A Comprehensive Study on Hotel Management System (HMS)

by

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Supervised by
Sadia Tasnim Barsha

Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science and Engineering.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SONARGAON UNIVERSITY (SU)

September 2022

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APPROVAL

The Project titled "**A Comprehensive Study on Hotel Management System (HMS)"** submitted by Samia Akter (CSE1803015019), Md. Oliul Alam (CSE1803015020), Kakoli Rani (CSE1803015043),Md. Aminul Islam (CSE1803015044)and Tapsina Hasneen (CSE1803015098) to the Department of Computer Science and Engineering, Sonargaon University (SU), has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents.

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DECLARATION

We, hereby, declare that the work presented in this report is the outcome of the investigation performed by us under the supervision of **Sadia Tasnim Barsha, Lecturer,** Department of Computer Science and Engineering, Sonargaon University, Dhaka, Bangladesh. We reaffirm that no part of this project has been or is being submitted elsewhere for the award of any degree or diploma.

Countersigned

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ABSTRACT

The Project Hotel Management System (HMS) is a web based application that allows the hotel manager to handle all hotel activities online. Interactive GUI and the ability to manage various hotel bookings and rooms make this system very flexible and convenient. The hotel manager is a very busy person and does not have the time to sit and manage the entire activities manually on paper. This application gives him the power and flexibility to manage the entire system from a single online system. Hotel Management project provides room booking, staff management and other necessary hotel management features. The system allows the manager to post available rooms in the system. Customers can view and book room online. Admin has the power of either approving or disapproving the customer's booking request. Other hotel services can also be viewed by the customers and can book them too. The system is hence useful for both customers and managers to portably manage the hotel activities.

ACKNOWLEDGMENT

At the very beginning, we would like to express my deepest gratitude to the Almighty Allah for giving us the ability and the strength to finish the task successfully within the schedule time.

We are auspicious that we had the kind association as well as supervision of **Sadia Tasnim Barsha**, Lecturer, Department of Computer Science and Engineering, Sonargaon University whose hearted and valuable support with best concern and direction acted as necessary recourse to carry out our project.

We would like to convey our special gratitude to **Prof. Dr Md Alamgir Hossain,** Dean, Faculty of Science and Engineering for his kind concern and precious suggestions.

We are also thankful to all our teachers during our whole education, for exposing us to the beauty of learning.

Finally, our deepest gratitude and love to my parents for their support, encouragement, and endless love.

LIST OF ABBREVIATIONS

FSQ	Food Safety and Quality
HEW	Hiring Experienced Workers
HMS	Hotel Management System
IT	Information Technology
MDM	Methodology Development Model
NHMSI	Necessary Hotel Management System Information
POW	Plan of Work
PTBF	(Booking) Price To Be Fixed
RR	Room Reservation
SBQ	Safety and Better Quality

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CHAPTER 1
INTRODUCTION TO HOTEL MANAGEMENT SYSTEM

1.1 Introduction

Hotel Management System is a hotel reservation site script where site users will be able to search rooms availability with an online booking reservations system. Site users can also browse hotels, view room inventory, check availability, and book reservations in real-time. Site users enter check in date and check out date then search for availability and rates. After choosing the right room in the wanted hotel – all booking and reservation process is done on the site and an SMS is sent to confirm the booking.

Administrator Panel

Account Manager

- Administrator – Administrator can manage administrator accounts and conform the rooms.
- Room Types – Administrator can define the type of rooms in the hotels, room's prices and upload an image for each room.
- Bookings – All booking and reservations maid on the site are displayed with all booking details: arrival date, departure date, hotel name, room type, number of passengers, price.

1.2 Objective of Hotel Management System

The main Objective of hotel organizations could be improved by integrating service-oriented operations service-oriented operations with project management principles. Such integration would instill innovation, proactive attitudes and regulated risk-taking needed to pursue ongoing improvement and proactive response to change. By managing each change as a project, embedded in smoothly running operations, hotels would extend their life span by continuously reinventing themselves. Due to which the customers can easily book the hotels rooms.

1.3 Needs of Hotel Management System

This system will help administration to work easily. Because of its easy access and less time consuming administration can get the information of the Users, Rooms, Payments, etc. They do not have to search in the paper file for the log time. Members an easily handle the system.

1.4 Methodology Development Model

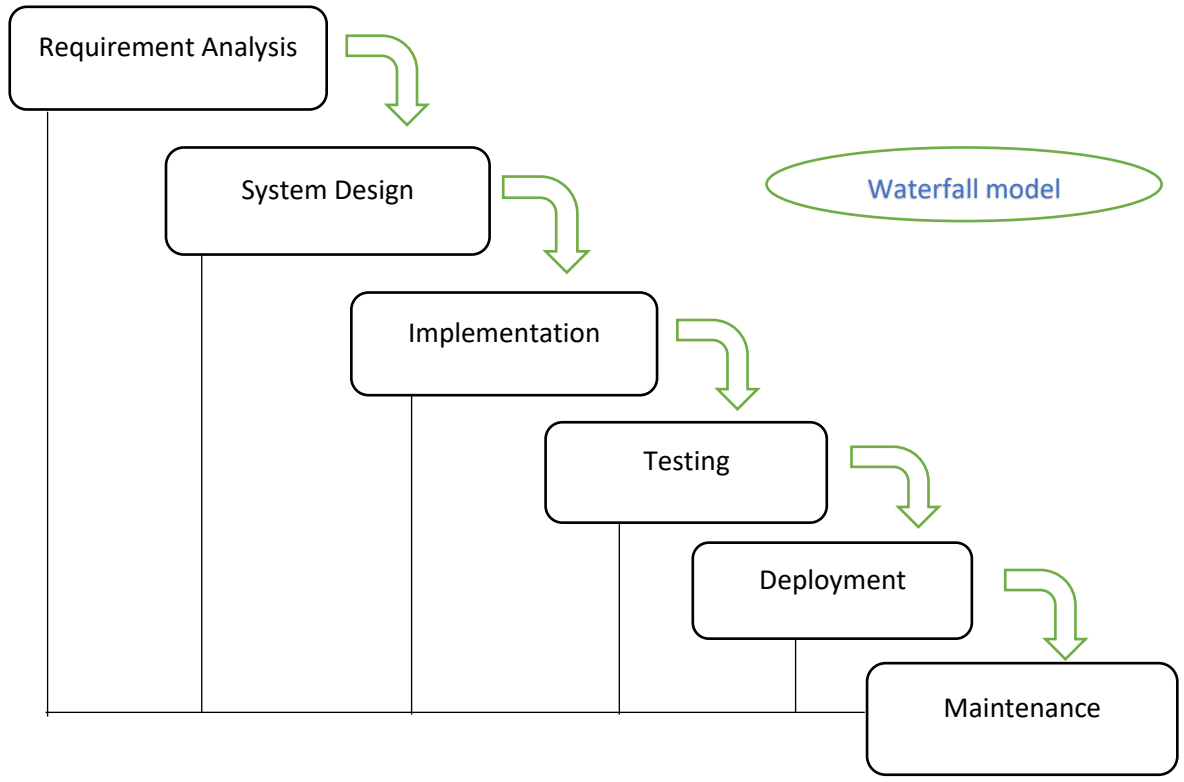


Fig- 1.4 Methodology Development Model

The sequential phases in Waterfall model are –

Requirement Gathering and analysis – All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.

• **System Design –** The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.

• **Implementation** − With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.

• **Integration and Testing** − All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

• **Deployment of system** − Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.

• **Maintenance** − There are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

CHAPTER 2
TOOLS AND TECHNIQUE

2.1 Tools and technique

a. Bootstrap
b. CSS
c. GitHub
d. HTML
e. JS
f. PHP
g. SQL
h. XAMPP

a. Bootstrap

Bootstrap is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other 6 interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only.

b. CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate css file, and reduce complexity and repetition in the structural content.

c. GitHub

GitHub is a web-based hosting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management (SCM) functionality of Git as well as adding its own features. It provides access control and several collaboration features such as bug tracking, feature requests, task management, and wikis for every project. GitHub offers plans for both private repositories and free accounts which are commonly used to host opensource software projects.

d. HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. [4] Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.
Library Management System is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paper work such as file lost, file damaged and time consuming. It can help user to manage the transaction or record more effectively and time saving.

e. JS

JavaScript (JS) often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web. JavaScript enables interactive web pages and thus is an essential part of web applications. The vast majority of websites use it, and all major web browsers have a dedicated JavaScript engine to execute it.

f. PHP

Hypertext Preprocessor (or simply PHP) is a server-side scripting language designed for Web development, but also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Preprocessor. PHP code may be embedded into HTML code, or it can be used in

combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

g. SQL

Basically, SQL stands for Structured Query Language which is basically a language used by databases. This language allows to handle the information using tables and shows a language to query these tables and other objects related (views, functions, procedures, etc.).

h. XAMPP

XAMPP is a 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. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

2.2 Specification Requirement

2.2.1 External Interfaces –

This interface will be actual interface through which the user will communication with the application and perform the desired tasks.

Admin login

ID:

Role: Admin wishes to login to the system

Precondition: Username and Password

Success end Condition: Main option of screen display

Failed end Condition: User has entered incorrect Username and Password or both.

