
Payment in LKR	0.00

USD 0.00
USD 1.00 is approximately LKR 0.00

Figure C.16:Booking details

Billing Details

Once after guest agree to make the booking you have to keep the guest details for billing purposes. (Figure C.17)

The screenshot shows a form titled "Billing Details" with the following fields: "First Name*", "Last Name*", "Address*", "Email*", and "Phone*". There are also "Message" fields. A blue callout bubble with the text "Enter relevant details in to the given spaces" has arrows pointing to each of these input fields.

Figure C.17: Billing details in new room blocking

Confirmation

You can confirm the booking by clicking on the Book now button as shown in figure C.18.

The screenshot shows a "Confirmation" form with two dropdown menus: "Reservation Type" and "Priority Type", both currently showing "--Select here--". There are two buttons: a blue "Block Now" button and a red "Reset" button. Three callout bubbles provide instructions: one points to the dropdowns with the text "Select the reservation type and the priority type from the given"; another points to the "Block Now" button with "Confirm booking by clicking on Book now"; and a third points to the "Reset" button with "Clear the filled fields".

Figure C.18: Confirm the room blocking

Booking Receipt

By clicking on booking management main menu => Booking Receipt sub menu, you can get the booking receipt form as shown in figure C.19.

This form helps to get the relevant booking receipts by entering booking details. This form is also consists with five sections such as

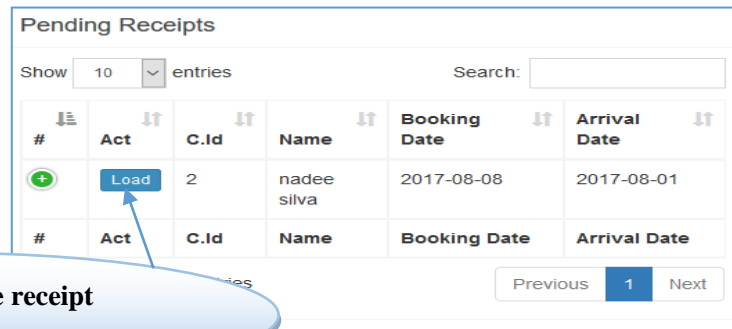
The screenshot shows a "Search" form with fields for "Booked Date", "From Date", "Customer No", "E-mail", and "Phone". There are also radio buttons for "Arrival" and "Departure". A "Find" button is at the bottom. Three callout bubbles provide instructions: one points to the "Find" button with "Click and find"; another points to the radio buttons with "Select the suitable radio button to search the booking details"; and a third points to the input fields with "Enter relevant details in to the given spaces".

Figure C.19: search booking details

Web site& Web based Hotel Reservation Management System

Pending receipts

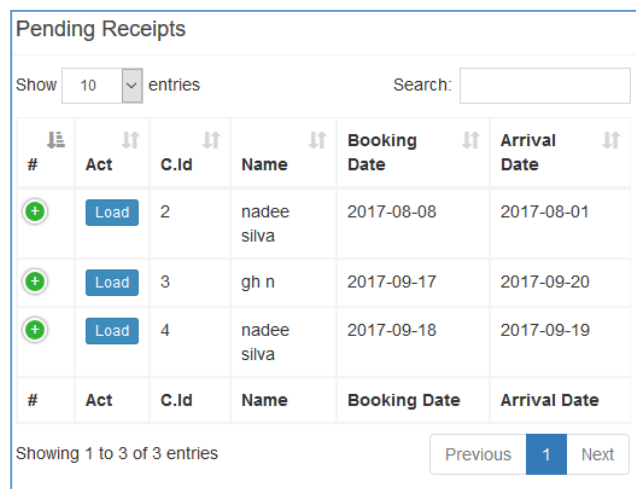
After completing the searching process, the system uploads the booking details in to the pending receipt table as shown in Figure C.20.



#	Act	C.Id	Name	Booking Date	Arrival Date
+	Load	2	nadee silva	2017-08-08	2017-08-01
#	Act	C.Id	Name	Booking Date	Arrival Date

Figure C.20:Pending receipts-I

*** Once you click find button in the search section without filling the given spaces, system will display all the booking details in the pending receipt table. (Figure C.21)

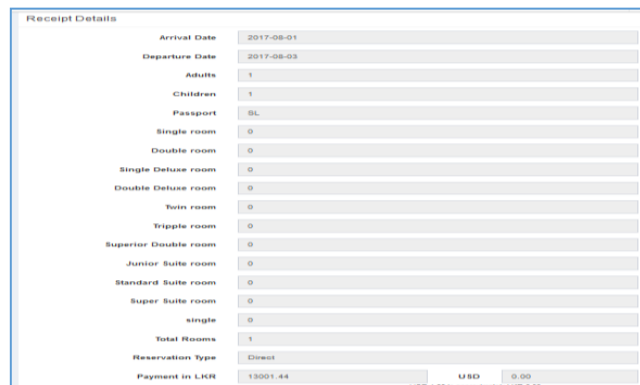


#	Act	C.Id	Name	Booking Date	Arrival Date
+	Load	2	nadee silva	2017-08-08	2017-08-01
+	Load	3	gh n	2017-09-17	2017-09-20
+	Load	4	nadee silva	2017-09-18	2017-09-19
#	Act	C.Id	Name	Booking Date	Arrival Date

Figure C.21:Pending receipts-II

Receipt details

After clicking on the load button in the pending receipt table, all the fields of the receipt details section automatically filled with relevant data. Total payment also can be viewed. (Figure C.22)



Arrival Date	2017-08-01
Departure Date	2017-08-03
Adults	1
Children	1
Passport	SL
Single room	0
Double room	0
Single Deluxe room	0
Double Deluxe room	0
Twin room	0
Tripple room	0
Superior Double room	0
Junior Suite room	0
Standard Suite room	0
Super Suite room	0
single	0
Total Rooms	1
Reservation Type	Direct
Payment in LKR	13001.44
USD	0.00

Figure C.22:Receipts details

Payment details

In the payment details, you can select the payment type (Full Payment or Part Payment) by clicking on the relevant button. Once you select the full payment, you can view form as shown in Figure C.23.

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Payment Details

Full Payment Part Payment

Payment 13001.44

Balance Payment 0.00

Receipt Reset

Annotations:

- Click on receipt button to get the
- Clear the filled fields

Figure C.23:Payment details-I

Once you select the part payment, you can view form as shown in Figure C.24.

