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An Undergraduate Internship/Project on Smart Online Hotel Booking Platform for hospitality industry Under Decimal It

Sikder, Shahin

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An Undergraduate Internship/Project on Smart Online Hotel Booking Platform for hospitality industry Under Decimal It.

By

Shahin Sikder

Student ID: **1720559**

Autumn, 2022

Supervisor:

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Lecturer

Department of Computer Science & Engineering

Independent University, Bangladesh

January 19, 2023

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Engineering

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to certify that the report is completed by me, Shahin Sikder (ID:1720559), submitted in partial fulfillment of the requirement for the Degree of Computer Engineering from Independent University, Bangladesh (IUB). It has been completed under the guidance of Mr.Sanzar Adnan Alam. I also certify that all my work is genuine which I have learned during my Internship. All the sources of information used in this project and report have been duly acknowledged in it.



Signature

Date : January 19, 2023

Shahin Sikder

Name

Acknowledgement

I would like to firstly thank the Almighty Allah for giving me the endurance and the ability to work hard, for giving me the ability to write this report, and for giving me the chance to be able to do my internship at Decimal It. Also, my parents for their unconditional love and support have sustained, nurtured, and got me ready for this challenge. I would like to thank my honorable faculty and supervisor Mr. Sanzar Adnan Alam, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh, for his invaluable guidance, patience, time, constructive criticism, and thoughtful advice regarding various aspects of my internship and preparation of this report. Then I would like to express my gratitude to "Ms. Kaniz Fatema", Project Manager, for giving me the opportunity to complete my internship at Decimal IT for his guidance and support in this three-month internship program. The learning and experiences I have gathered here have helped me a lot as a web developer, system analyst, and resource planner and this will surely help me in the next phase of my life. I would also like to express my gratitude to all my colleagues for helping me throughout and making the Internship process so much enjoyable. Without them, this journey would have not been easy.

Letter of Transmittal

January 19, 2023
Mr. Sanzar Adnan Alam
Lecturer
Department of Computer Science and Engineering Independent University, Bangladesh.

Subject: Internship Report submission Autumn, 2022.

With due honor and respect, I, Shahin Sikder, from Autumn 2022, would like to submit my internship report. This report is written to kindly inform you that I have completed my internship program and its report. My internship was conducted from 2nd October 2022 to date. I completed my internship at Decimal It.

This report is based on my experience and the work I did at Decimal It during my internship. The primary goal for my internship was to gain experience in different technology-related fields of the company, starting with research and development, documentation, content writing, and web development, and to get acquainted with best practices.

Over the period of my internship at Decimal It, I found that I learned and applied a lot of new skills and technologies. The company comprises a small team for Development, who learn, collaborate, and innovate together.

I would like to thank you immensely for all your guidance and support. I hope and pray that this report fulfills all the requirements and is up to your expectations.

Sincerely,
Shahin Sikder, 1720559
Department of Computer Engineering
Independent University, Bangladesh

Evaluation Committee

.....

Signature

Name
Ms. Ajmiri Sabrina Khan
Internal Examiner-1 / Panel Member-1

.....

Signature

Name
Mr. Sarwar Shahidi
External Examiner-2 / Panel Member-2

.....

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Name
Ms. Kaniz Fatema
Supervisor of the intern

.....

Signature

Name
Dr. Mahady Hasan
Head, Department of Computer Science and Engineering

Abstract

In today's world, there is a complex process of booking preferable hotel suites as per client desire. So, it is mandatory to have an efficient system to book hotel suites through an automated efficient portal. It is also worth noting more efficient this system will be more helpful it will to tourism and other industry. So, we are implementing SOHBP(Smart online hotel booking platform) system for providing an automated hotel booking process for the general people. The task of my team for the project was to gather requirements, design, develop, test, and implement. As the advancement of technology has skyrocketed, Learning, and implementing will be my primary focus. In this report, I will discuss how to implement a web application that serves the purpose of SOHBP services also its design, development, and testing phase, and the benefits it provides. As it is a new project for Decimal It, the company assigned me to the research, design phase, development, and testing phase of SDLC. The web application is based on the Laravel framework and the front end is designed using HTML, CSS, and Bootstrap where the database is designed in SQL. Working at Decimal It as an intern will add huge experience to my career and give me a lot of professional knowledge. This report will take us through all the details of web development and the experience gathered during this internship period.

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Chapter 1

Introduction

1.1 Overview/Background of the Work

Smart Online Hotel Booking portal (SOHBP) is the process of automating the traditional hotel booking system. Basically, the customer can book a hotel room/suite of a hotel without having to call the booking maintenance person. This way the customer/visitor can easily book their preferable room/suite. So, the web application also allows the client to provide suitable management time from their own portal.

Previously the platform was based on a manual booking system of the hotel, which caused trouble among the stakeholders as it required more time and human work. Considering this scenario, I have been assigned the work to develop a web application that will automate the booking processes of hotels.

Given, that the website will be created using HTML, CSS, and Bootstrap at the front end and at the back end Laravel and database SQL will be used. This provides efficient responsive UI which will be both mobile and desktop compatible. The proposed work focuses on the latest website-building tools and practices which provide effective workflow processes.

1.2 Objectives

The main objective of the project is to ensure an easy process for the customer to book hotel rooms/suites and booked preferable rooms without any extra hassle. During the covid, the world realized how important it is to book a hotel room through an online portal from home without having to go outside. This website will allow doing book hotel rooms and services without having to call someone or go outside. The most

beneficial factor of the website is that because it is an online-based system, customers can use it on their computers and phones, at any time anywhere.

1.3 Scopes

- customer account creation: customer can create their own account using their unique credentials through the platform.
- Login: After logging in, the customer will be displayed on a user's homepage and a menu will be shown in the Navbar according to their roles.
- Add booking time: admin can create their own unique booking time and date.
- Book a room/suite: Customers will be able to book a room/suite at a hotel from the booking panel by selecting the time and date.
- Receive receipt: customer will be able to receive an automated receipt from the hotel through the portal after checkout or pay the bill.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

In my under-graduation studies, I acquired a lot of theories about programming and developing an application from start to finish. Most of the courses include both theoretical and lab work. I learned how to operate in a group in lab sessions, which will benefit me in real-world scenarios where I will have to collaborate with my colleagues to complete and deliver a project. It's very similar to working on projects in a group in lab class and working on projects in the office with colleagues.

These are the courses related to my work:

- Data Structures (CEN 203): This is the most basic course that helped us with the ideas of several data structures and their applications such as Stack, Queue, Linked List, Array, Pointer, and so on.
- Object-Oriented Programming (CEN 213): In the developing industry most of the data is represented as an object. It also taught me how to write modular programs which made codes less repetitive and more reusable.
- Database Management (CEN 401): This was the course that taught me how to design and plan a project. It covered popular planning and strategy practices such as Six Element Analysis, Problem Analysis, System Development Life Cycle, Rich Picture, Requirement Analysis, Entity Relationship Diagram, Business Process Model, Normalization, and many more.
- Advance Network (CEN 408): This course gives an overview of the use of a network layer and how it works.
- Data Communication and Networking (CEN 430): This course gives a fundamental understanding of networks, traffic routing, and management, which helped in

understanding certain factors in the cloud deployment phase.

- Cloud Computing (CEN 472): This course gives a fundamental understanding of Cloud Networks, Cloud servers, and management, which helps in understanding certain factors in cloud-based, work.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

WBS is a hierarchical structure which demonstrates a project's breakdown into smaller segments. For my project, I have produced a WBS so that my work is coordinated. WBS covers a visual of all the scopes, risks, points of communication, responsibilities, costs and guarantees that it does not skip essential deliverable. For brainstorming and collaboration, it is the ideal tool for the team. In my WBS, I have used the top-down approach.In the above diagram, Level 1 has five elements. Each of these elements are the phases of the project. The Level 2 Elements are the unique deliverables in every phase. All the lower-level components are deliverables. The project's primary steps include collecting requirements, designing, developing, testing, and deploying. The child tasks are the tasks that must be done to finish the current phase and go to the next phase. We have also made the cost calculation, resource allocation, and risk assessment, all of which are important for WBS and help us gain a better understanding of the project. A WBS also helps to avoid common project issues including missed deadlines, scope creep, and cost overruns, among others. When built as thoroughly as feasible, the WBS serves as a blueprint for completing what looks to be a difficult undertaking. However, when the project is broken down using a WBS, it becomes far more viable and approachable.

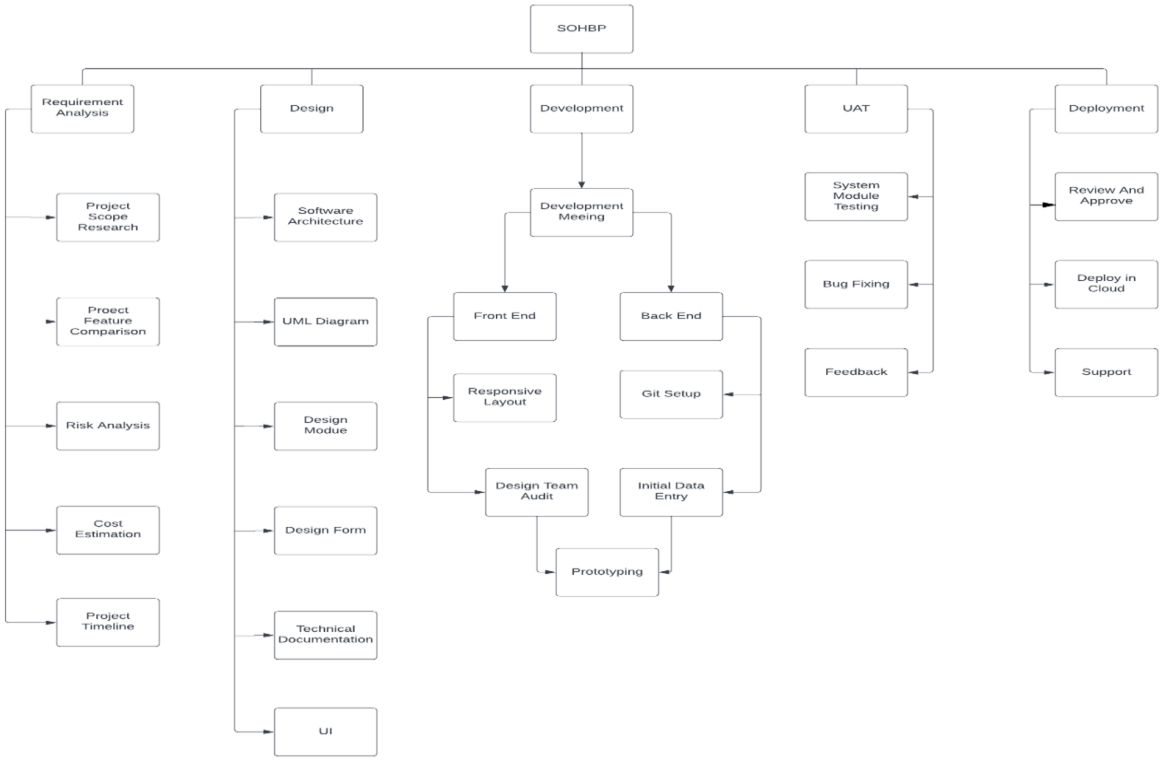


Figure 3.1: WBS of SOHBP

In the above diagram, Level 1 has five elements. Each of these elements is the phase of the project. The Level 2 Elements are the unique deliverables in every phase. All the lower-level components are deliverables. The project's primary steps include collecting requirements, designing, developing, testing, and deploying. The child tasks are the tasks that must be done to finish the current phase and go to the next phase. We have also made the cost calculation, resource allocation, and risk assessment, all of which are important for WBS and help us gain a better understanding of the project. A WBS also helps to avoid common project issues including missed deadlines, scope creep, and cost overruns, among others. When built as thoroughly as feasible, the WBS serves as a blueprint for completing what looks to be a difficult undertaking. However, when the project is broken down using a WBS, it becomes far more viable and approachable.