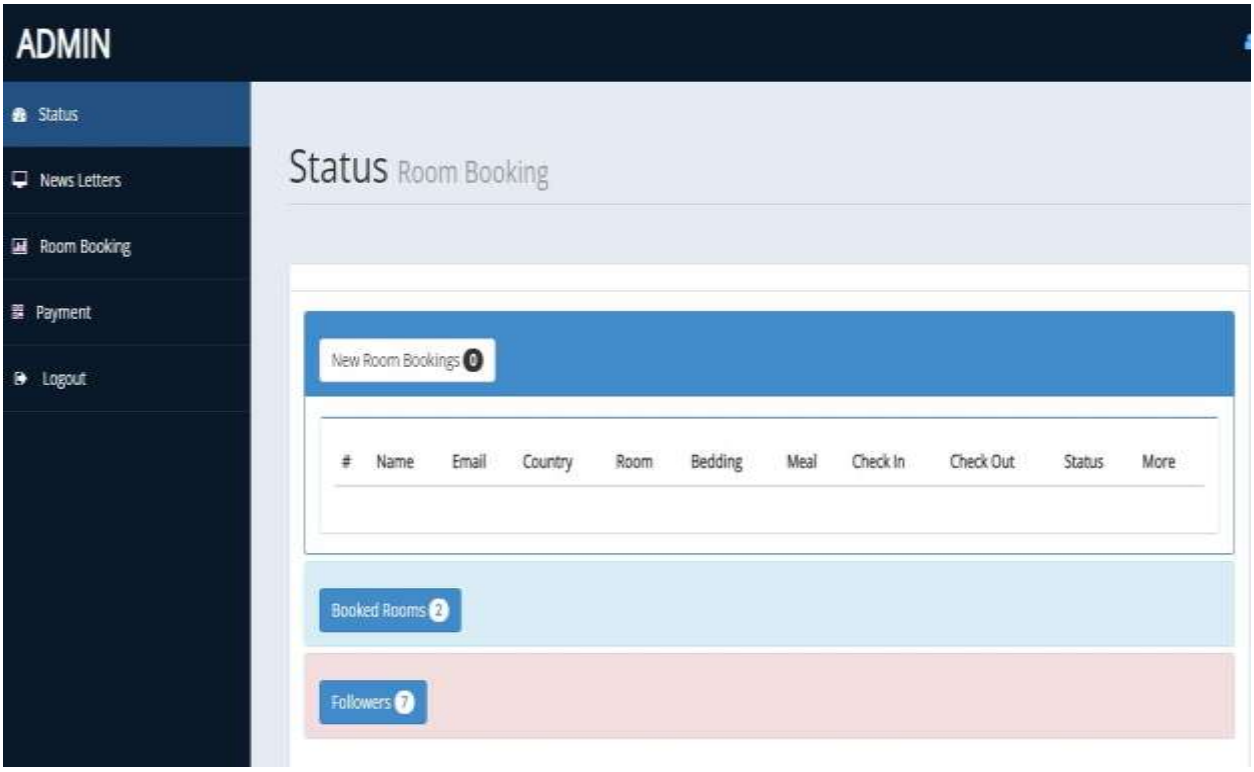


Confirm

ID:

Precondition: Admin has successfully navigated to the search result

Success end Condition: Admin has successfully made the changes



Booked rooms –



Guest information –



INFORMATION OF GUEST

SONARGAON HOTEL,
Dhanmodi Road-13,
Dhaka,
Bangladesh.
+8801714800876

SONARGAON

Coustomer Name : - Rev .Aminul Tibro

Customer ID	7
Check in Date	2022-09-05
Check out Date	2022-09-06

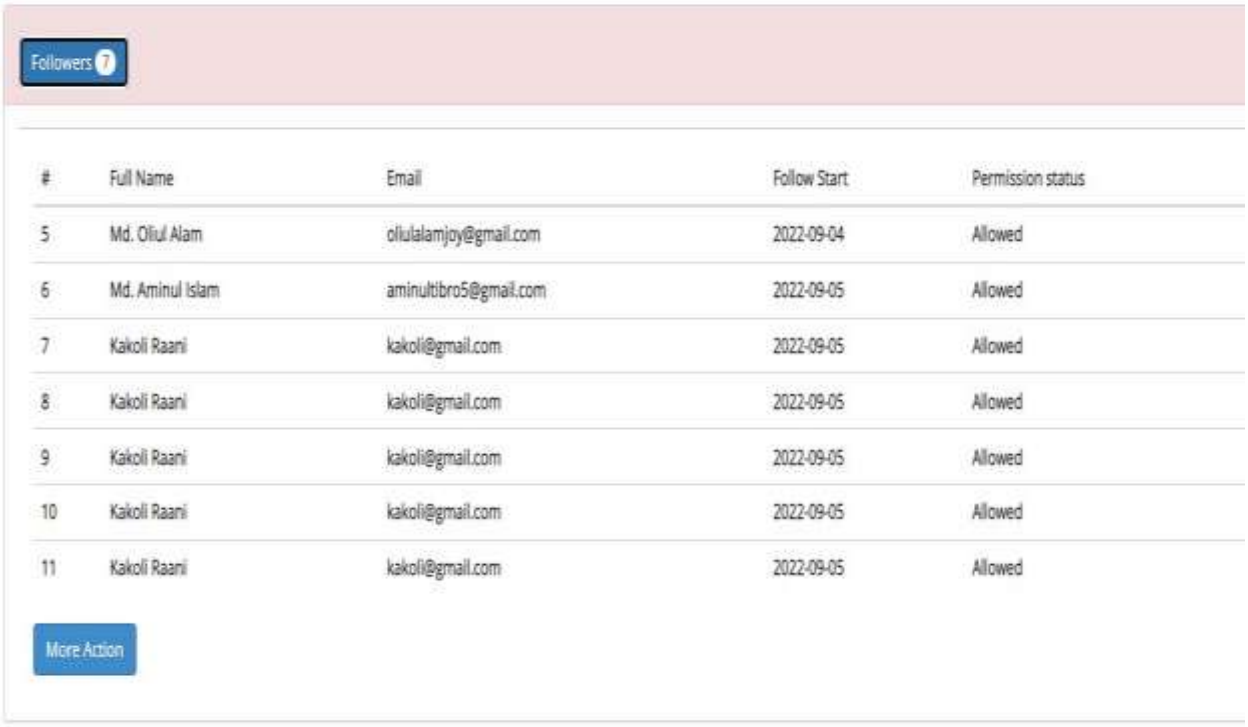
Customer phone : - 0170978856	Customer email : - aminultibro015@gmail.com
Customer Country : - Switzerland	Customer National : - Non Sri Lankan