Payment Details

Full Payment Part Payment

Payment 13001.44

Part Payment 0.00

Balance Payment 0.00

Receipt Reset

Annotations:

- Print the receipt by clicking on the Receipt
- Clear the entered data

Figure C.24:Payment details-II

Booking Receipts

Report of booking details can be taken as in figure C.25 and figure C.26

Booking Receipts

From Date*

To Date*

Status*
-Select--

View

Annotations:

- You can select the range of date to get the report
- Select the booking status from the given list
- Click and view the report(Figure C.58)
- Click and view PDF report

Figure C.25: Booking receipts-I

Booking Receipts - Active

Show 10 entries Search:

No	Receipt No	Receipt Date	Paid Amount	Customer Name	Address	Phone	E-Mail
1	2	2017-10-14	12000.00	nadee silva	kegalle	0777890654	nad@gmail.com

Export To Pdf

Figure C.26:Booking receipts-II

Web site& Web based Hotel Reservation Management System

Booking Commission Payments

Booking commission payments can be made by using the form shown in figure C.27.

The screenshot shows a form titled "Booking Commission". It contains the following fields and elements:

- Reservation Type:** Booking.com
- Commission Amount:** 2,650.00
- Pay Amount*:** 2000.00
- Balance Amount*:** 650.00
- Buttons:** Add

Callouts from blue ovals provide the following instructions:

- "Enter the paying amount" points to the Pay Amount* field.
- "Click and save data" points to the Add button.
- "Reservation type and commission amount Can be viewed" points to the Reservation Type and Commission Amount fields.
- "Balance amount will automatically display" points to the Balance Amount* field.

Figure C.27:Booking Commission payments

Booking /Blocking Cancel

Booking/blocking cancellation can be done using this form. The Form consists with four sub units such as,

I Search

Here you can search the booking by providing relevant details. (Figure C.28)

The screenshot shows a search form with the following fields:

- Booked Date:** dropdown menu
- System:** dropdown menu
- From Date:** text input
- To Date:** text input
- Customer No:** text input
- Phone:** text input
- E-mail:** text input
- Buttons:** Find

Callouts from blue ovals provide the following instructions:

- "Select search method from the given list" points to the Booked Date dropdown.
- "Click and find" points to the Find button.
- "Fill each field by providing relevant details" points to the From Date, To Date, Customer No, Phone, and E-mail fields.

Figure C.28: Search in booking cancellation module

II Pending Receipts

Searched data loaded in to the pending receipt table as shown in figure C.29.

The screenshot shows a table titled "Pending Receipts" with the following data:

#	Act	C.Id	Name	Booking Date	Arrival Date
2	Load	2	nadee silva	2017-08-08	2017-08-01
3	Load	3	gh n	2017-09-17	2017-09-20
4	Load	4	nadee silva	2017-09-18	2017-09-19
8	Load	8	rasika kumari	2017-10-18	2017-10-19

Callouts from blue ovals provide the following instructions:

- "Click and send relevant data in to the receipt details section" points to the "Load" buttons in the table.

Figure C.29: Pending receipts in booking cancellation module

Web site& Web based Hotel Reservation Management System

III Receipts details

Receipt details section automatically filled with the relevant data, which has selected from the pending receipt table.(Figure C.30)

Arrival Date	Arrival Date
Departure Date	Departure Date
Adults	Adults
Children	Children
Passport	Passport
Single room	0
Double room	0
Single Deluxe room	0
Double Deluxe room	0
Twin room	0
Tripple room	0
Superior Double room	0
Junior Suite room	0
Standard Suite room	0
Super Suite room	0
single	0
Total Rooms	Total Rooms
Reservation Type	Reservation Type
Payment in LKR	LKR USD USD

Figure C.30: Receipts details in booking cancellation module

IV Payment details

Payment details can be viewed in this section. (Figure C.31)

Payment	0.00
Balance Payment	0.00

Cancel Blocking / Booking

By clicking on the Cancel Blocking/booking button, you can cancel the booking

Figure C.31: Payment details in booking cancellation module

Booking Receipts Cancel

After cancelling the booking, you have to cancel the receipt of booking. This form is also consists with the four sub units.

I Search

You can search bookings by using this section. (Figure C.32)

Select the searching method

Select the searching area

Fill the given spaces

Click and find

Search	
Booked Date	System
From Date	To Date
Customer No	Phone
E-mail	
Find	

Figure C.32: Search in receipt cancellation module

Web site& Web based Hotel Reservation Management System

II Pending receipts

Searched data can be viewed in the pending receipt table as shown in figure C.33

#	Act	C.Id	Name	Booking Date	Arrival Date
2	Load	2	nadee silva	2017-08-08	2017-08-01
3	Load	3	gh n	2017-09-17	2017-09-20
4	Load	4	nadee silva	2017-09-18	2017-09-19
8	Load	8	rasika kumari	2017-10-18	2017-10-19

Figure C.33: Pending receipts in receipts cancellation module

III Receipts details

Receipt details can be viewed as follows, (Figure C.34)

Arrival Date	2017-09-19
Departure Date	2017-09-20
Adults	4
Children	1
Passport	SL
Single room	0
Double room	0
Single Deluxe room	0
Double Deluxe room	0
Twin room	0
Tripple room	0
Superior Double room	0
Junior Suite room	0
Standard Suite room	0
Super Suite room	0
single	0
Total Rooms	1
Reservation Type	Dealer
Payment in LKR	5000.00
USD	0.00

Figure C.34: Receipts details in receipt cancellation module

IV Payment details

Figure C.35 shows the payment details section, by clicking on the cancel receipt button you can cancel the receipt of canceled booking.

#	Re.No	Date	Payment
---	-------	------	---------

Figure C.35: Payment details in receipt cancellation module

New Employee Registration

New Employee registration can be done using this form. (Figure C.36)

Web site& Web based Hotel Reservation Management System

The image shows a web-based registration form titled "Registration Form". The form contains several input fields: "NIC No/Passport No*", "Surname*", "Other Name*", "Date Of Birth*", "Gender*" (with radio buttons for "Male" and "Female"), "Address*", "Contact No*", "E-Mail", "Department*" (a dropdown menu), "Designation*" (a dropdown menu), and "Basic Salary*" (with a value of "0.00"). At the bottom left of the form is a blue "Add" button. Two callout boxes are present: one on the left labeled "Click and save" with an arrow pointing to the "Add" button, and one on the right labeled "Fill each field by entering relevant data" with multiple arrows pointing to various input fields.

Figure C.36: Add new employee

Leave Application

Employee Leave application can be viewed by clicking on the, Employee management main menu => Leave Application sub menu. (Figure C.37)

The image shows a web-based "Leave Request Form". The form includes: "Leave type*" (a dropdown menu), "Start Date*" and "End Date*" (text input fields), "Approve person*" (a dropdown menu), and "Remarks*" (a text area). At the bottom left is a blue "Request" button. Two callout boxes are present: one on the left labeled "Click and send the request" with an arrow pointing to the "Request" button, and one on the right labeled "Fill the given spaces by adding relevant data" with multiple arrows pointing to the "Leave type", "Start Date", "End Date", and "Approve person" fields.