3.2 Process/Activity wise Time Distribution

For Each Section, we have described in the WBS Diagram for time allocation. The Table below shows them in detail.

Task	Days	Work Percentage
Requirement Analysis	15	20
Design	15	10
Development	30	40
User Acceptance Testing (UAT)	15	15
Deployment	15	15
Total	90	100

Table 3.1: Task wise time allocation

It is very important to accurately estimate the overall time required to accomplish the project depending on the activities to be completed. It is also important to create priorities and set goals to complete a successful project. The development phase is by far the most important because it takes the longest to complete. Because we are working in order, if one task is delayed, the rest of the tasks will be delayed as well. As a result, it is important to complete tasks according to the estimated schedule.

3.3 Gantt Chart

To achieve a successful deployment of our web application before the estimated deadline, we created Gantt charts using Excel to schedule all of our planning and tasks correctly. Gantt chart is a representation of the activities and days it takes to complete them. As you can see, we have a compiled overview of the total days each event needs to be completed in sequential manner. [1]

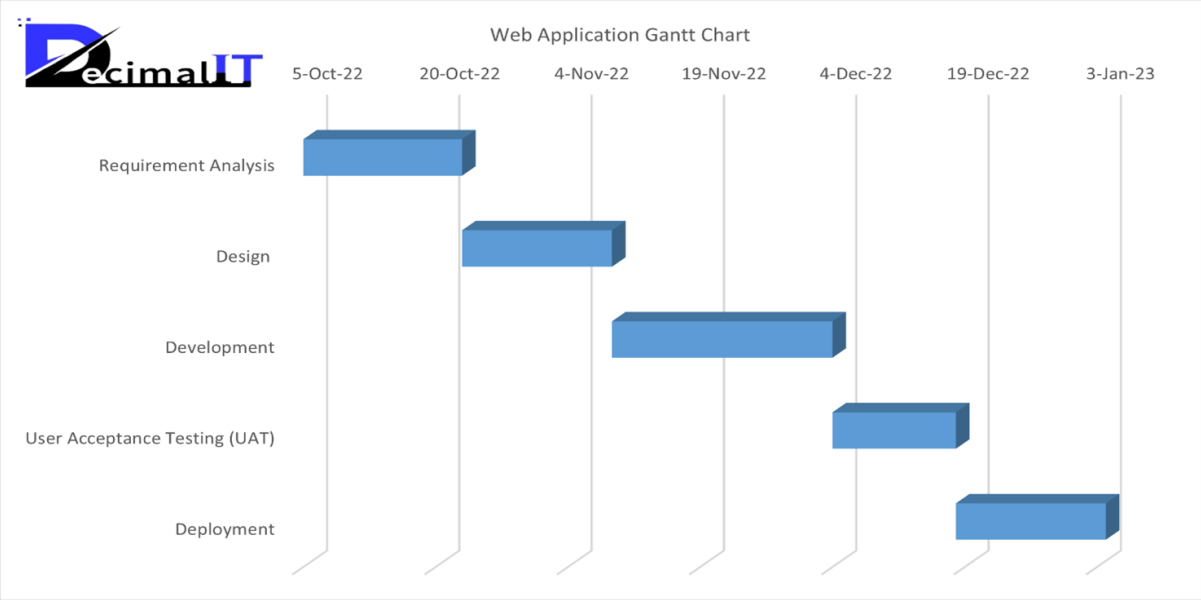


Figure 3.2: Gantt Chart of SOHBP

Task	Start	Days to Complete
Requirement Analysis	5-OCT-22	15
Design	23-OCT-22	15
Development	9–NOV–22	30
User Acceptance Testing (UAT)	4–DEC–22	15
Deployment	18–DEC-22	15

Table 3.2: Gantt Chart Timeline

3.4 Process/Activity wise Resource Allocation

The process of allocating and planning available resources in the most efficient and effective way possible is called resource allocation. Projects will always require resources, even though they can be scarce at times. Therefore, the project manager is responsible for the proper timing and allocation of these resources during the project schedule. Therefore, resource allocation is about managing the project and delegating resources to ensure that it runs as smoothly and efficiently as possible. The chart and table below shows how resources are allocated.

Task	Start	End	Resources	Employee
Requirement Analysis	5-OCT-22	20-OCT-22	Google, Similar projects, Articles	1
Design	23-OCT-22	6-NOV-22	Lucid,Excel,HTML,CSS,Bootstrap	1
Development	9–NOV –22	4–DEC–22	SQL, Laravel	1
UAT	4–DEC–22	18–DEC–22	Testing tools,Test Server,Bug fixing	1
Deployment	18–DEC-22	4-JAN-23	GitHub,IIS	1

Table 3.3: Process wise resource allocation

3.5 Estimated Costing

The cost was calculated on the basis of the features the company requirement for the system. This includes design cost, development cost, deployment cost, local server cost included.

Work Distribution	Costing (Tk)
Designing	7,500
Development,Testing	70,000
Deployment	8,000
Local Server	165,000

Table 3.4: Estimated Costing

Chapter 4

Methodology

For a company, it is very important to understand the importance of analyzing the implementation of the correct system, as if there is a high chance of failure in the implementation process, which can be very costly for the company later. Usually, to deploy any system, the company must follow a specific framework and methodology. A methodology is a set of approaches, practices, processes, techniques, procedures, and standards for solving problems. They're well-defined processes that show us what to do next, why each step in the software development life cycle is vital, and how to finish a project stage. We are using an Iterative and Incremental Development Process for this project. Iterative and incremental development is a process that combines iterative design with incremental development. The incremental technique breaks the software development process down into small, achievable increments. Iterative software development refers to the technique of repeating software development processes in cycles known as iterations. Each increment builds on the preceding version, allowing for steady development. A new version of the application is developed after each iteration until the best product is determined. Iterative and incremental software development begins with planning and continues through iterative development cycles that involve ongoing user feedback and incremental feature additions, culminating in the release of completed software at the conclusion of each cycle.[2]

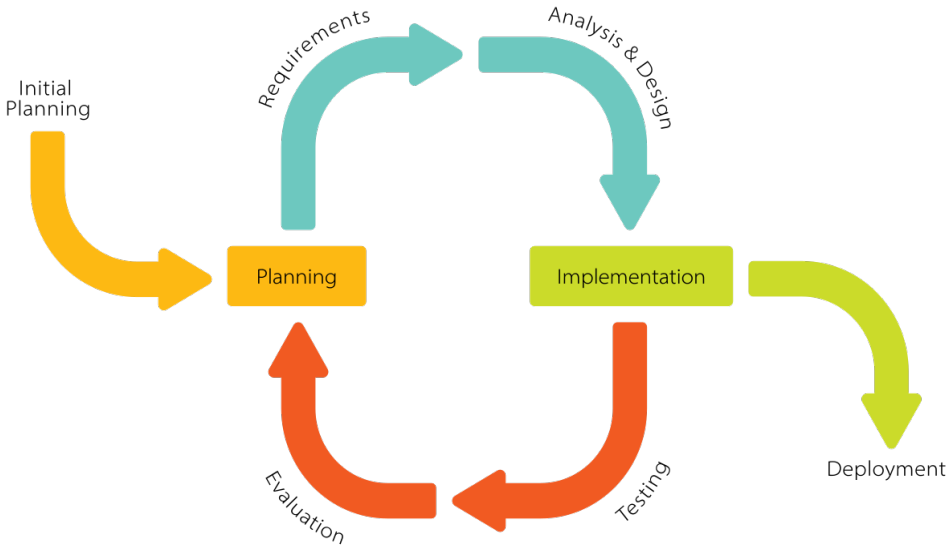


Figure 4.1: Iterative and Incremental Development Methodology

• **Planning Phase:** My organizational supervisor and I discussed the project and gathered all the requirements for the various capabilities that will be included in the web application. I'll start designing the app after I've written down and defined all of my requirements and concerns.

• **Analysis and Design Phase:** The entire application will be built using the Laravel framework, which will make all the static pages dynamic and completely functioning. As we all know, the Laravel framework is built on the MVC architecture, with a customized admin site that interacts with an SQL database, these views will be dynamic. This could be the most time-consuming phase. Furthermore, in order to preserve the application's security, we must provide sufficient authentication and authorization for all users.

• **Development Phase:** The entire application will be built using the Laravel framework, which will make all the static pages dynamic and completely functioning. As we all know, the Laravel framework is built on the MVC architecture, with a customized admin site that interacts with an SQL database, these views will be dynamic. This could be the most time-consuming phase. Furthermore, in order to preserve the application's security, we must provide sufficient authentication and authorization for all users.

•**Testing Phase:** The testing phase is an interesting one since strange bugs keep popping up. During this point, I had already taken precautionary strategies, as software might struggle to cope with large databases.

• **Evaluation Phase:**: This phase will assist us in identifying the system's short-

comings and issues from the client's perspective. The web application can be upgraded and made more sustainable after receiving feedback. From the above discussion of how to use each step of the methodology, we can see that these approaches reduce overall risk and help the project respond quickly to changes, can quickly and easily adapt to any given change, and can achieve transparency and total alignment in the development and testing phases. I've decided to finish my project using Iterative and Incremental methods.

From the above discussion of how to use each step of the methodology, we can see that these approaches reduce overall risk and help the project respond quickly to changes, can quickly and easily adapt to any given change, can achieve transparency and total alignment in the development and testing phases, delivers overall higher quality products, and creates customer satisfaction. For these reasons, I've decided to finish my project using Iterative and Incremental methods.