Item	No of Days
Superior Room	1
Double Bed	1
Full Board	1

CONTACT US

Email :- info@sonargaon.com || Web :- www.google.com || Phone :- +8801714800876

Followers list –

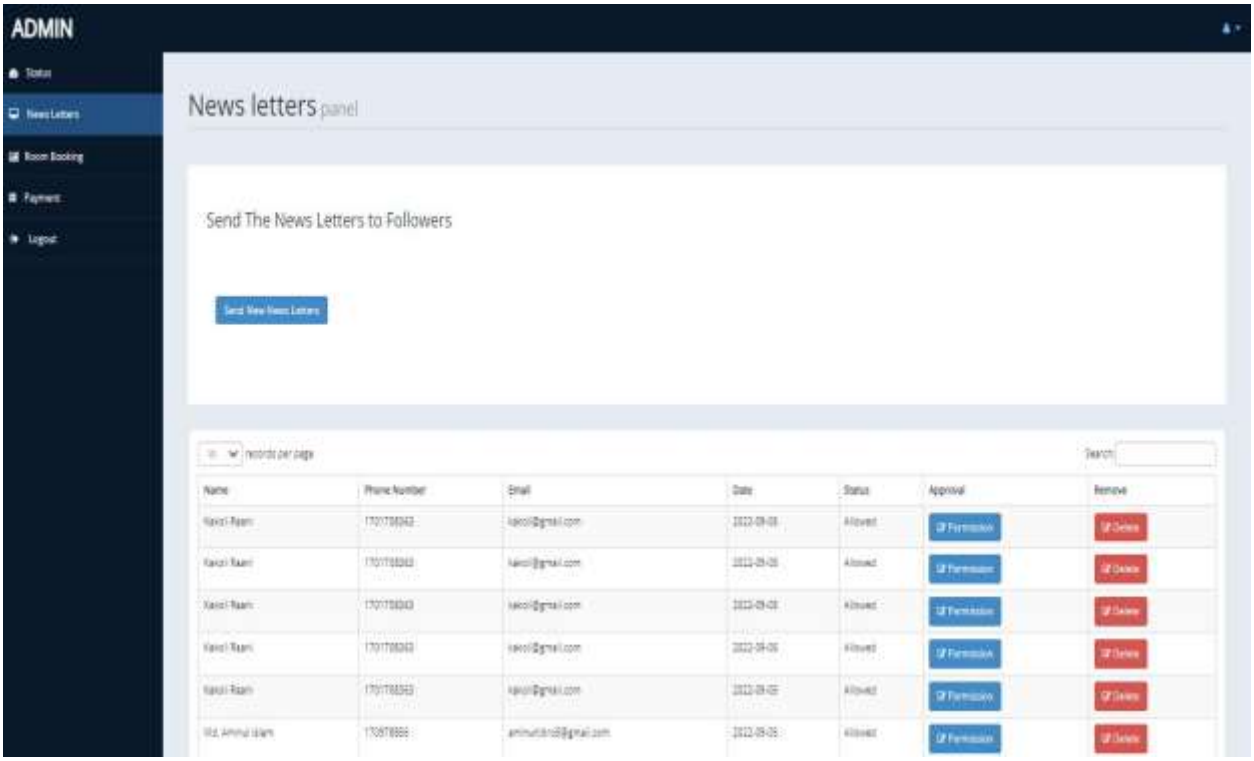


Followers 7

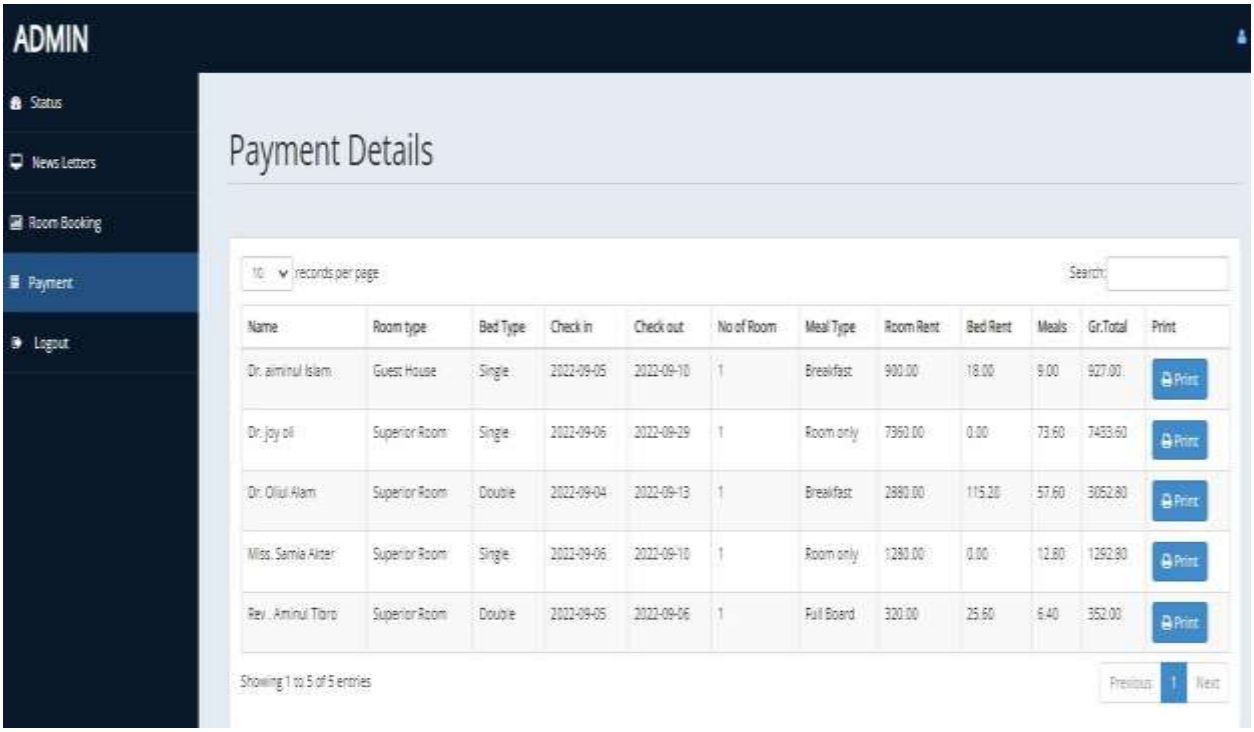
#	Full Name	Email	Follow Start	Permission status
5	Md. Oliul Alam	oliulalamjoy@gmail.com	2022-09-04	Allowed
6	Md. Aminul Islam	aminultibro5@gmail.com	2022-09-05	Allowed
7	Kakoli Raani	kakoli@gmail.com	2022-09-05	Allowed
8	Kakoli Raani	kakoli@gmail.com	2022-09-05	Allowed
9	Kakoli Raani	kakoli@gmail.com	2022-09-05	Allowed
10	Kakoli Raani	kakoli@gmail.com	2022-09-05	Allowed
11	Kakoli Raani	kakoli@gmail.com	2022-09-05	Allowed