Figure C.37: Leave Application

Edit Employee details

You can edit employee details using this form. (Figure C.38 and Figure C.39)

Web site& Web based Hotel Reservation Management System

Action	Emp No	NIC No	Surname	Other Name	DOB	Gender	Address	Contact No	Department
Edit	1	872032701v	wiku	diluka	1987-07-21	Male	No. 89/12, Kalukelle, Nuwara Eliya.	0773029192	Administrator
Edit	2	123852963v	perera	kumara	2016-11-01	Male	dszcf	0773029192	Front office
Edit	3	741951753v	dctv	xdg	2016-11-01	Male	zxcv	0773029192	Administrator
Edit	4	908941235v	Duminda	Bandara	2017-05-09	Male	qwed	0773029192	Administrator
Edit	6	845679089v	silva	nawodi	1984-10-26	Male	kegalle	0777567843	Finance
Edit	6	904356789v	Jayawardhana	Dinithi	1988-02-09	Male	56, Kurunegala	0777567890	Food and Beverage
Edit	9	869034567v	janaki						

Showing 1 to 7 of 7 entries

Figure C.38:edit employee details-I

Other Name*
diluka

Date Of Birth*
1987-07-21

Gender*
Male

Address*
No. 89/12, Kalukelle, Nuwara Eliya,

Contact No*
0773029192

E-Mail
wikumdiluka1@gmail.com

Department*
Administrator

Designation*
General Manager

Click and save the changes you made

Make the relevant changes in relevant fields

Figure C.39: Edit employee details-II

Create New User Accounts

By clicking on the Administrator main menu=> new user accounts sub menu you can get the form. By using this form can be easily create new users who can access the system. (Figure C.40)

Web site& Web based Hotel Reservation Management System

Registration Form

Employee Name & NIC No/Passport No *
-Select--

User Name*
[Text Input]

Password*
[Text Input]

Confirm Password*
[Text Input]

Role *
-Select--

Add

Click add and save data

Fill the relevant spaces by entering suitable data

Detailed description: This figure shows a 'Registration Form' window. It contains several input fields: a dropdown menu for 'Employee Name & NIC No/Passport No', text boxes for 'User Name', 'Password', and 'Confirm Password', and another dropdown menu for 'Role'. An 'Add' button is located at the bottom left. Two callout boxes with arrows point to the form. One points to the 'Add' button with the text 'Click add and save data'. The other points to the text input fields with the text 'Fill the relevant spaces by entering suitable data'.

Figure C.40:Create new user

*** Password must consists with at least eight characters

*** Confirm password field must be similar to the password field

Approve Leave Requests

By clicking on the, Administrator main menu => Approve Leave Requests sub menu. Each employee who logged in to the system can view the leave requests sends only for them. No one can view all the leave requests here. (Figure C.41 and Figure C.42)

Approve Leave Request

Employee Name *
-Select--

View

Select the employee from the given list who has send the leave request

Click and view the request

Detailed description: This figure shows the 'Approve Leave Request' form. It features a dropdown menu for 'Employee Name' and a 'View' button. Two callout boxes with arrows point to the form. One points to the 'View' button with the text 'Click and view the request'. The other points to the 'Employee Name' dropdown menu with the text 'Select the employee from the given list who has send the leave request'.

Figure C.41:Approve leave request- I

Leave Approve

Show 10 entries

No	Name	Leave type	Start date	End date	No of dates	Approve	Reject	Action
1	kumara perera	casual	2017-10-25	2017-10-27	2	<input type="radio"/>	<input type="radio"/>	Approve/Reject

Select the relevant option by clicking on the button

Click and confirm the process

Detailed description: This figure shows a table titled 'Leave Approve'. The table has columns for 'No', 'Name', 'Leave type', 'Start date', 'End date', 'No of dates', 'Approve', 'Reject', and 'Action'. The first row contains data for 'kumara perera' with a 'casual' leave type from '2017-10-25' to '2017-10-27' for '2' dates. The 'Approve' and 'Reject' columns contain radio buttons. The 'Action' column contains an 'Approve/Reject' button. Two callout boxes with arrows point to the table. One points to the radio buttons with the text 'Select the relevant option by clicking on the button'. The other points to the 'Approve/Reject' button with the text 'Click and confirm the process'.

Figure C.42:Approve leave request-II

Active/deactivate user accounts

You can activate or deactivate user accounts using this module. By clicking on Administrator main menu => edit sub menu => Active/de B activate, user accounts (employees) sub menu you can view the report. (Figure C.43)

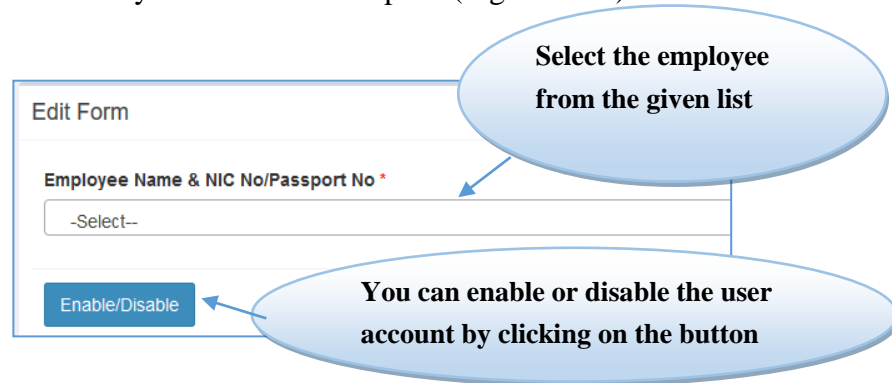


Figure C.43:Active/deactivate user account

Salary Form

By clicking on the Expenses management main menu=> Staff setup sub menu =>salary form sub menu you can view the salary form. (Figure C.44)

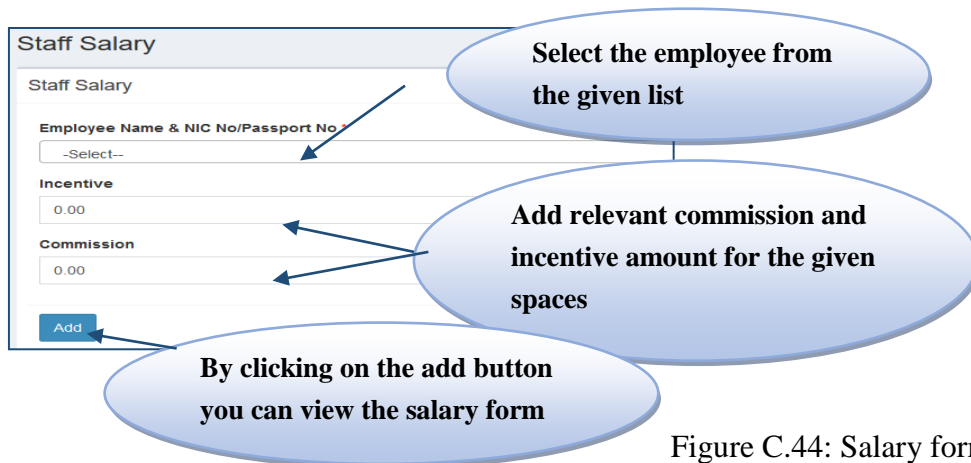


Figure C.44: Salary form-I

Relevant fields in the salary form are automatically filled with relevant data as shown in figure C.45.