Chapter 5

Body of the Project

5.1 Work Description

Smart online hotel booking platform is a web-based application made which is currently being used in our life to book a hotel in faster time from any corner of the earth with desired rooms and location. Booking a hotel room becomes troublesome if it is done manually by calling the booking operator, so to avoid these situations our company's primary focus is to automate the entire task required to book a room. The booking application has two types of users mainly customers and admin.

Furthermore, the work is mainly related to the research, design, and deployment phases. At first, I was assigned to do requirements analysis where I did research on other similar web applications and their functionalities, following which I did technical documentation of system analysis and design process of the system which contained use case, etc. Which allowed me to proceed to development under the supervision of my external supervisor to implement the design. At this moment we are developing the web application. The resources that I used for requirement analysis are, monitoring manual processes and asking my external supervisor about their requirement for designing, I used excel, lucid chart, and MS Visio. Also, for web development, we used Html, CSS, and Bootstrap for the front end, and for the back- end we used the Laravel framework lastly for the database we used SQL. Finally, the web application will be deployed.

5.2 Requirement Analysis

5.2.1 Rich Picture

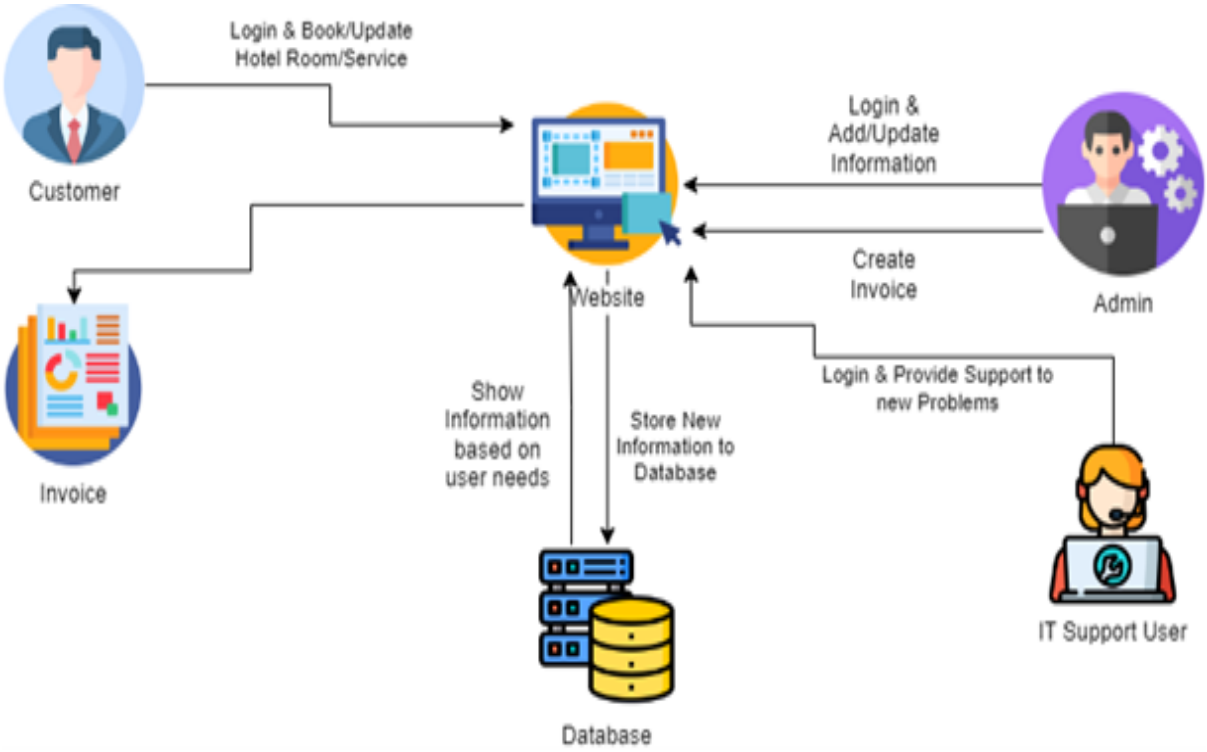


Figure 5.1: Rich Picture

5.2.2 Functional and Non-Functional Requirements

Functional requirements are product features that developers must implement to enable users to accomplish their tasks. A 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. The functional and non-functional requirements of this system are stated below.

Functional Requirements:

1. The authentication system validates the entered user's name, email, and unique password upon receiving the information and logs the user into the app by creating an account. The system will review if the inputted ID and password

exist in the system or not/ the system will show a message if the password is incorrect.

2. The system will show a message if the ID is not found in the system's database.
3. The customer will be able to book a hotel room with his room by selecting a date and time.
4. Customer views room details given by the authority in the dashboard.
5. Customer updates profile.
6. Admin approved and updated the customer information.
7. Admin checks booking details of customers on a particular date and time.
8. Admin creates service, update and delete them.
9. Admins will be able to add, edit, view, or remove any information in the system.
10. Admin update vacant room details for a particular date.
11. Admin checks how many customers have made booking on a particular date by filtering through the date.
12. Admin check invoice to individual customers.
13. Admin check payment of individual customers.

Non-functional requirements

1. Usability: The system is going to be user-friendly and aesthetically pleasing for the users.
2. Maintenance: This system/app is going to be maintained 2 times in a year, it runs smoothly and does not get slow or lag. Any bugs or problems can be fixed easily.
3. Valid data: All the information being updated in the system must be accurate and consistent for the users to take.
4. Scalability: The system can be accessed from any device like Computers, Smartphones. Apps for smartphones and an aesthetically similar web App for computers are developed.
5. Performance: Performance should always be smooth and easy to understand, such as searching and browsing for officers, submitting information, and many more. These should leave a positive experience for users.

6. Service: Customers can use the system from all around the world.
7. Reliability: The system will be backed-up for safety reasons and will not hamper data during this process.
8. Control: As the system is initialized by the government, privacy will be maintained strictly. It will be completely secured and will be checked by the developer's time to time for any sort of irregularity.
9. Security: The system will be secured and personal information like the user's phone number, the email address will be safe.

5.3 System Analysis

5.3.1 Six Element Analysis

Process	System roles					
	Human	Non-Computer Hardware	Computing Hardware	Software	Database	Communication and Network
Login	All User	N/A	Computer	Browser	SQL	Internet
Book Hotel suits	Customer	N/A	Computer	Browser	SQL	Internet
View Booking Details	Customer	N/A	Computer	Browser	SQL	Internet
Add Cart	Customer	N/A	Computer	Browser	SQL	Internet
Create Vacant room details	Admin	N/A	Computer	Browser	SQL	Internet
Create/edit admin id	Admin	N/A	Computer	Browser	SQL	Internet
Add/edit/ remove Service	Admin	N/A	Computer	Browser	SQL	WAN/LAN

Table 5.1: Six Element Analysis of Project

5.3.2 Feasibility Analysis

A feasibility analysis evaluates the projects potential success. It helps to conclude whether the project is worth the investment and time or not. So, we need to do a feasibility analysis after obtaining all the necessary information and before the beginning of the development phase, which will take the most time. i.e., a measurement for evaluating a software product in terms of how practical product development will be for the company. Feasibility studies are carried out for a variety of reasons, including establishing whether a software product is suitable in terms of development, implementation, and project value to the company. The factors we need to consider for the feasibility study are:

• **Needs Assessment:** As the word is self-explanatory, at first, we analyze and extract the faults that the previous manual system had and understand the goals the of the migration. Later, we research on solutions our web application provides to the problems and will it allow future flexible changes, and hence as requirements are met and web application is capable to support all needs, we conclude that there is a need of the web application and move ahead to next step of the procedure. Then, we need to analyze the bank customers need and check if satisfies the customer needs and if all goes well, we execute them in live environment.

• **Technical Assessment:** This is one of the most important where necessary tools and technical support required for an organization to migrate to the new system is analyzed. At first, we neproject'sderstand whether the web application will be hosted in the cloud or physical server. Also, we check the infrastructure specifications for hosting the application. So, as we have the professionals for development phase of project, they need to ensure that the web application can perform all functionalities required to solve problems and provide better customer service. Also, since the team has all the required hardware and software needed to develop this system it is technically whether feasible.

All these assessments allow us to evaluate that the web application is feasible and a good investment considering the current scenario and future advancements.

5.3.3 Problem Solution Analysis

While developing the system using established tools and techniques helps us to improve our approach to solving the problems that our are facing. There are four

basic steps in solving a problem:

1. Defining the Problem.
2. Generating alternatives.
3. Evaluating and Selecting alternatives.
4. Implementing Solutions.

There were a number of problems that were encountered while completing the project and they were solved accordingly with those four steps. Some of the problems were:-

- Update room details
- Adding payment method
- Approve New User Account
- Status Update

5.3.4 Effect and Constraints Analysis

The smart online hotel booking platform for healthcare organizations helps both the tourist industry and customers to have a better experience and overcome many drawbacks that previously were not accessible. It allows the automation of processes and access to information on many problems through its database. This basically automates the processes to book a room in the hotel, so that processes become more efficient and reliable. It will provide better customer satisfaction solution and experience at an easy few click away. As we know, reliability, comfort and flexibility are offered for this web application allowing many troublesome factors to be dismissed. Also, as it is in cloud when many users access the server at once which results in huge server miss rather than hits, by use of cloud's auto-load balancing feature we can set policies such as if the server requests cross the server request handling limit then scale up the package and open another server for time being which reduces the chances of server breaking down due to overload of requests and allows users to have smooth experience. But also, the system still has limitations which need modifications for further development. There are many modules that are needed but not considered hence, we are still thriving to bring out more changes and add more features/modules to our web application that would bring solutions to many issues and, encourage more and more people to use this web app.

5.4 System Design

5.4.1 UML Diagrams

The activity diagram is an important UML diagram that shows the row of one activity to another. The activity diagram of the user and admin help to visualize the row of their activity in graphical form.

Use-case Diagram:

The use case diagram represents the functional requirements of the system. It shows the actors, cases, communication links, system and relationship.