More Action

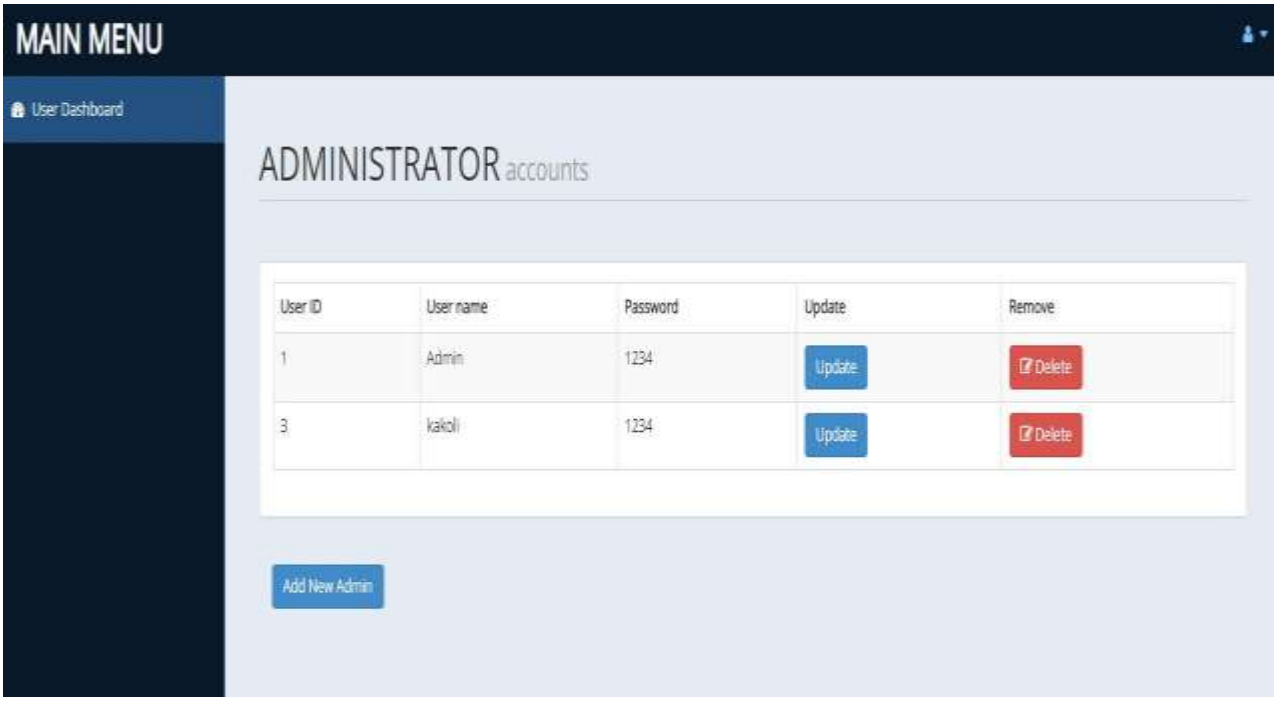
News letters –



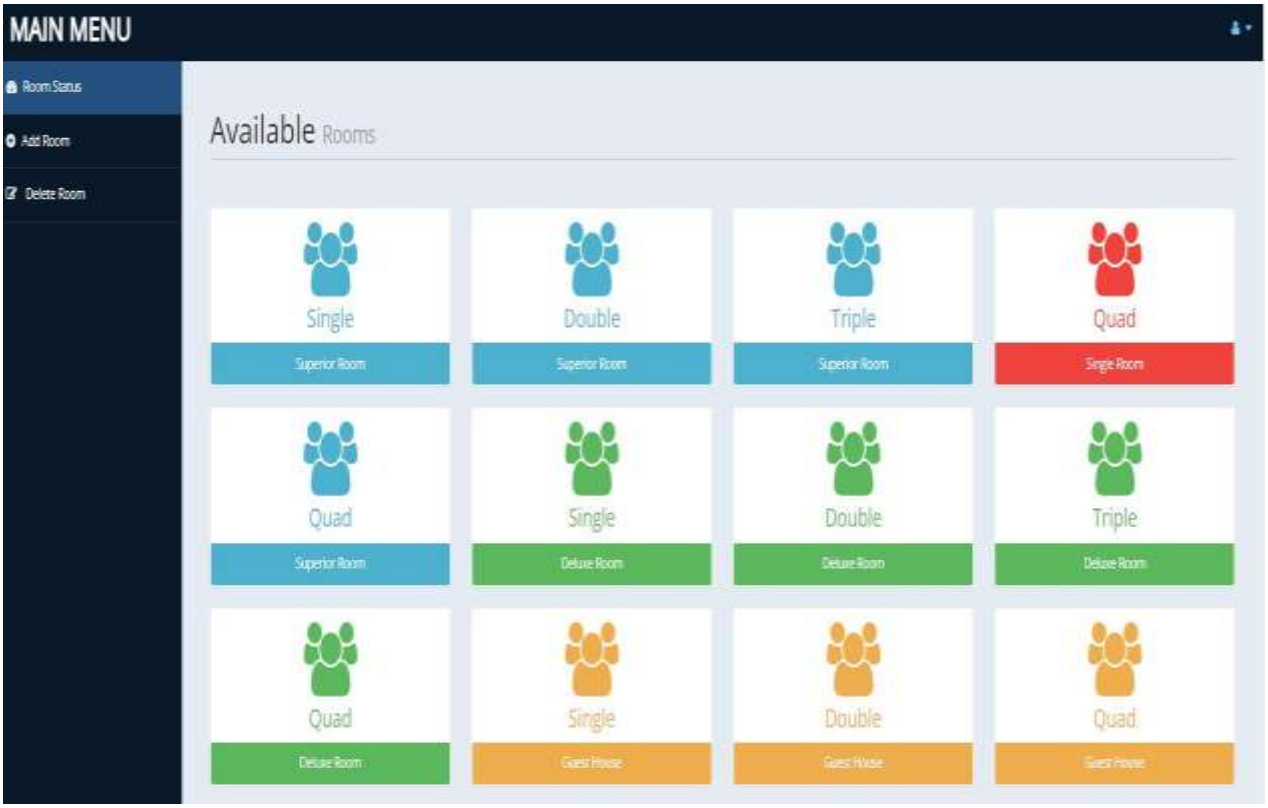
Payment details –



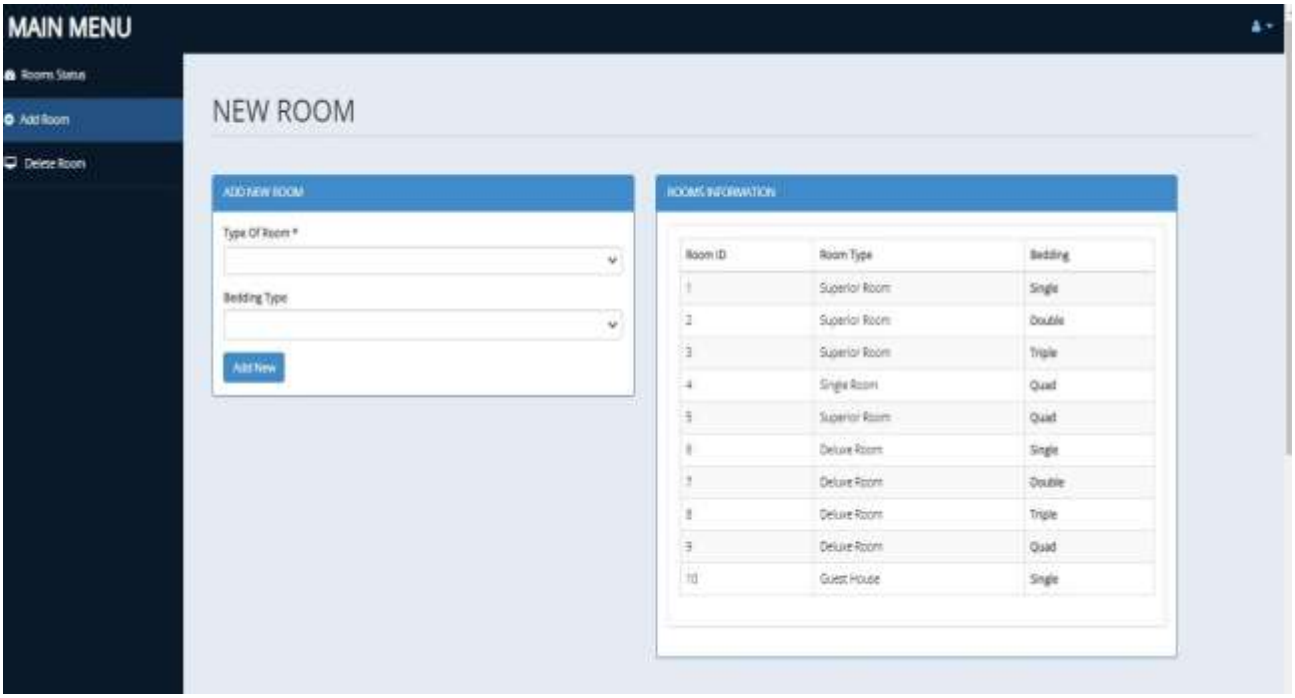
User profile –



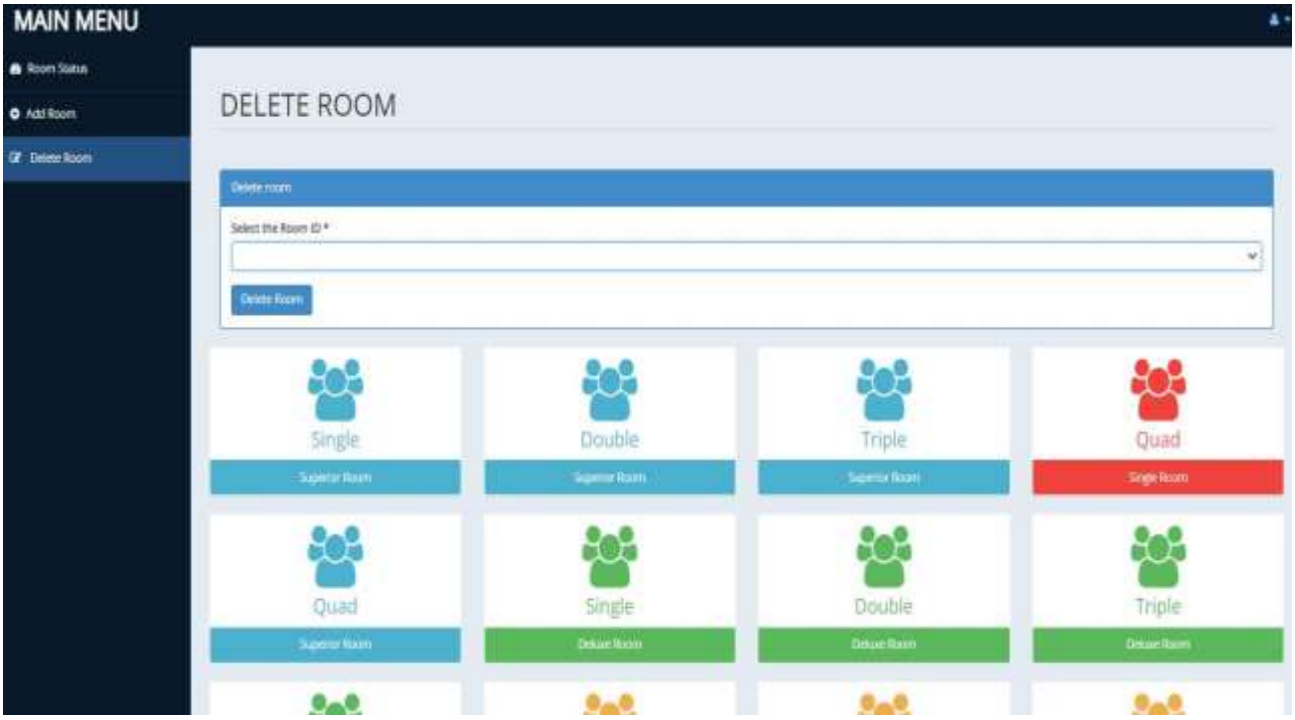
Room status –



Add room –



Delete room –



2.2.2 Software Product Features –

Hotel Management System

⇒ Sequencing information
- Login information should be filled before the user allowed.

⇒ Error Handling
-If user doesn't filled up validate information then the system display error message for user and request to enter the validate information.

⇒ Performance required
-Security

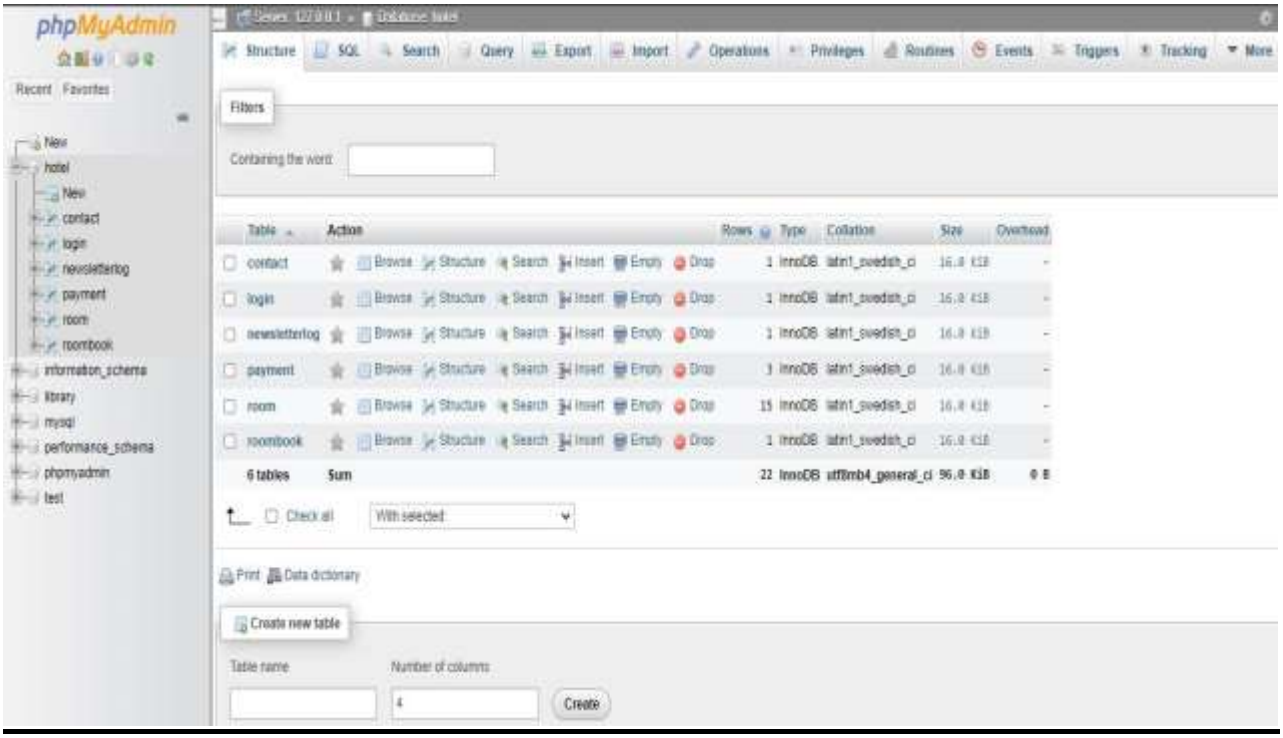
- System should be Protected from unauthorized access Where the validate Username and Password are required so no other can access.