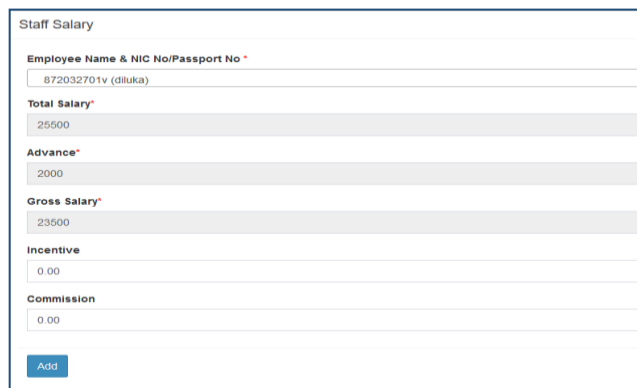


Figure C.45: Salary Form-II

Web site & Web based Hotel Reservation Management System

Sky Lodge Website

Online booking

This page facilitates guests to make their own reservation by entering their requirements for the relevant given spaces. First, need to check the room availability for the relevant date which can satisfy the guests requirements. (Figure C.46)

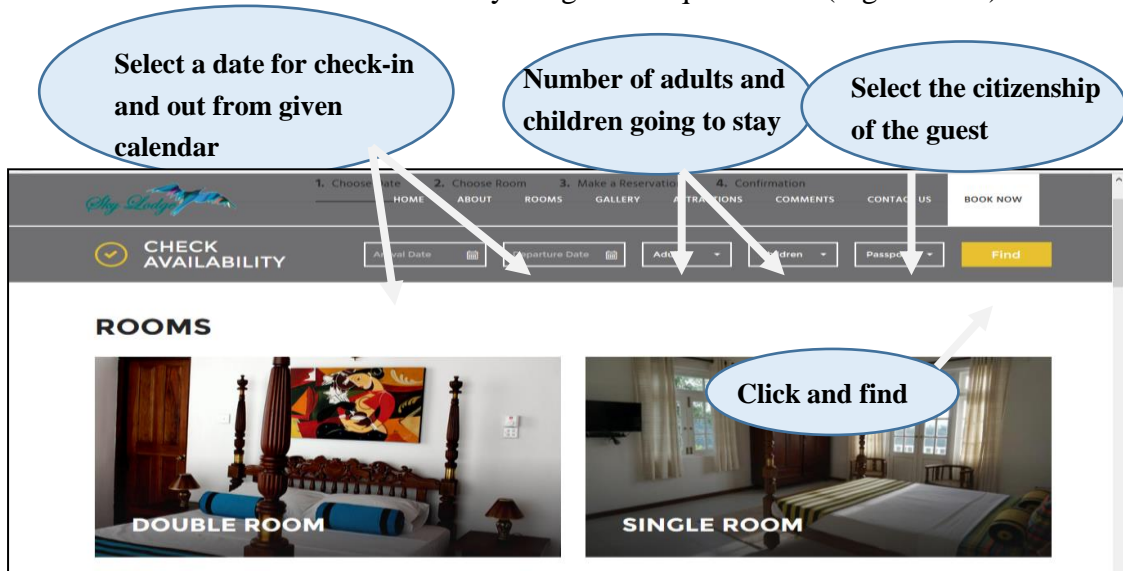


Figure C.46: Book now-I

Then you can view the details of available rooms that can satisfy your requirement. After selecting a suitable room, you can confirm the reservation by clicking on the reservation button. (Figure C.47)

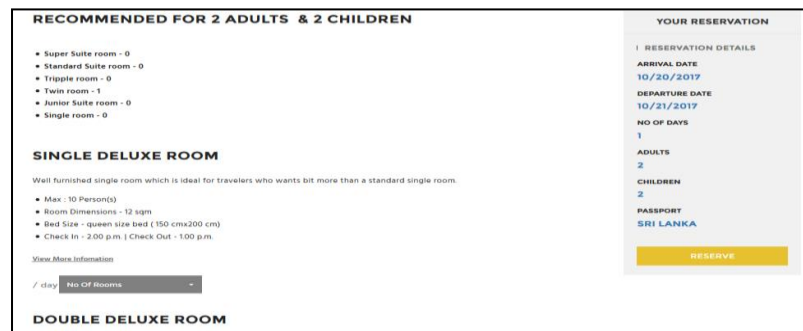


Figure C.47: Book now-II

APPENDIX D : MANAGEMENT REPORTS

Room rates report


Figure D.1 shows the report of currently available room rates.

Room Category	Sub Room Category	Month	BB (LKR)	HB (LKR)	FB (LKR)	BB (USD)	HB (USD)	FB (USD)
Standard	Single room	January	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	February	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	March	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	April	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	May	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	June	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	July	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	August	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	September	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00
Standard	Single room	October	12000.00	12000.00	12000.00	12000.00	12000.00	12000.00


Figure D.1: Report of room rates

Customer Booking Payment Receipt

Customer booking payment receipt can be depicts in figure D.2.



SKY LODGE
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka.
Tel: +94-777880479
Date: 08-11-2017



SKY LODGE
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka.
Tel: +94-777880479
Date: 08-11-2017

Invoice No : #0001 - 001

Name of Guest : janaki silva

Arrival : 2017-11-08

Departure : 2017-11-09

Day(s) : 1

Total Rate = Rate * Qty * No. Of Days

Receipt Date : 2017-11-07

Description	Rm. No	Rate(LKR)	Qty.	Days	Tot. Rate (LKR)	Cts
single	1	12000.00	1	1	12000	0
Total :					12000	0
Amount :					12000	0
Balance :					0	0


.....
Manager Signature

.....
Guest Signature


Figure D.2: Customer booking payment receipts

Report of Booking Receipt-Active

Active booking receipt report can be shown in figure D.3



SKY LODGE
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka.
Tel: +94-777880479
Date: 16-10-2017



SKY LODGE
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka.
Tel: +94-777880479
Date: 16-10-2017

Booking Receipts - Active

No	Receipt No	Receipt Date	Paid Amount	Customer Name	Address	Phone	E-Mail
1	2	2017-10-14	12000.00	nadee silva	kegalle	0777890654	nad@gmail.com

Figure D.3: Booking receipts(active)

Web site& Web based Hotel Reservation Management System

Report of Employee Details (Active)

Figure D.4 shows the report of active employee details.