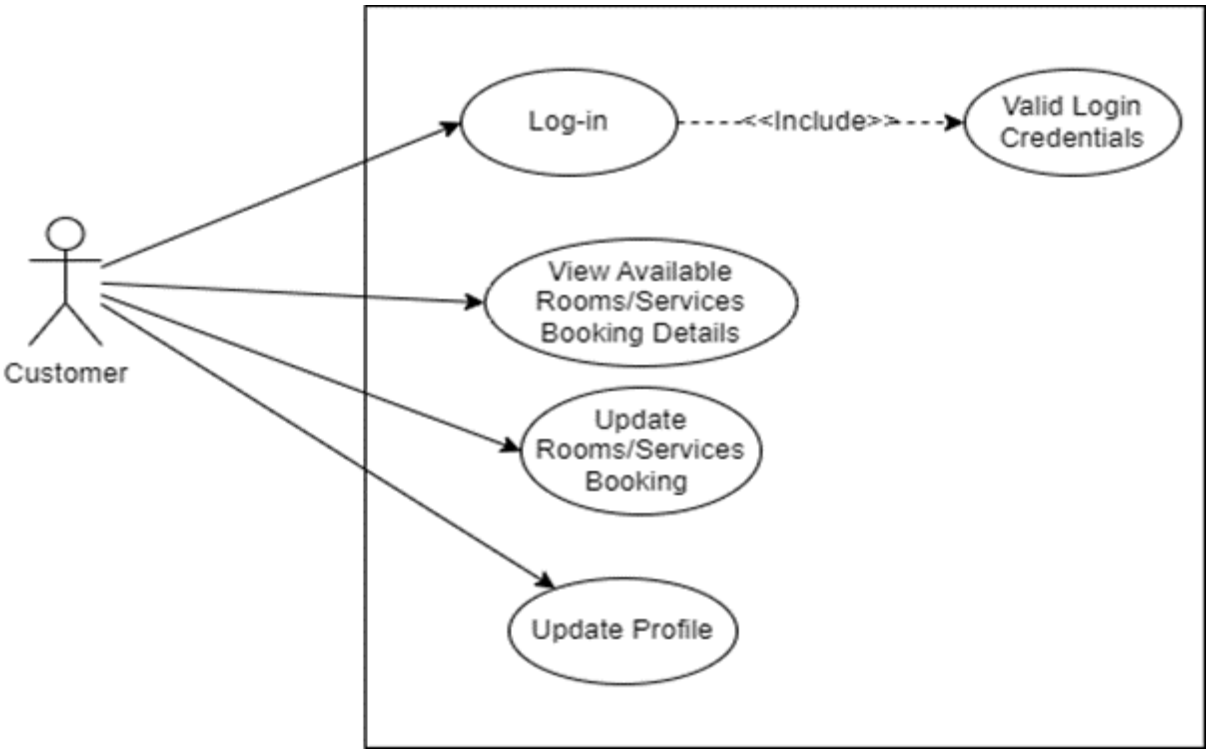


Figure 5.2: Use case diagram for customer

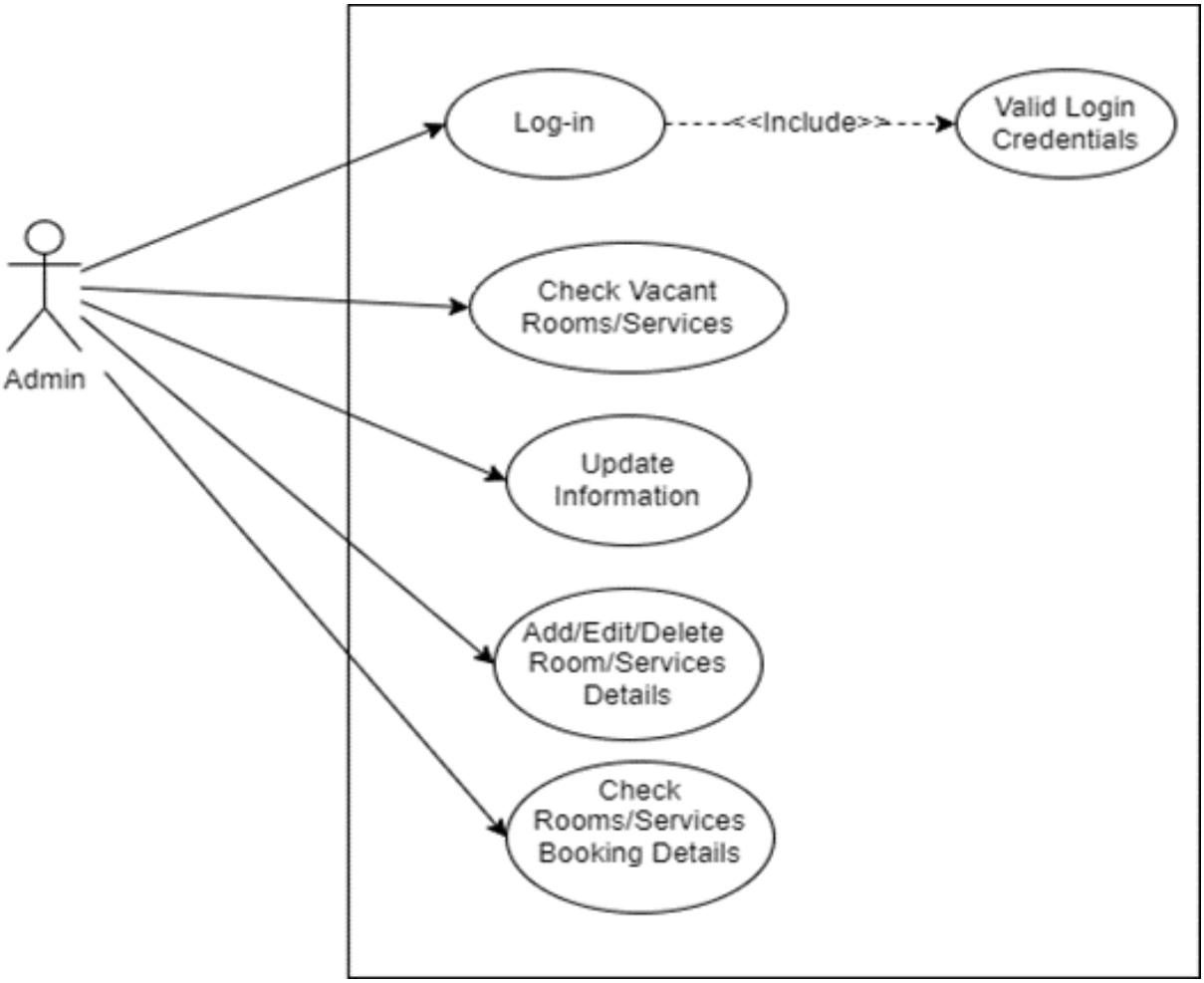


Figure 5.3: Use case diagram for Admin

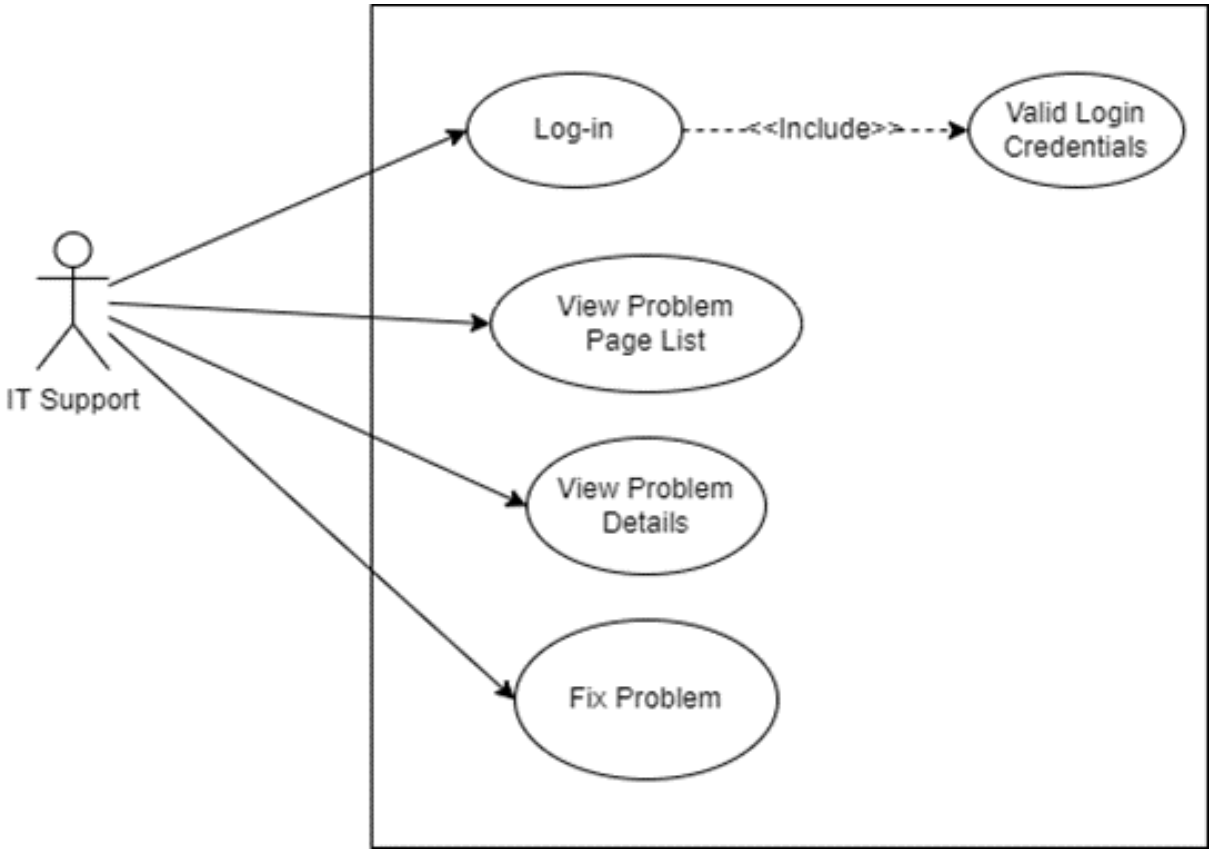


Figure 5.4: Use case diagram for It Support

Activity Diagram:

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration, and concurrency. In UML, activity diagrams are intended to model both computational and organizational processes (i.e., workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.