CHAPTER 3
SYSTEM DESIGN

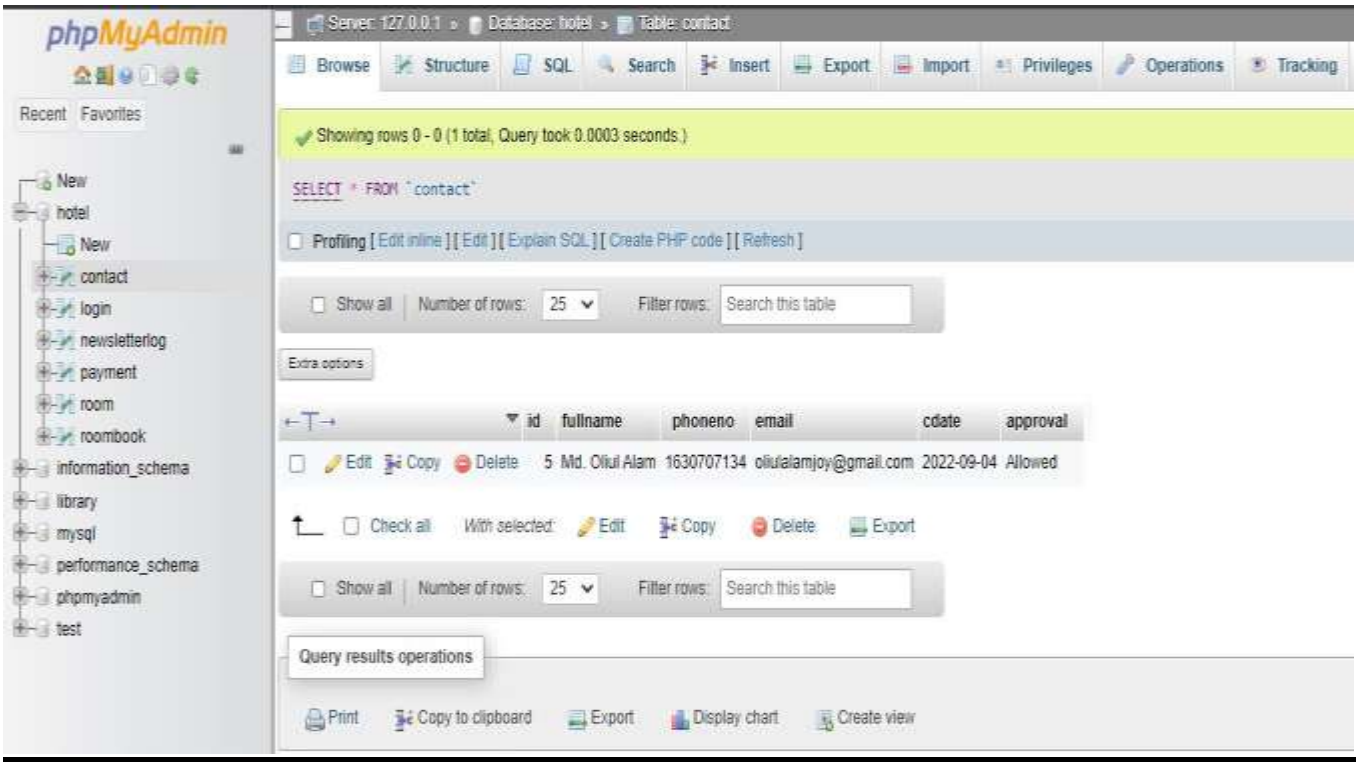
3.1 Table design

<u>Various tables to maintain information-</u>

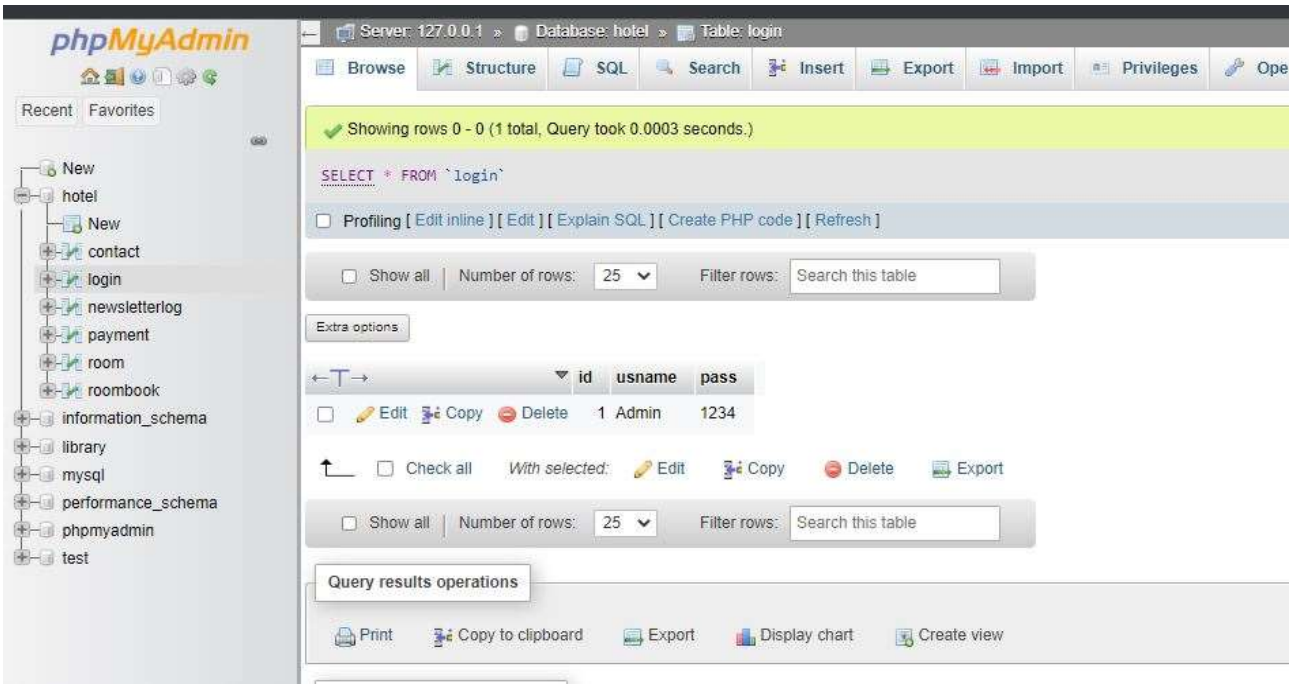
➢ Hotel table from database



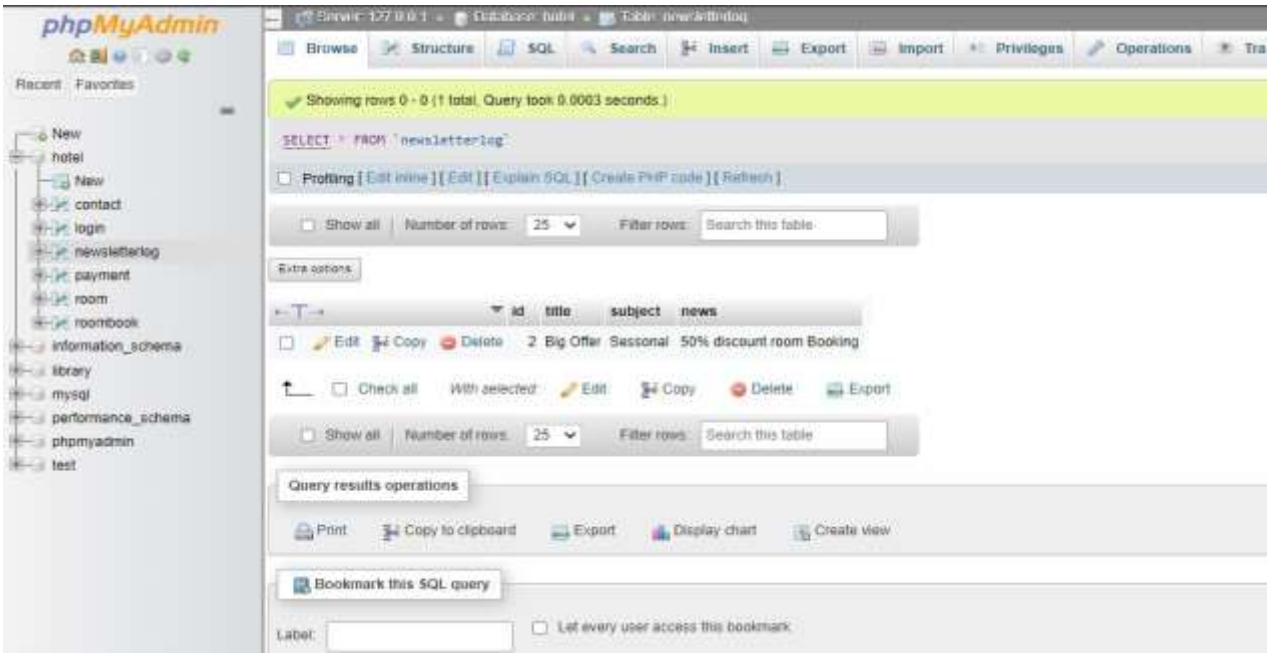
➢ Contact table from database



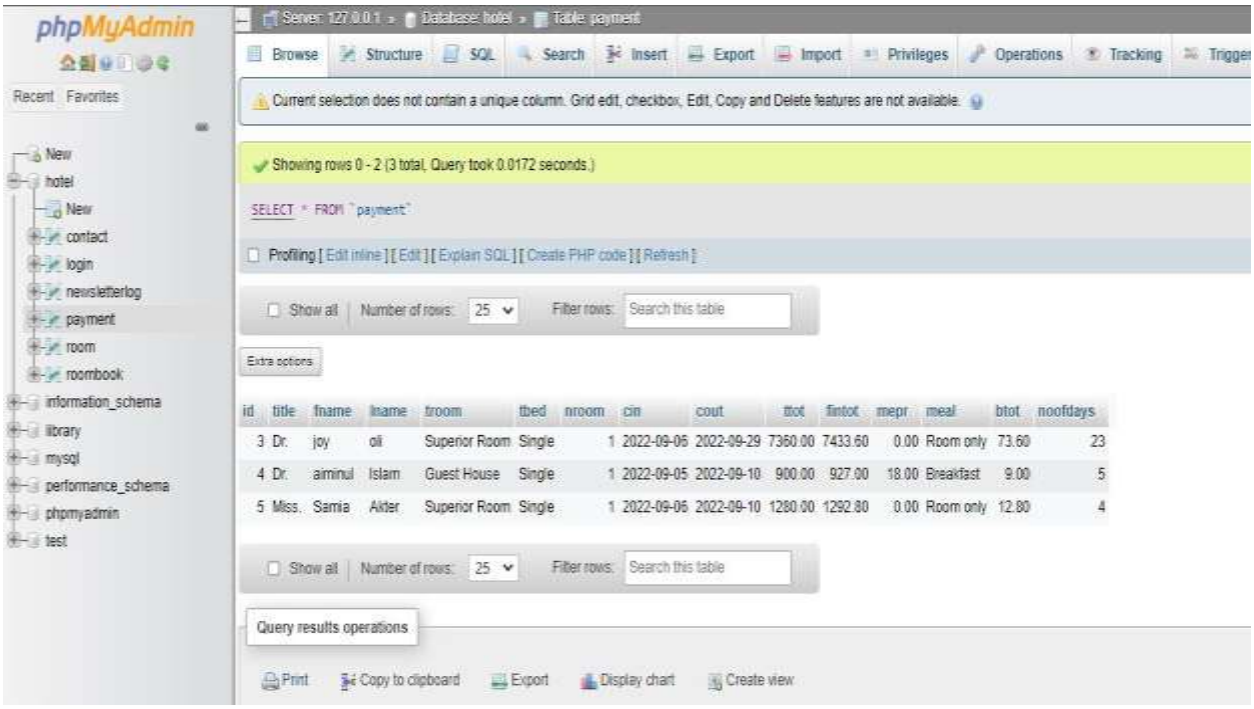
➢ Login table from database



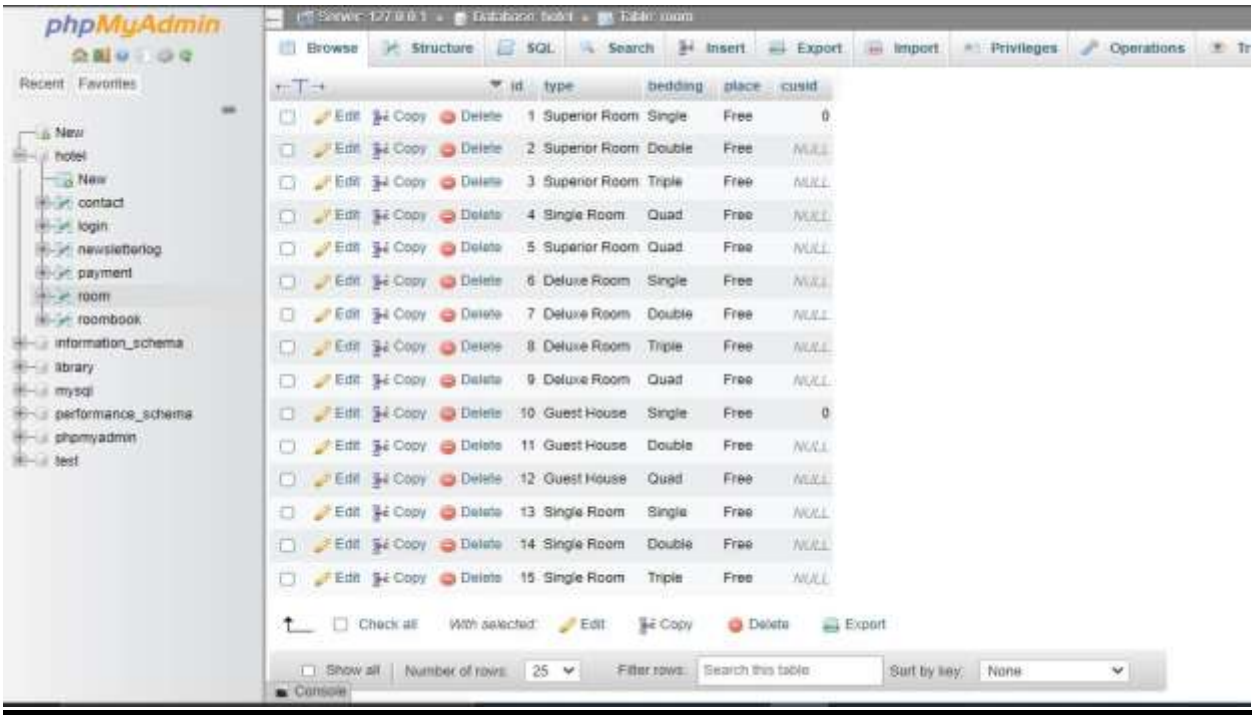