SKY LODGE		SKY LODGE									
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka, Tel : +94-777880479 Date : 16-10-2017											
Employee Details (Active)											
Emp No	NIC No	Surname	Other Name	DOB	Gender	Address	Contact No	Department	Designation	E-Mail	App Date
1	872032711v	wiku	diluka	1987-07-21	Male	No. 89/12, Kalukelle, Nuwara Eliya.	0773029192	Administrator	General Manager	wikumdiluka1@gmail.com	2016-08-10
2	123852963v	perera	kumara	2016-11-01	Male	dszcf	0773029192	Front office	General Manager	wikumdiluka1@gmail.com	2016-11-21
3	741951753v	dcbv	xdg	2016-11-01	Male	zxcv	0773029192	Administrator	Receptionist	wikumdiluka1@gmail.com	2016-11-21
4	908941235v	Duminda	Bandara	2017-05-09	Male	qwed	0773029192	Administrator	Assistant Manager	we@gmail.com	2017-05-18
5	789456123v	dsaf	adsf	2017-05-01	Male	dasf	0773029192	Human Resource	Assistant Manager	w@gmail.com	2017-05-18
6	845679089v	silva	nawodi	1984-10-26	Male	kegalle	0777567843	Finance	Assistant Manager	nad@gmail.com	2017-09-16
7	848003492v	silva	nadeesha	1984-10-27	Male	58, paragamana, kegalle	0352230804	Front office	Front desk operator	nadeesha.silva@gmail.com	2017-09-21

Figure D.4: Report of employee details

Report of Resigned employees

Figure D.5 and display the report of resigned employee details

SKY LODGE		SKY LODGE										
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka, Tel : +94-777880479 Date : 16-10-2017												
Employee (Resigned)												
Emp No	NIC No	Surname	Other Name	DOB	Gender	Address	Contact No	Department	Designation	E-Mail	App Date	Resigned Date
2	123852963v	perera	kumara	2016-11-01	Male	dszcf	0773029192	Front office	General Manager	wikumdiluka1@gmail.com	2016-11-21	0000-00-00
4	908941235v	Duminda	Bandara	2017-05-09	Male	qwed	0773029192	Administrat or	Assistant Manager	we@gmail.com	2017-05-18	0000-00-00
7	848003492v	silva	nadeesha	1984-10-27	Male	58, paragamana, kegalle	0352230804	Front office	Front desk operator	nadeesha.silva@gmail.com	2017-09-21	0000-00-00

Figure D.5: Report of resign employees

Report of Employee Monthly Leave Summery

Figure D.6 and displays the report of monthly leave taken by the employees.

SKY LODGE		SKY LODGE									
No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka, Tel : +94-777880479 Date : 18-10-2017											
Monthly Leave Summery											
Leave Type						Total leave taken					
casual						1					

Figure D.6: Employee monthly leave summery

Report of Annual Leave summery

Figure D.7 shows the annual leave summery for the relevant user.

Web site& Web based Hotel Reservation Management System

SKY LODGE	SKY LODGE No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka. Tel : +94-777880479 Date : 18-10-2017
Annual Leave Summary	
Leave Type	Total leave taken
annual	2
casual	1

Figure D.7: Annual leave summary report

Report of user account active employees

Report of user account activated employees can be shown in figure D.8

SKY LODGE	SKY LODGE No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka. Tel : +94-777880479 Date : 18-10-2017				
User Accounts (Active)					
No	Emp No	NIC No	Name	User name	Role
1	1	872032711v	wiku diluka	wiku	Administrator
2	4	908941235v	Duminda Bandara	qwe	Administrator
3	2	123852903v	perera kumara	hello	Administrator
4	3	741951753v	dcfv xdg	Xdg	Administrator
5	7	848003492V	silva nadeesha	nadee	Administrator
6	4	908941235v	Duminda Bandara	nns	Manager

Figure D.8: Report of activated user accounts

Report of Approved Leaves

Figure D.9 shows the report of leaves approved by a relevant manager.

SKY LODGE	SKY LODGE No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka. Tel : +94-777880479 Date : 18-10-2017					
Report of Approved leaves						
Employee Name	Leave Type	Start Date	End Date	No of leave taken	Approve Person	Approve Date
nadeesha	casual	2017-10-19	2017-10-16	3	wiku	2017-10-17
silva						

Figure D.9: Approved leaves

Report of Annual Leave Summary

Report of Annual leave summary of the relevant employees for a relevant year can be shown in figure D.10.

SKY LODGE	SKY LODGE No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka. Tel : +94-777880479 Date : 18-10-2017	
Annual Leave Summary		
Employee Name	Leave Type	Total leave taken
diluka wiku	annual	2
diluka wiku	casual	1

Figure D.10: Report of annual leave summary

Web site& Web based Hotel Reservation Management System

Report of Booking Receipt-Active

Active booking receipt report can be shown in figure D.11 and D.12

Booking Receipts

Home > Booking Management > Reports > Booking Receipts

Export To Pdf

Booking Receipts - Active

Show 10 entries Search:

No	Receipt No	Receipt Date	Paid Amount	Customer Name	Address	Phone	E-Mail
1	2	2017-10-14	12000.00	nadee silva	kegalle	0777890654	nad@gmail.com

Showing 1 to 1 of 1 entries

Previous 1 Next

Figure D.11: Active booking receipts-I

SKY LODGE

No. 79, Ilagolla road, Misty Grove, New wariyaala, Kalugamuwa, Kandy, Sri Lanka.
Tel: +94-777880479
Date: 16-10-2017

Booking Receipts - Active

No	Receipt No	Receipt Date	Paid Amount	Customer Name	Address	Phone	E-Mail
1	2	2017-10-14	12000.00	nadee silva	kegalle	0777890654	nad@gmail.com

Figure D.12:Active booking receipts-II

APPENDIX E : TEST RESULTS

Login Module

Following table displays the test results of the login module. (Table E.1)