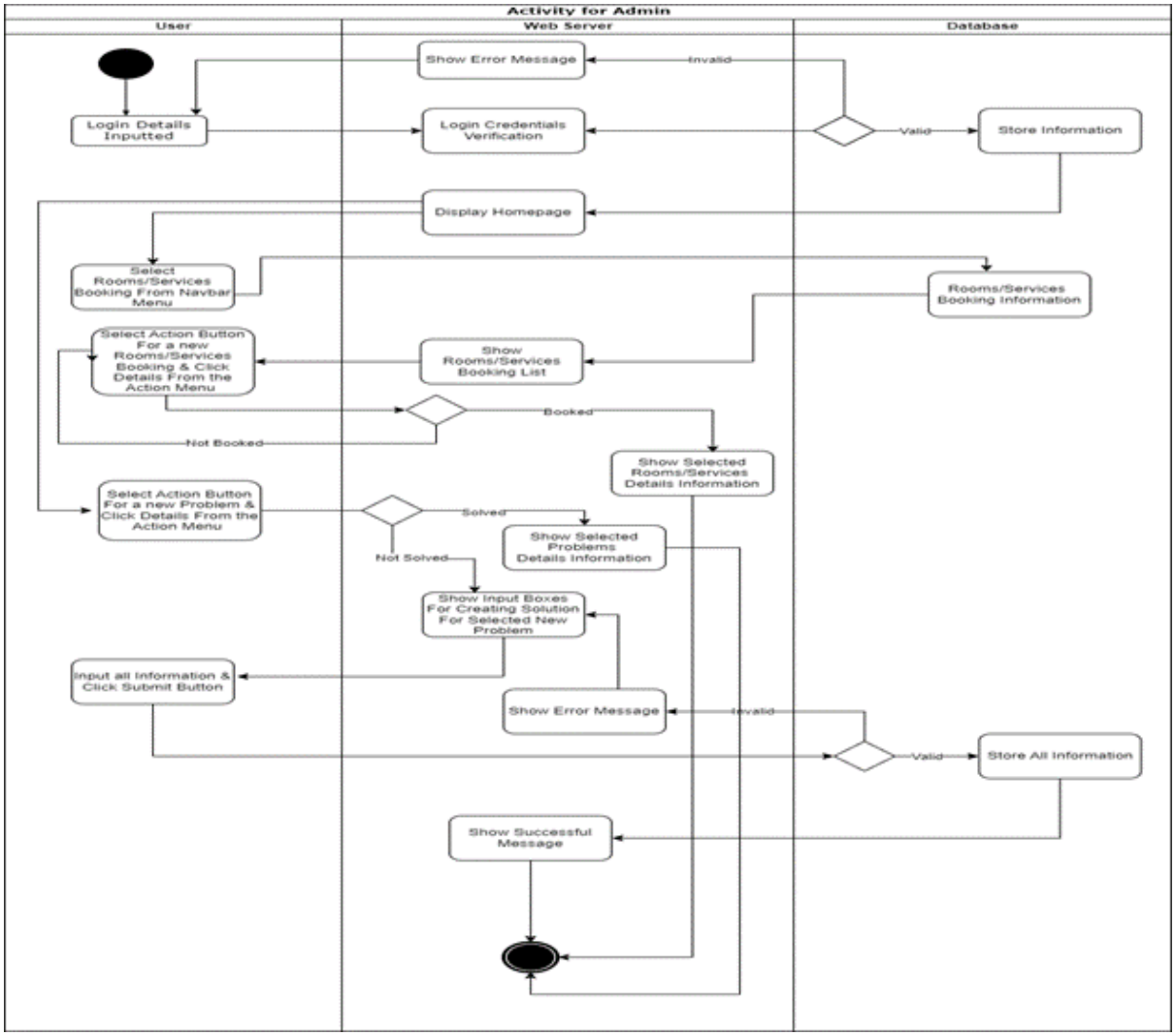


Figure 5.5: Activity diagram for booking room/ service for admin

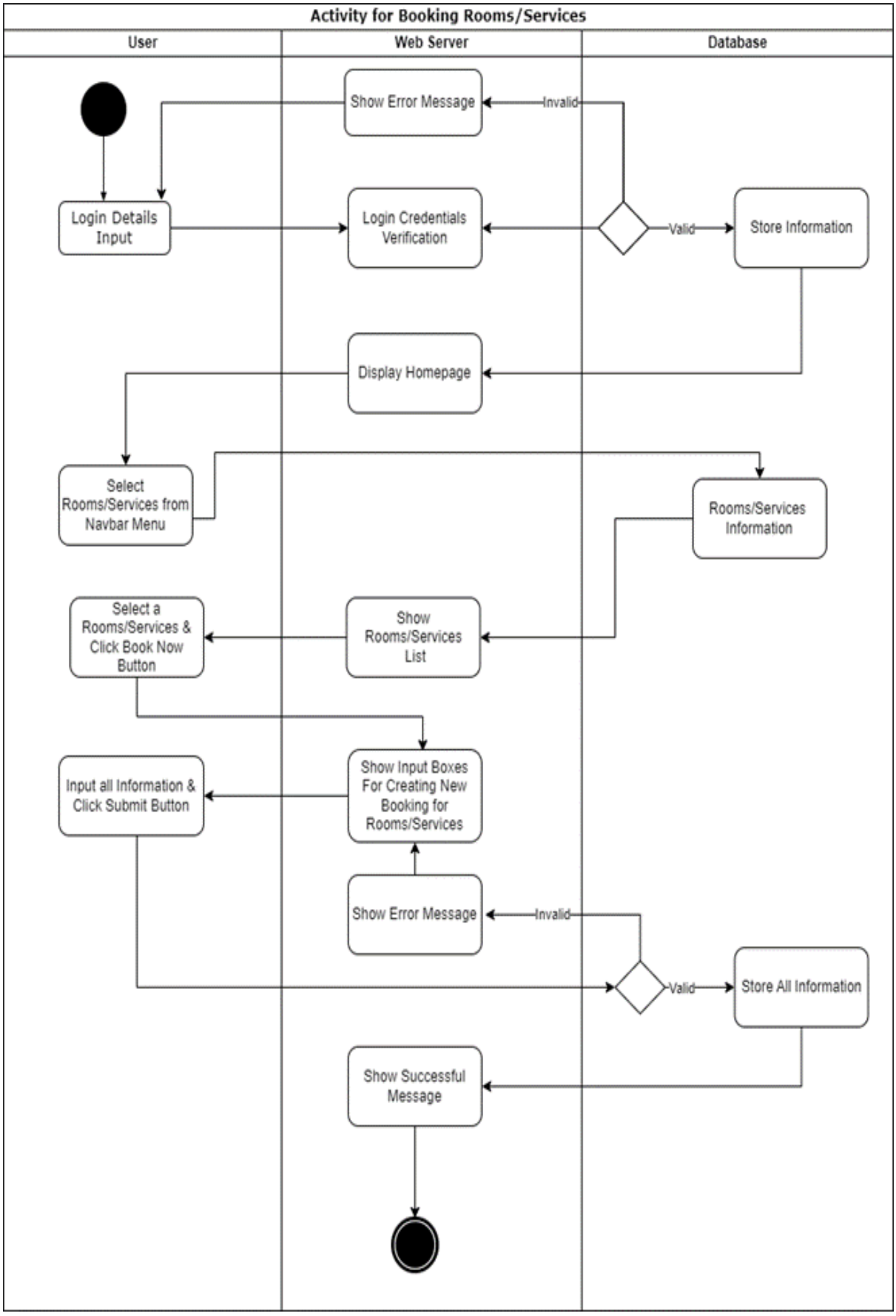


Figure 5.6: Activity diagram for booking room/service for customers

5.4.2 Architecture

There are different types of architecture used in various systems. In our ITSM system we used this architecture.



Figure 5.7: System Architecture

There are different types of architecture used in various systems. In our system, we used this architecture. As we can see, the diagram displays the overview of the website architecture. It can be evaluated from here that the whole process in web application can be understood. As you can see the user access the web browser and views the website and these packets are sent to the server via internet and then these requests are forwarded to database server for fetching or storing data as per credentials. The database we are utilizing is My-SQL which receives request of users from web servers, validates and responds to it. accordingly. The SQL back-end is connected to aserverscient front-end UI that is HTML, CSS, Bootstrap based for good client experience.

5.5 Implementation

Business Modelling

Understanding the market demands and competition whilst improvising to better technological advancements is a must, which is why we first build a business model keeping resources and requirements in mind to build a sustainable platform that provides solutions to hospitality industries.

Solution Design

We need to address the problems of the hospitality industries currently and provide efficient and affordable solutions for successful implementation which ensures reliability and durability.

Gathering the Requirements

Gathering requirements is one of the most vital steps for hospitality industries implementation as the ERP team takes care of workflow, specifications, and design interface which affect the outcome of the software. After verification is done, we move to the next step.

Cloud Deployment

Finally, we deploy the system in a cloud infrastructure availing all the services it has to offer like payment, data backup, data retention, virtualization, etc. the web server is connected to bypass a secured IP address. The software then runs on a cloud server (VM) and to ensure data integrity we migrate data into the SQL database.

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5.6 Testing

Here I have included all the features a customer will receive from this project. My main task will be booking hotel rooms and locations which I need to complete with the Laravel framework. All these pages are responsive and can be used from any device. From our client requirement analysis, the requirement of the front end was pretty simple, the client wanted simple white background with black-colored articles so that the customer can see it clearly. I took screenshots of all the pages, and I have included those below.