➢ News letter log table from database



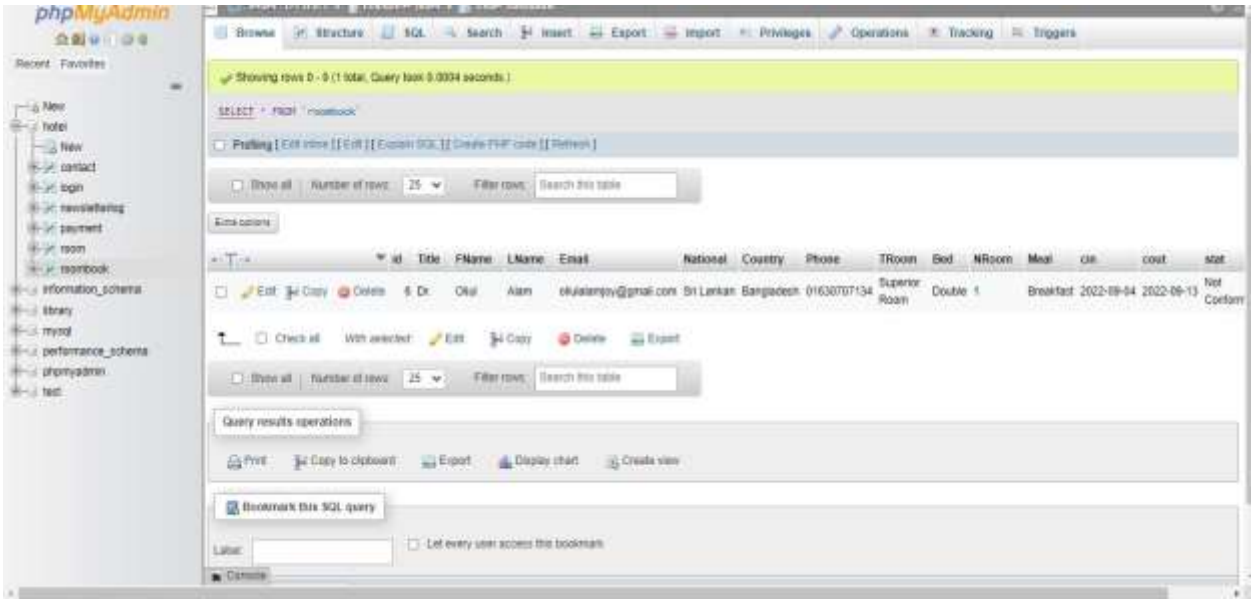
➢ Payment table from database



➢ Room names table from database



➢ Room book table from database



3.2 Data design

Data Model: A database model is a type of data model that determines the logical structure of a database and fundamentally determines in which manner data can be stored, organized and manipulated.