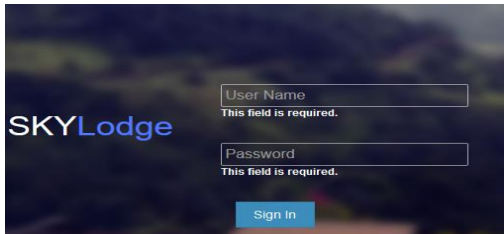
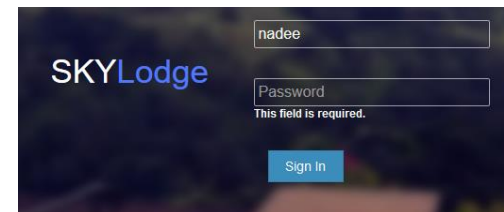
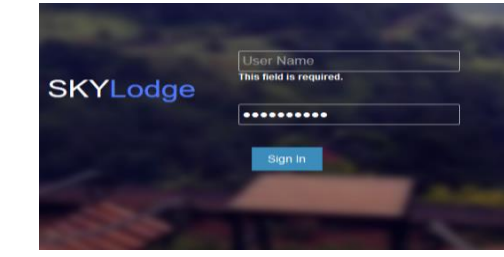
No	Expected Output	Status
01		Pass
02		Pass
03		Pass

Table E.1:Test case for login module

New Room Rates

Table E.2 describes the test results of the new room rates.

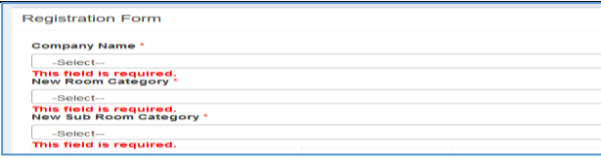
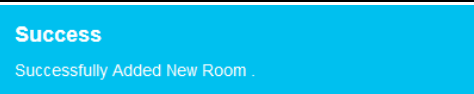
No	Expected Output	Status
01		Pass
02		Pass

Table E.2:Room rates

New Room Blocking

Table E.3 illustrates the test result for the new room blocking

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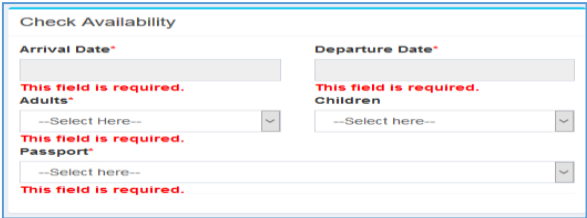
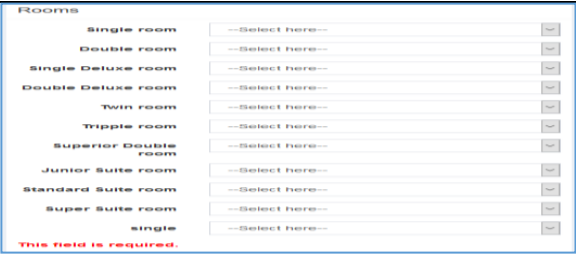
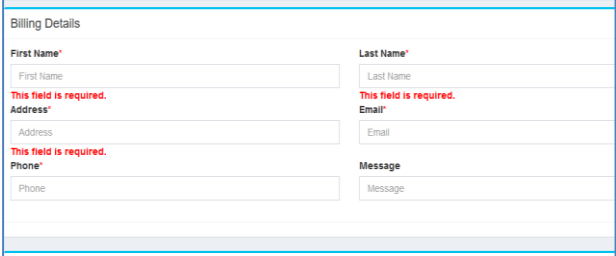
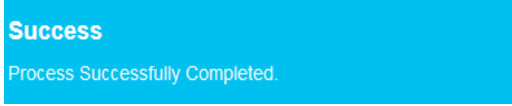

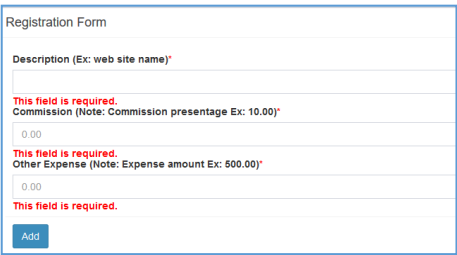
No	Expected output	Status
01		Pass
02		Pass
03		Pass
04		Pass
06		Pass

Table E.3: Test results of New room blocking

Add Reservation

Table E.4 shows the test results of add reservation module.

No	Expected output	Status
01		Pass
02		Pass

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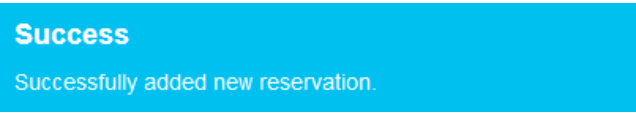
03		Pass
----	--	------

Table E.4:Add reservation

Booking Receipts Cancel

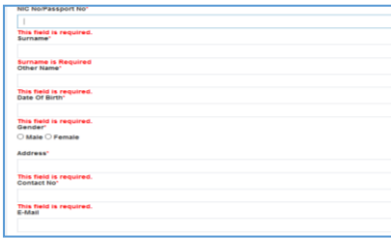
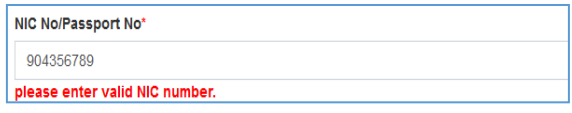
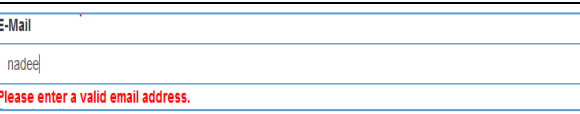

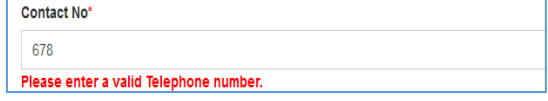
Table E.5 illustrates the test results of the booking receipt cancel module.

No	Expected Output	Status
01		Pass
02		Pass

Table E.5:Test results booking Receipts cancel

New Employee Registration

Table E.6 illustrate the test results of new employee registration module.

No	Expected Output	Status
01		Pass
02		Pass
03		Pass
04		Pass
05		Pass

Web site& Web based Hotel Reservation Management System

06	Success Successfully Added New Employee.	Pass
----	--	------

Table E.6:Test results of new employee registration

Leave Application

Table E.7 illustrate the test results of leave application module.

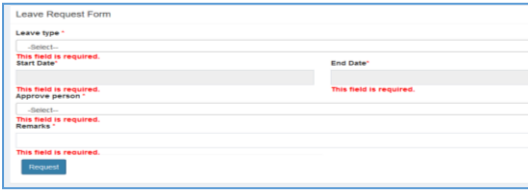
No	Expected Output	Status
01		Pass
02	Success Successfully send the leave request.	Pass
03	Warning Error: You have exceed the recomended leaves	Pass

Table E.7:Test results for leave request

New User Accounts

Table E.8 illustrate the test results of new user accounts module.