5.6.1 Input

Home Page

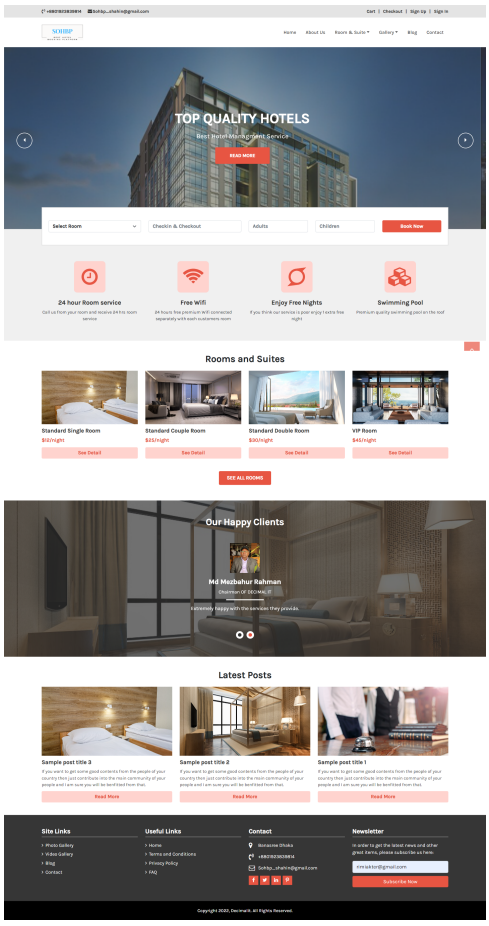


Figure 5.8: Home Page

Admin Login Page

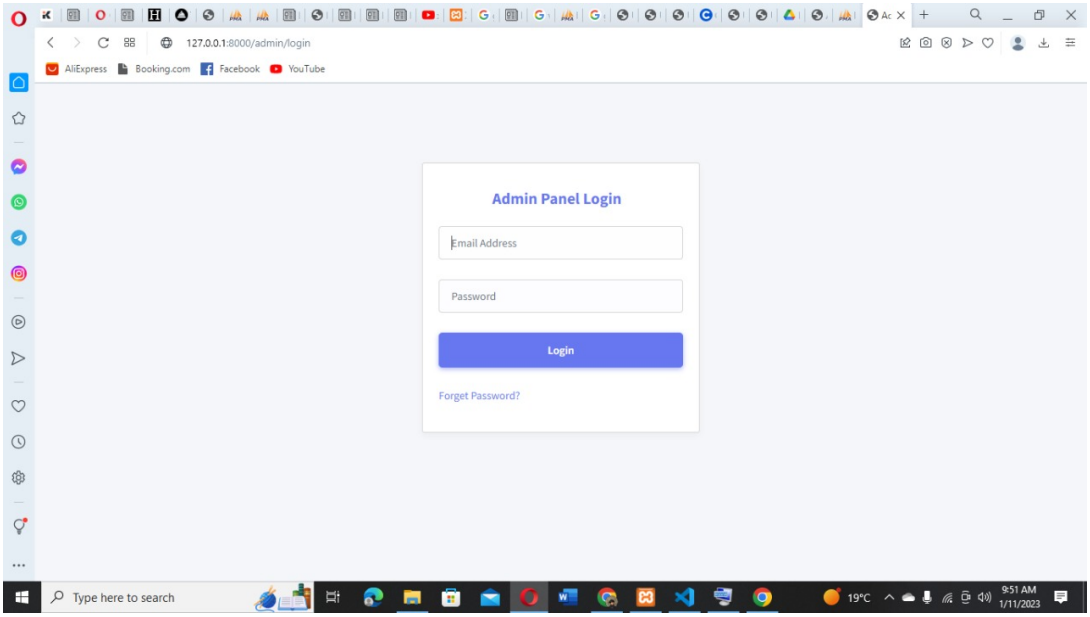


Figure 5.9: Admin Login Page

Customer Login Page

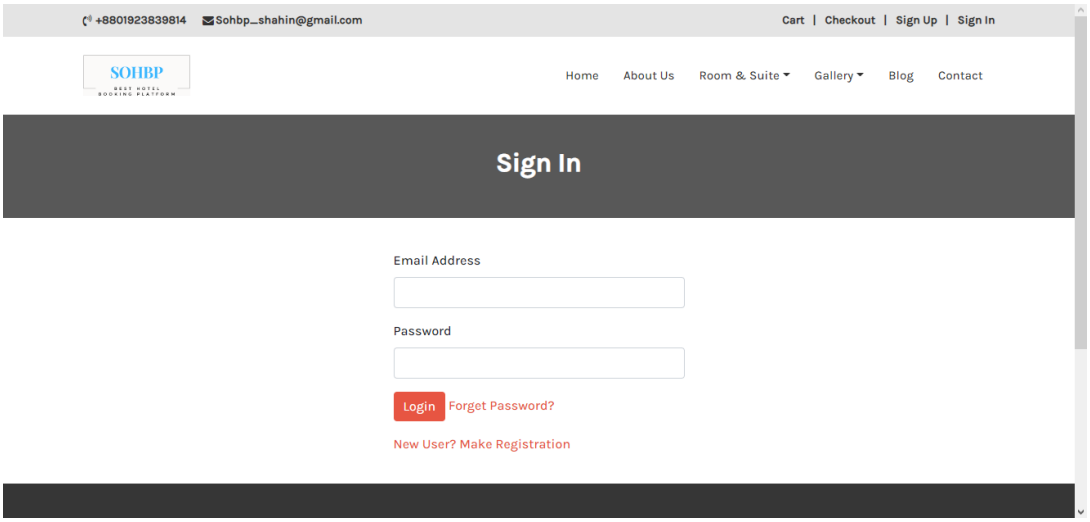


Figure 5.10: Customer Login Page

Customer Account Create Page

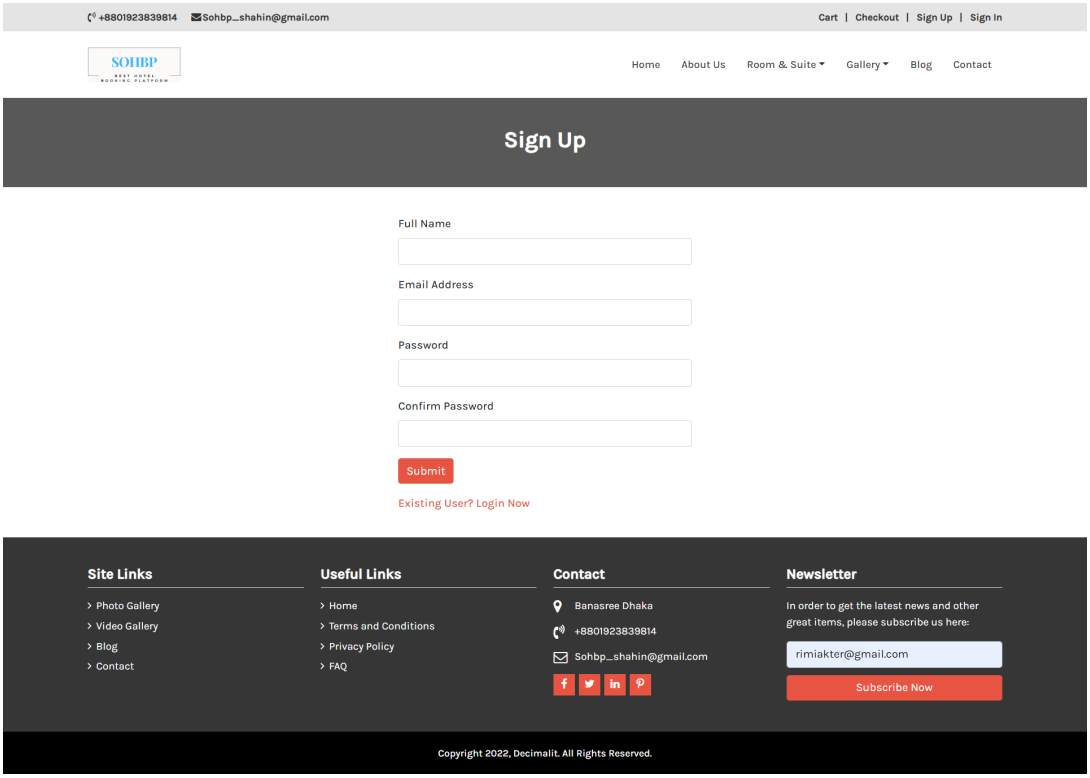


Figure 5.11: Customer Account Create Page

5.6.2 Output

Admin Perspective

Admin Dashboard

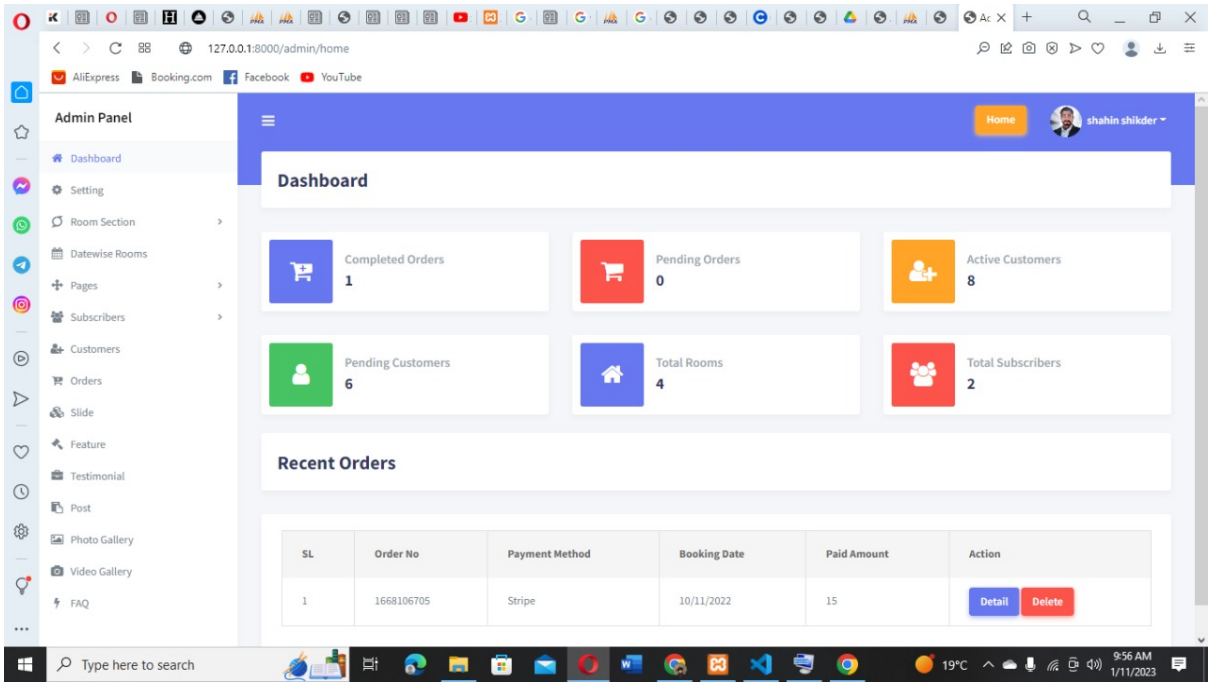


Figure 5.12: Admin Dashboard

Subscriber List Page

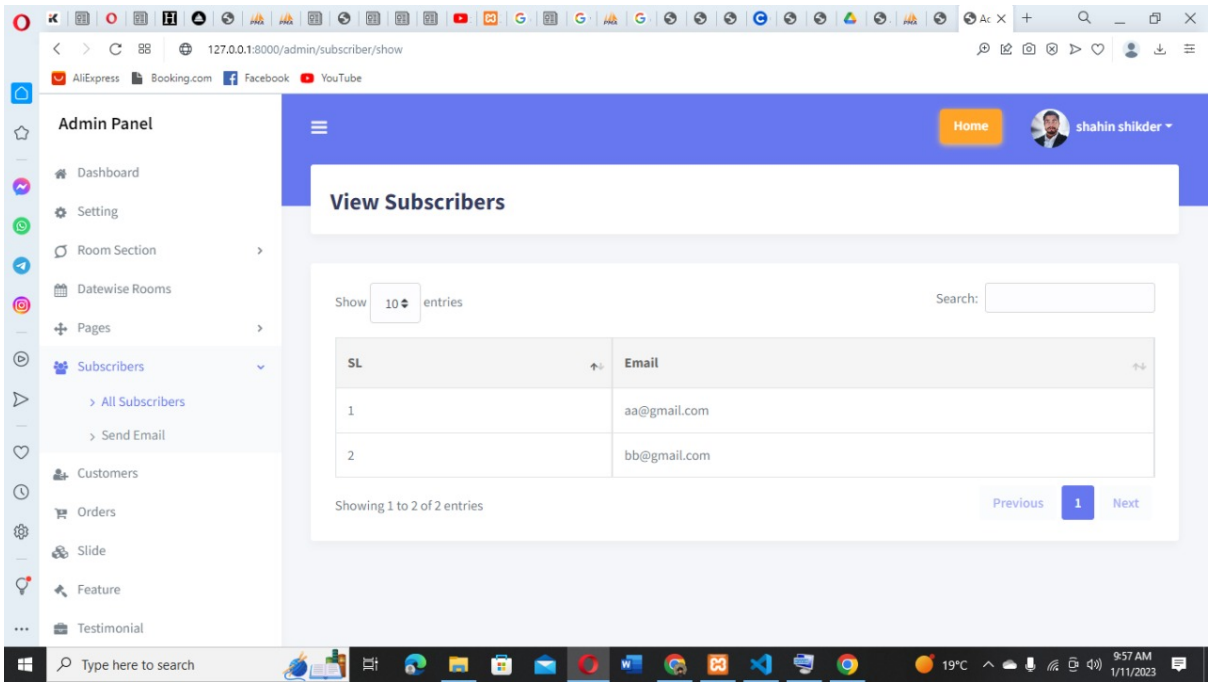


Figure 5.13: Subscriber List Page

Customer List Page

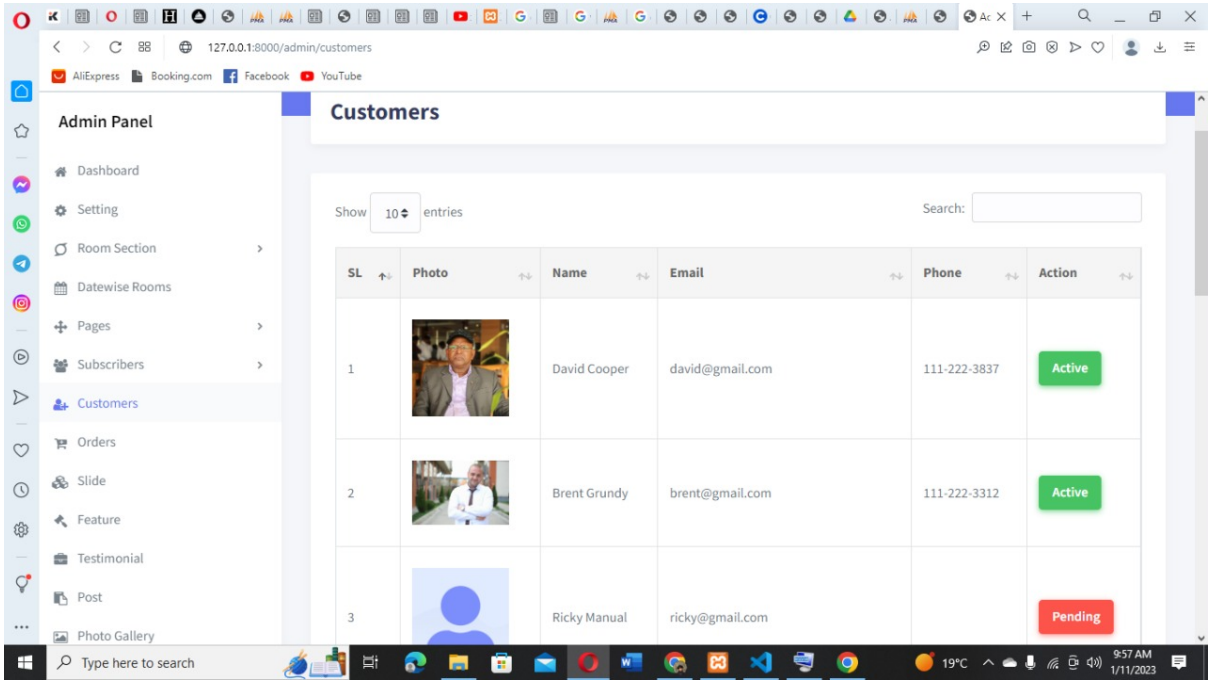


Figure 5.14: Customer List Page

Customer Order List Page

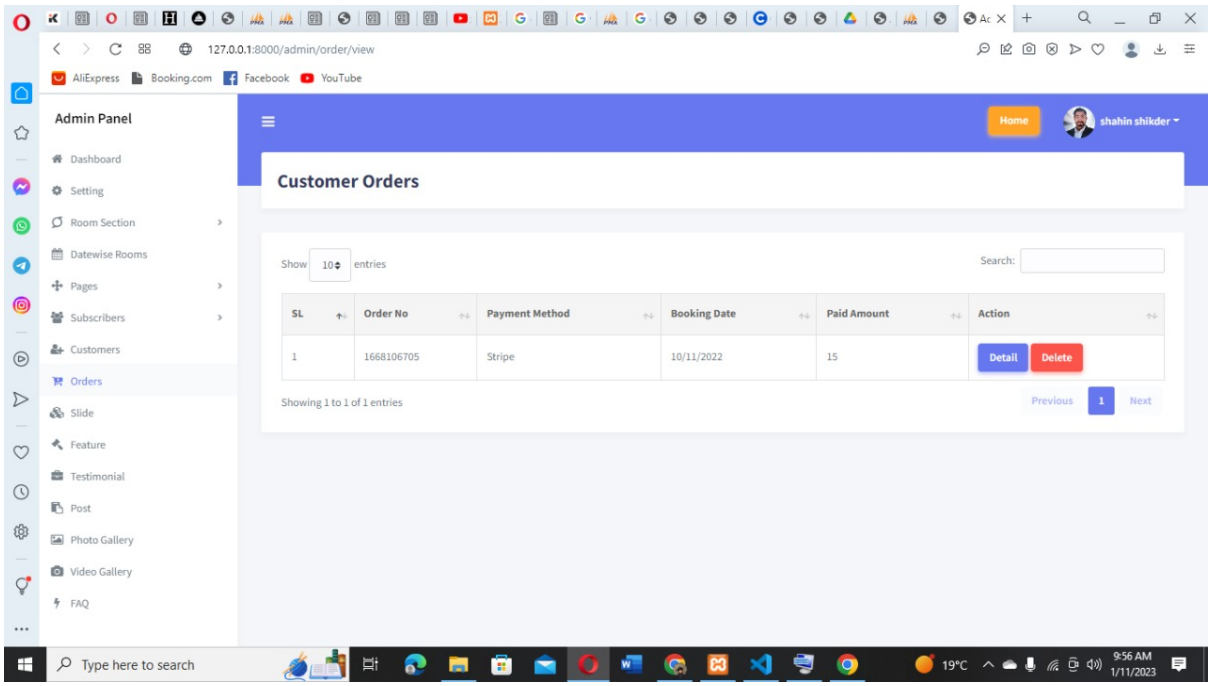


Figure 5.15: Customer Order List Page

Room List Page

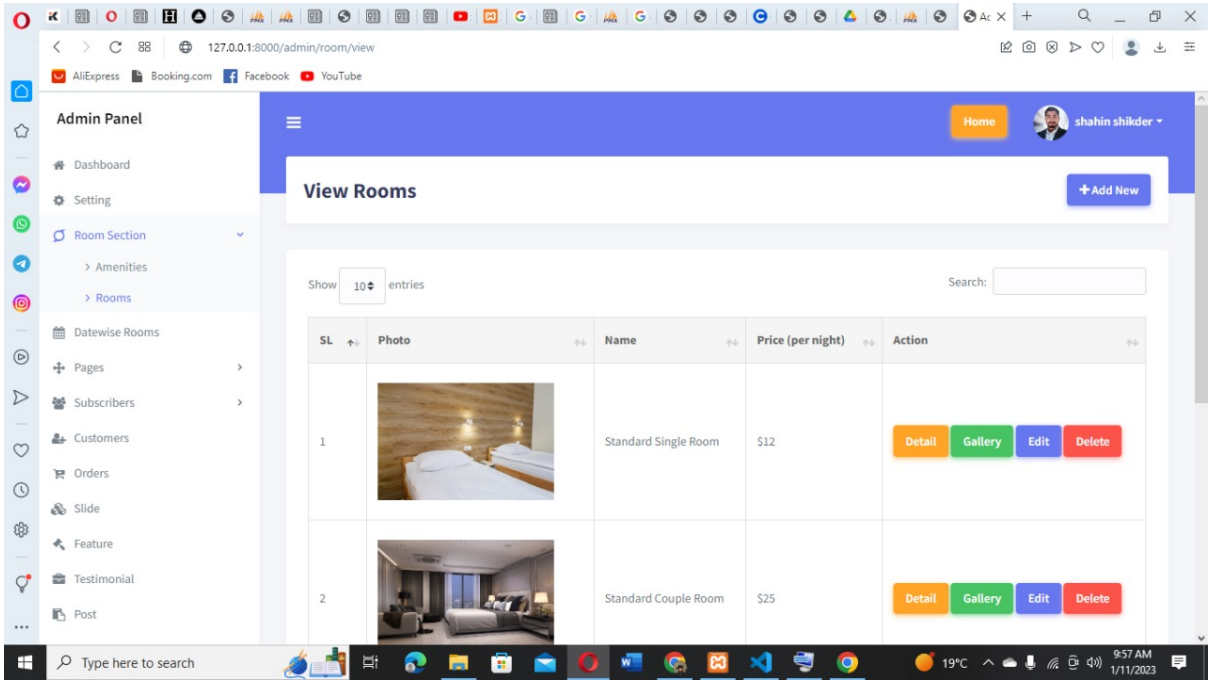


Figure 5.16: Room List Page

Customer Perspective

Customer Dashboard Page

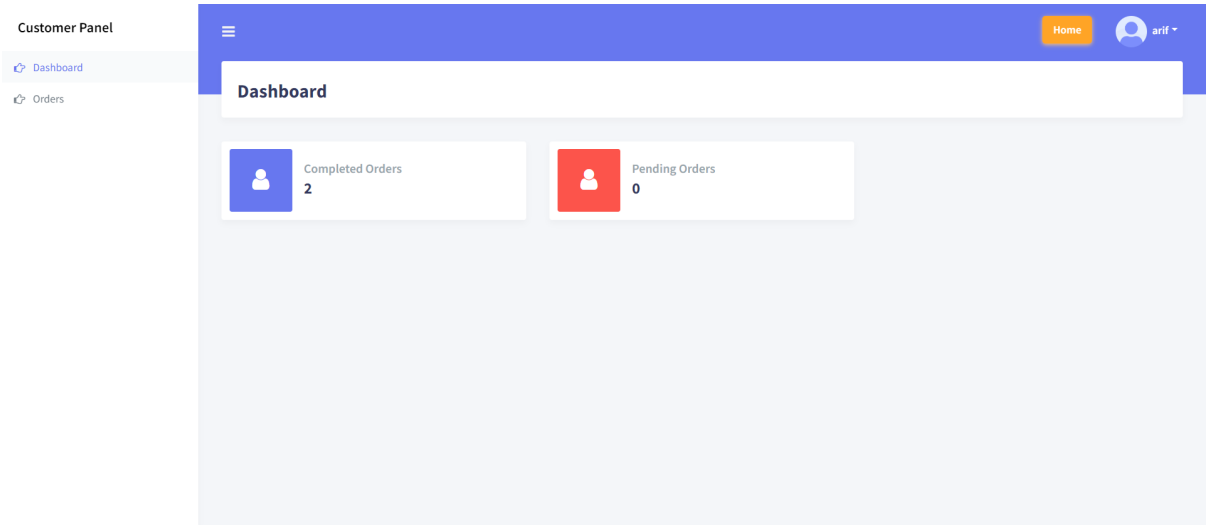


Figure 5.17: Customer Dashboard Page

Customer Order Page

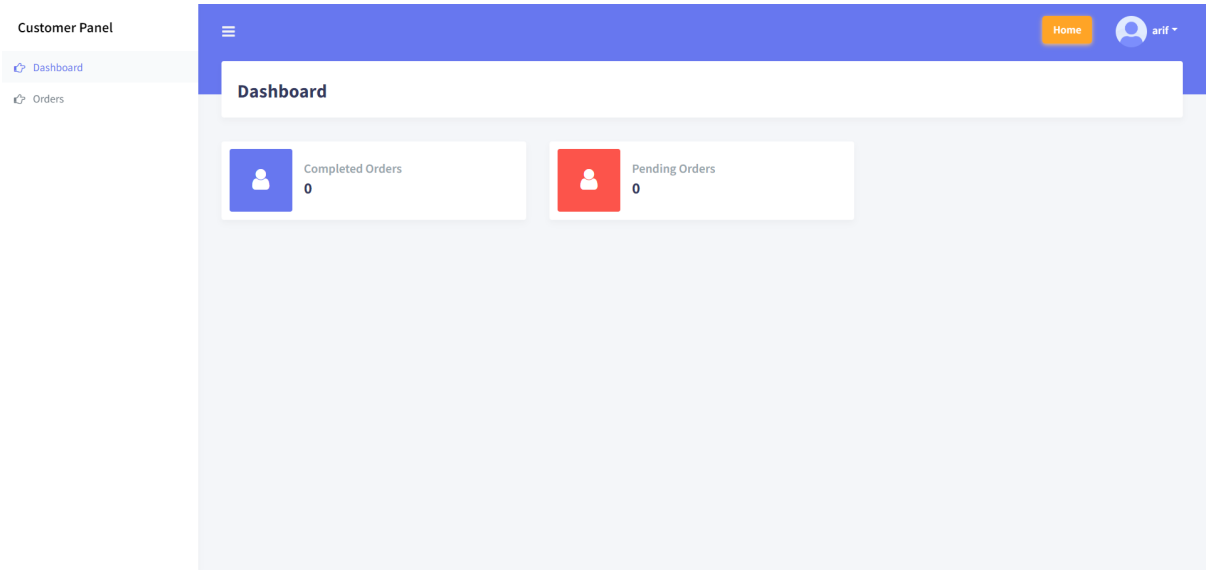


Figure 5.18: Customer Order Page

Customer Payment Details Page

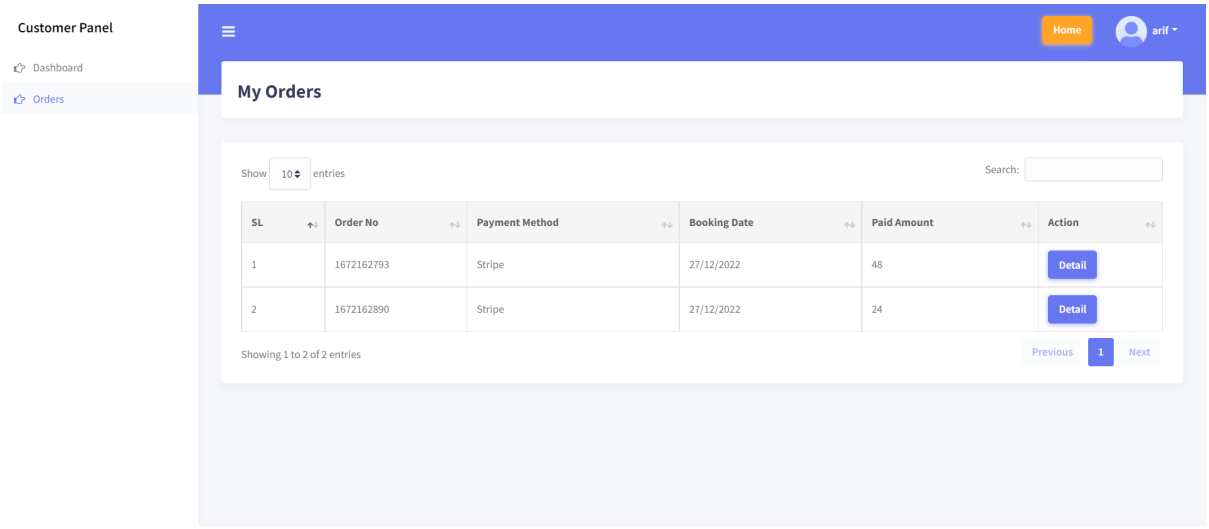


Figure 5.19: Customer Payment Details Page

5.6.3 Design test case and result

Sl	Test Case Id	Test Case Title	Pre-condition/Test data	Test Steps	Excepted Result	Actual result	Test Case Status	Data used/input data	Comments
1	2201	Login	1. The user should be registered to system. 2. The user should be verified.	1.Go to website. 2. Click on the "Login" Button. 3. Enter the registered and verified email and password and click on "Login" button . 4.Upon clicking the 'Login ' button it should allow the user to log in to system with given permission .	Log in with given permission.	Not allowing to log in , showing a message " Password Incorrect "	Fail	1. basicuser@gmail.com 2. 123Pa$$word	N/A