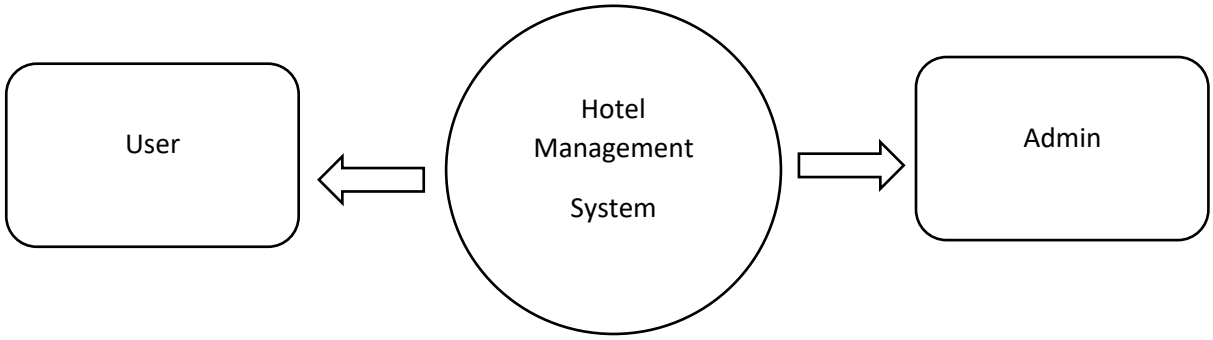


Fig 3.2- Data flow

3.3 Use case diagram

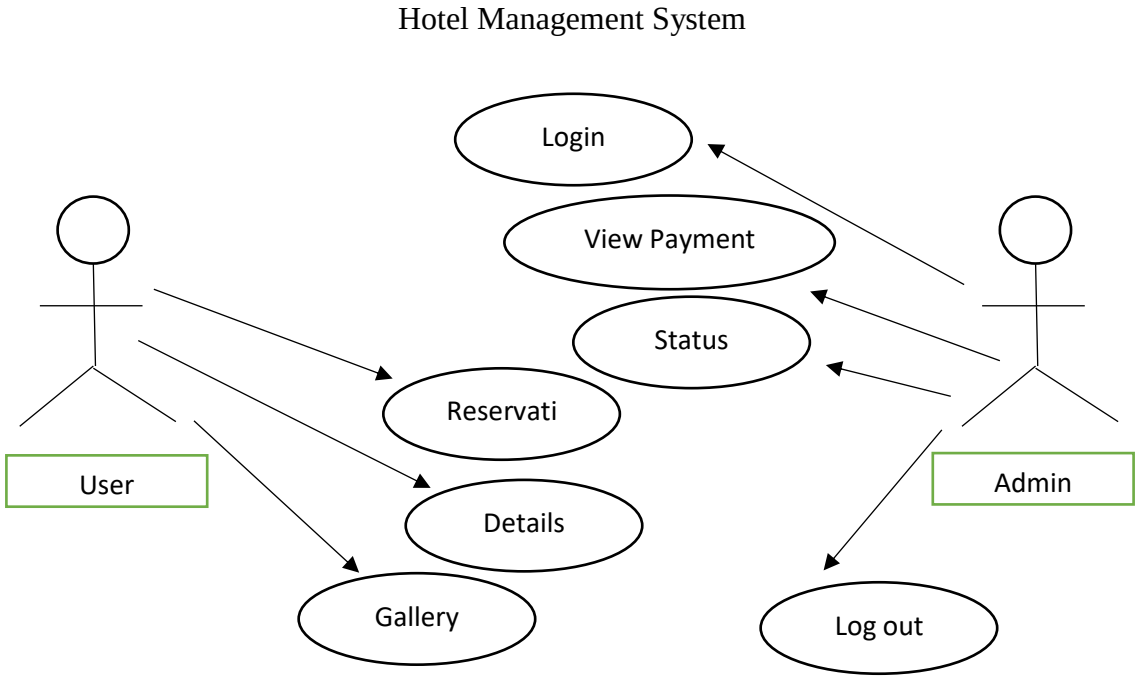


Fig 3.3- Use case diagram

3.4 Flow chart

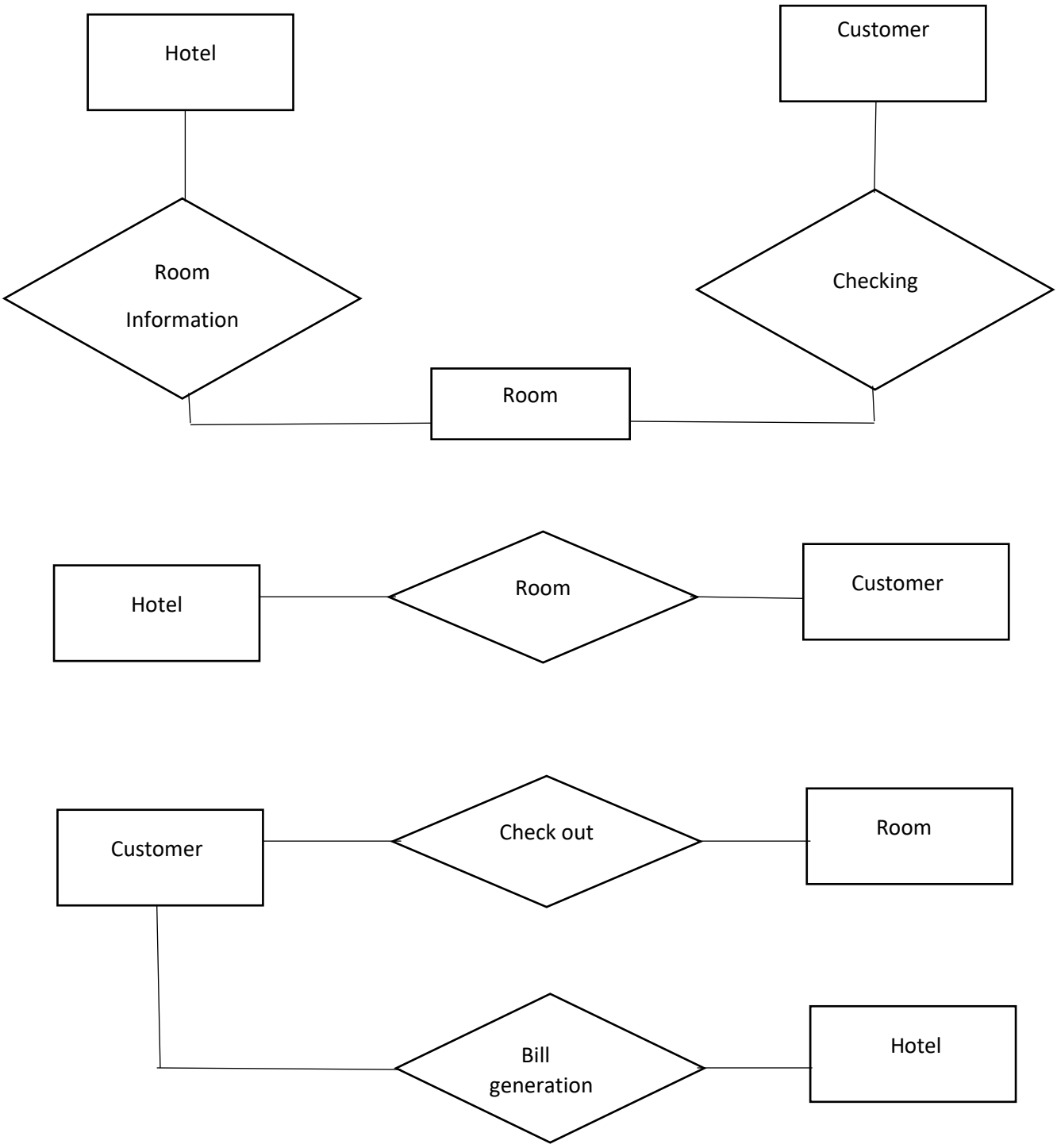


Fig 3.4- Flow chart

CHAPTER 4
TASK AND ACTIVITIES PERFORMED

4.1 Advantage

• The advantages of booking a hotel online add up long before your arrival. Our legendary customer service extends to the web.

• One advantage of booking with the hotel directly is the use of the hotel's full cancellation policy as well as not needing a deposit in most situations.

• Read reviews and compare prices for Online Hotel Booking.

• The most important advantage of online hotel booking is convenience, you can book your room by simply sitting in home. Internet helps you to browse through the hotels around the world and compare the facilities and rates easily.

4.2 Structure of the project

- After Administrator Login
  - ⇒ Status
  - ⇒ View Booking
  - ⇒ View Rooms
  - ⇒ View payment's
  - ⇒ News Letter
  - ⇒ Logout

- Users visit
  - ⇒ View rooms
  - ⇒ View Gallery
  - ⇒ View services
  - ⇒ Book

4.3 Scope and Feasibility

This activity is also known as the feasibility study. Perform and evaluate feasibility studies like cost-benefit analysis, technical feasibility, time feasibility and operational feasibility for the project. Project Scheduling should be made using chats. Feasibility study is carried out t decide whether the proposed system is feasible for the company. It begins with a request from the user for a new system. It involves the following:

- Identify the responsible user for a new system
- Clarify the user request
- Identify deficiencies in the current system
- Establish goals and objectives for the new system
- Determine the feasibility for the new system
- Prepare a project charter that will be used to guide the remainder of the Project.

4.4 System Analysis

It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components.
System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.
The objective of the system analysis activity is to develop structured system specification for the proposed system. The structured system specification should describe what the proposed system would do; independent of the technology, which will be used to implement these requirements. The structured system specification will be used to implement these requirements.
The essential model may itself consist of multiple models, modeling different aspect of the system. The data flow diagrams may model the data and there relationships and the state transition diagram may model time dependent behavior of the system. The essential model thus consists of the following.

- Context diagram
- Leveled data flow diagrams
- Process specification for elementary bubbles
- Data dictionary for the flow and stores on the DFDs

4.5 System Design

System design involves transformation of the user implementation model into software design. The design specification of the proposed system consists of the following:

- Database scheme
- Sequence Diagram
- Flow Chart

4.6 Implementation

This activity includes programming, testing and integration of modules into a progressively more complete system. Implementation is the process of collect all the required parts and assembles them into a major product.