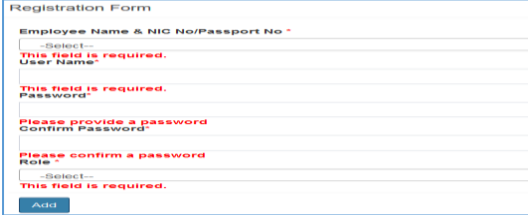
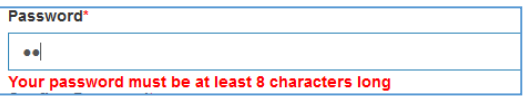
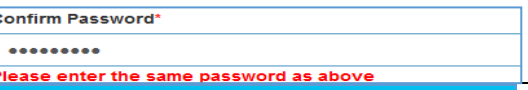
No	Expected Output	Status
01		Pass
02		Pass
03		Pass
04	Success Successfully Added New user.	Pass

Table E.8Test results for add new user

Active/De-activate user accounts(employee)

Table E.9 illustrate the test results of active/de-activate user accounts module.

Web site& Web based Hotel Reservation Management System

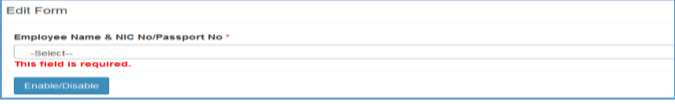
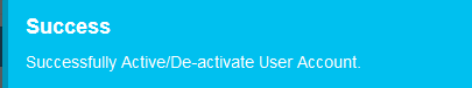
No	Expected Output	Status
01		Pass
02		Pass

Table E.9: Test results for active/de-activate user accounts

Online booking a room - Check the room availability

Test results for checking room availability can be viewed using the Table E.10.



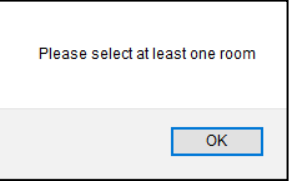
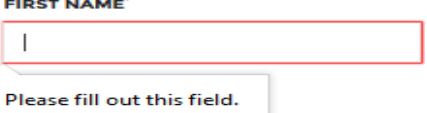

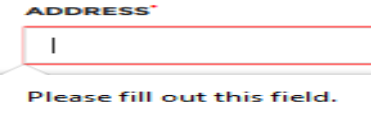
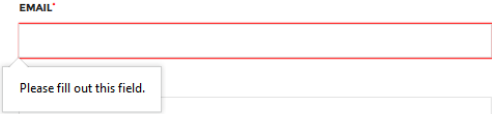
No	Expected Output	Status
01		Pass
02		Pass
03		Pass
04		Pass
05		Pass
06		Pass
07		Pass

Table E.10: Test results for check room availability

APPENDIX F : CODE LISTINGS

Record Selection-Rooms page in the Sky Lodge web site

This page displays currently available rooms in the hotel. Code to get available room categories can be illustrated as follows,

```
<?php
require_once("coins/lib/connection.php");
$dbobj = new dbConnection();
$con = $dbobj->getCon();
$sqlroomName = "SELECT `Sub_type_Id`,`htm_sub_room_typ_dt`.`Image`,
`htm_sub_room_typ_dt`.`Name`,`htm_main_room_type_dt`.`Main_Name`,
`htm_sub_rom_typ_dt`.`Main_Type_Id`,`htm_sub_room_typ_dt`.`Company_Id`,`htm_sub_roo
m_typ_dt`.`Status` FROM `htm_sub_room_typ_dt`,`htm_main_room_type_dt`,`m_company`
WHERE `htm_sub_room_typ_dt`.`Company_Id`=`m_company`.`Com_Id`
and `htm_sub_room_typ_dt`.`Main_Type_Id`=`htm_main_room_type_dt`.`Main_Type_Id` and
`htm_sub_room_typ_dt`.`Status`=1 and `m_company`.`Status`=1 and
`htm_main_room_type_dt`.`Status`=1 and `Sub_type_Id`='$subtypeid'";
    $resultRoomName = mysqli_query($con,$sqlroomName);
    $norRoomName = $resultRoomName->num_rows;
    if($norRoomName>0){
        $recRoomName = mysqli_fetch_assoc($resultRoomName);
        echo $recRoomName["Name"];}mysqli_close($con);?>
```

Record selection- find record module in print booking receipt

Code for the find booking details can be shown as follows,

Open the database connection and get the relevant details from the booking receipt form and check the availability of booking details as follows,

```
$dbobj = new dbConnection();
$con = $dbobj->getCon();
$dt_frm= date('Y-m-d', strtotime('-20 years'));
$dt_to= date('Y-m-d', strtotime('+20 years'));
if (isset($_POST['dt_frm'])&&!empty($_POST['dt_frm'])) {
$dt_frm=date("Y-m-d", strtotime($_POST['dt_frm']));}
if (isset($_POST['dt_to'])&&!empty($_POST['dt_to'])){
$dt_to=date("Y-m-d", strtotime($_POST['dt_to']));}
```

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Get the relevant customer details as shown in below,

```
$sql_fin="SELECT `Cus_Id`, `cus_un_id`, `Cus_Fname`, `Cus_Lname`,  
`booking_date`, `Check_in`, `Check_out`, `no_of_days`, `tot_amount`, `Bal_Amt`,  
`Cus_Phone`, `Cus_Email`, `rev_des` FROM `view_receipt_dt` WHERE `Status`='1'";
```

Validate the relevant booking details using booking date and checking date.

```
if (isset($_POST['src_dt'])&&!empty($_POST['src_dt'])) {  
    if ($_POST['src_dt']=="BD") {  
        $sql_fin.=" AND (`booking_date` BETWEEN '". $_POST['src_dt']. "' AND '". $_POST['src_dt']. "') ";  
    } else {  
        $sql_fin.=" AND (`Check_in` BETWEEN '". $_POST['src_dt']. "' AND '". $_POST['src_dt']. "') ";  
    }  
}
```

Validate the relevant booking details using customer number, customer phone number and customer E-mail address as shown in below,

```
if (isset($_POST['sr_cus_no'])&&!empty($_POST['sr_cus_no'])) {  
    $sql_fin.=" AND `Cus_Id` = '". $_POST['sr_cus_no']. "' ";  
}  
if (isset($_POST['sr_phone'])&&!empty($_POST['sr_phone'])) {  
    $sql_fin.=" AND `Cus_Phone` = '". $_POST['sr_phone']. "' ";  
}  
if (isset($_POST['sr_e_mail'])&&!empty($_POST['sr_e_mail'])) {  
    $_POST['sr_e_mail']=trim($_POST['sr_e_mail']);  
    $sql_fin.=" AND `Cus_Email` LIKE '%". $_POST['sr_e_mail']. "%' ";  
}  
$json_val['test']= $sql_fin;  
$res_fin = mysqli_query($con,$sql_fin);
```