4.7 Test Generation

This activity generates a set of test data, which can be used to test the new system before accepting it. In the test generation phase all the parts are come which are to be tested to ensure that system does not produce any error. If there are some errors then we remove them and further it goes for accepting.

CHAPTER-5
SYSTEM IMPLEMENTATION

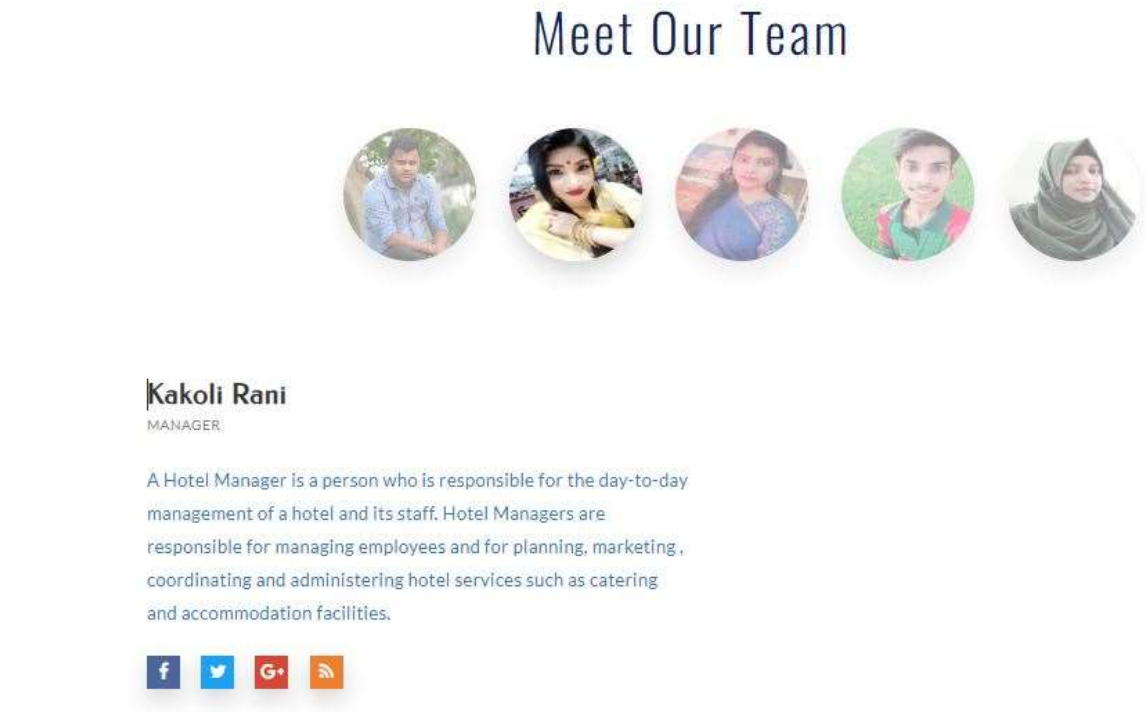
5.1 Screenshot of home page



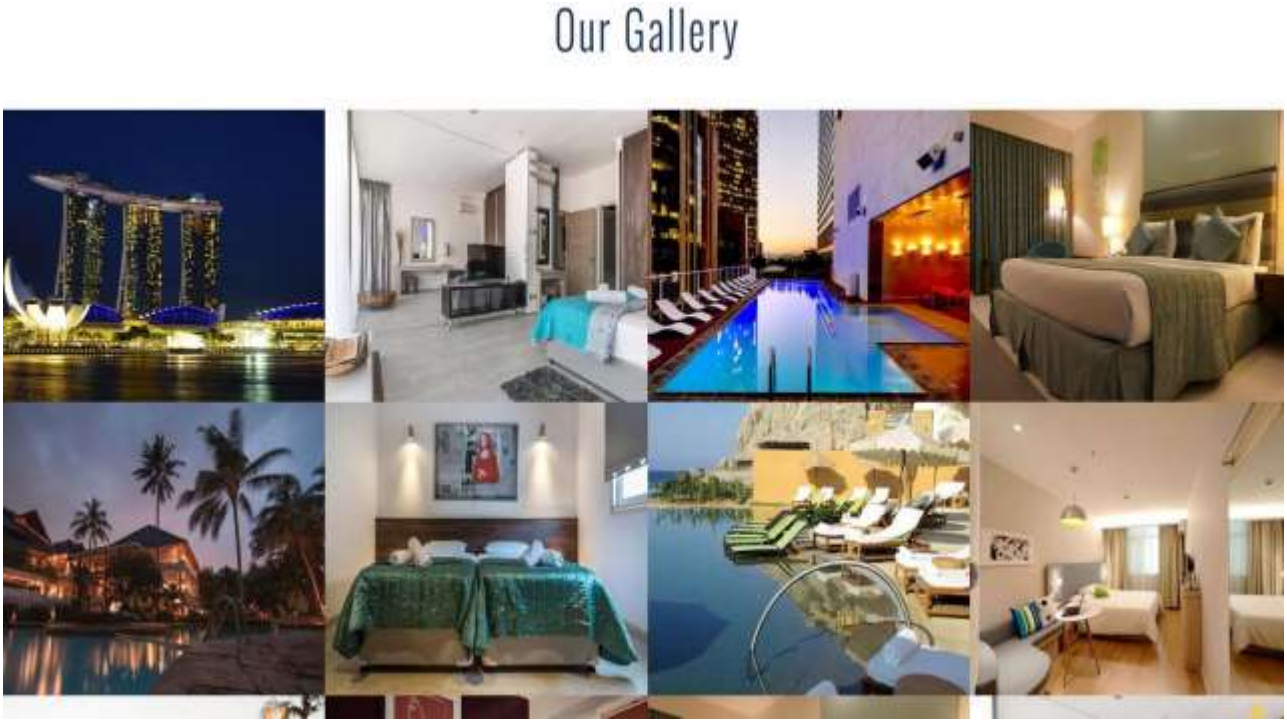
5.2 Screenshot of about page



5.3 Screenshot of our team members



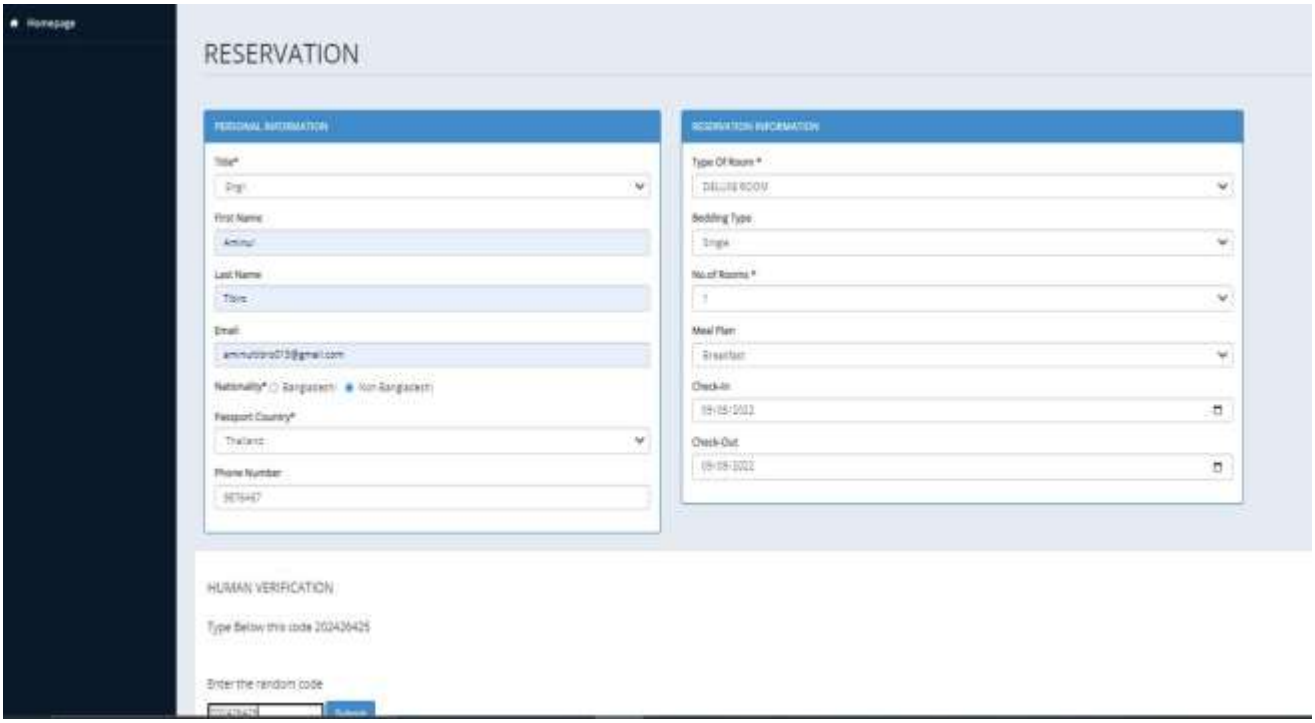
5.4 Screenshot of our gallery



5.5 Screenshot of rooms & rates



5.6 Screenshot of room reservation



5.7 Screenshot of contact us



REFERENCES

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[3] Mr. Daniel Foreman, Mr. Daniel Charles Foreman, (May 6, 2021). “Bootstrap 5 Foundations: The Random Knowledge Enthusiast” (1st edition).

[4] Mr. Daniel Foreman, Mr. Daniel Charles Foreman, (September 24, 2010). “Beginning PHP and MySQL : From Novice to Professional” (4th edition).

[5] https://www.w3schools.com/