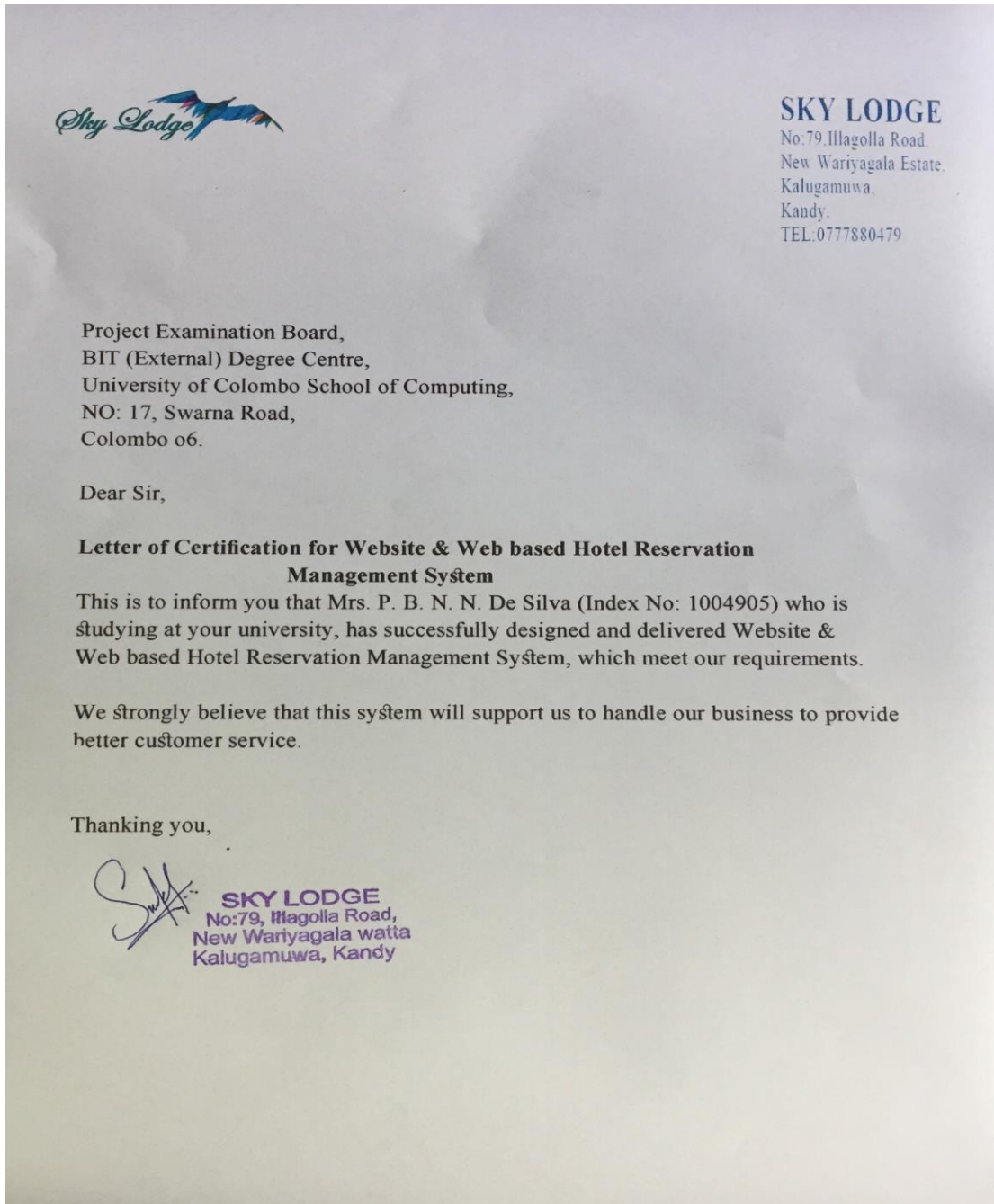
Record deletion- Delete the approved comment of the web site

```
//Delete approved Comments
if(isset($_GET["DeleteCmnt"]))
{
$NO=$_POST["thval"];
$curntdate=date('y-m-d');
$month = date("F");
$Curyrs = date("Y");
$dbobj=new dbConnection();
$con=$dbobj->getcon();
$sqlsub = "DELETE FROM `web_comments` where `No`='$NO' and
`Status`=1 ";
$results = mysqli_query($con,$sqlsub);
if($results>0){
echo 'Rejcomnt';}
else{
echo 'error';}
mysqli_close($con);
}
//Delete approved Comments
```

JavaScript Validation

```
$("#submit").on('click', function(event) {  
    waitingDialog.show();  
    if (requiredValidade()) {  
        var frm = $('#formCont1');  
        $.ajax({  
            type: frm.attr('method'),  
            url: frm.attr('action'),  
            data: frm.serialize(),  
            dataType: "json",  
            success: function (D) {  
                if (D['su']==='1') {  
                    $("#CusId").val(D['Cucode']);  
                    $("#printform01").submit();  
                    waitingDialog.hide();  
                    success_alert({ msgHd:'Success',  
msgBod:'Process Successfully Completed.', frmRset:true});}  
                else if(D['su']==='2'){  
                    waitingDialog.hide();  
                    warning_alert({ msgHd:'Warning', msgBod:'Blockng / Booking Cancel Error'});}  
                else{  
                    waitingDialog.hide();  
                    warning_alert({ msgHd:'Warning', msgBod:'Please Remove Receipts First'});  
                }  
            }  
        });  
    }  
});
```

APPENDIX G : CLIENT CERTIFICATE



GLOSSARY

AJAX (Asynchronous JavaScript and XML): AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script.

CSS (Cascade Style Sheet): style sheet language used for describing the presentation of a document written in a markup language.

PHP (Hypertext Preprocessor): PHP is a server-side scripting language designed primarily for web development

SQL (Structured Query Language): SQL is a domain-specific language used in programming and designed for managing data held in a relational database management system, or for stream processing in a relational data stream management system.

UML (Unified Modeling Language): general-purpose, developmental, modeling language in the field of software engineering.

XAMPP: free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages

XML (Extensive Markup Language): XML is a markup language much like HTML. XML was designed to store and transport data. XML was designed to be self-descriptive.

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