2	2202	New User Create	1. New User all inforamtion.	1.Go to website. 2. Enter the registered and verified email and password and click on "Login" button . 3. Click User List from Navbar Menu. 4. Click Create New Account Button. 5. Enter All information related to the user.	New User Account Created.	Create New User account, showing a message "Successfully Created "	Pass	All Information that are needed.	N/A
3	2203	Problem Create	1. The user should be registered to system. 2. The user should be verified. 3. New Problem Information.	1.Go to website. 2. Enter the registered and verified email and password and click on "Login" button . 3. Click Problem List from Navbar Menu. 4. Clcik Create New Problem Button. 5. Enter All information related to the problem.	New Problem Created.	Create New Problem, showing a message "Successfully Created "	Pass	All Information that are needed.	N/A
4	2204	Solution Create	1. The user should be registered to system. 2. The user should be verified. 3. Solution Information.	1.Go to website. 2. Enter the registered and verified email and password and click on "Login" button . 3. Click Problem List from Navbar Menu. 4. Click Details from new problem Action Menu. 5. Click Create Solution. Button form Problem Details Page. 5. Enter All information related to the Solution.	Solution Created.	Create Solution, showing a message "Successfully Created "	Pass	All Information that are needed.	N/A
5	2205	Order Create	1. The user should be registered to system. 2. The user should be verified. 3. New Order Information.	1.Go to website. 2. Enter the registered and verified email and password and click on "Login" button . 3. Click Order List from Navbar Menu. 4. Click Create New Order Button. 5. Enter All information related to the new Order.	New Order Created.	Create New Order, showing a message "Successfully Created "	Pass	All Information that are needed.	N/A

Figure 5.20: Test Case Results

Chapter 6

Results & Analysis

Our client Previously used a manual system for providing service to their client which was very difficult to work on. So, our team automated this Smart Online Hotel Booking Platform using Laravel framework.

This chapter contains the necessary screenshots of the Smart Online Hotel Booking Platform web application with an analysis of what functionalities it performs. This web application focuses on providing service for customers who face difficulties to book desired hotel rooms/suits and lack access to information related to the locations of the hotel and its service. It solves the hassle of physical searching and gives access to vast information related to hotels and its service which are necessary for many citizens to have access to, that helps them to have a better customer experience and automates processes. Also, the cloud will allow admin to operate much more efficiently and will come in handy in terms of utilization and cost savings.

Below is the UI of the web application with analysis and you will get to see the detailed look of results and the steps followed by the Smart Online Hotel Booking Platform:

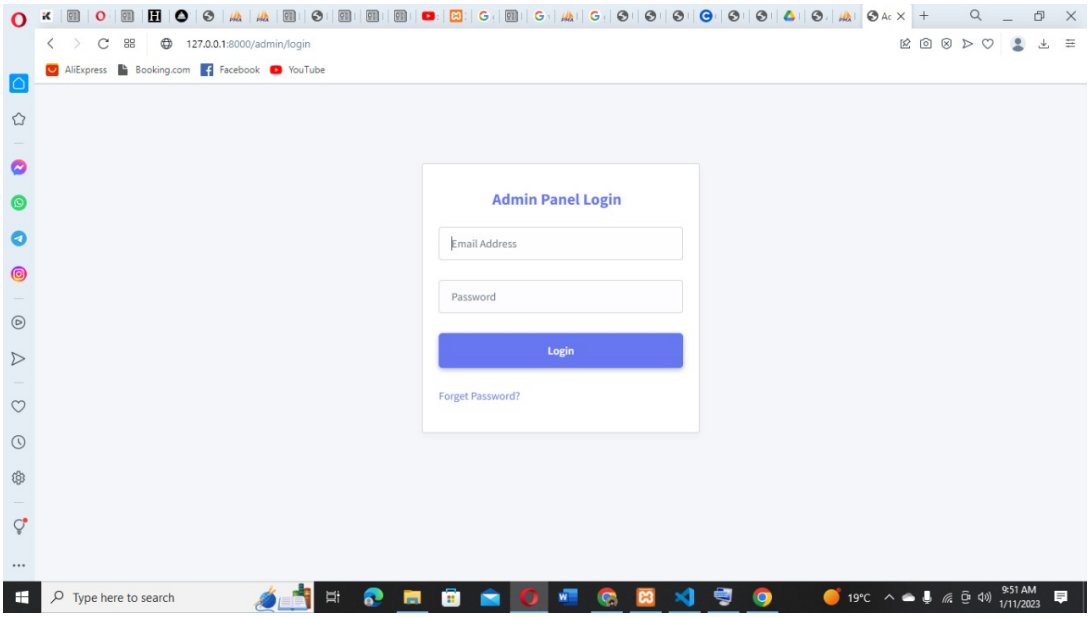


Figure 6.1: Login Page

Here, the admin logs into the website by using his/her email and password.

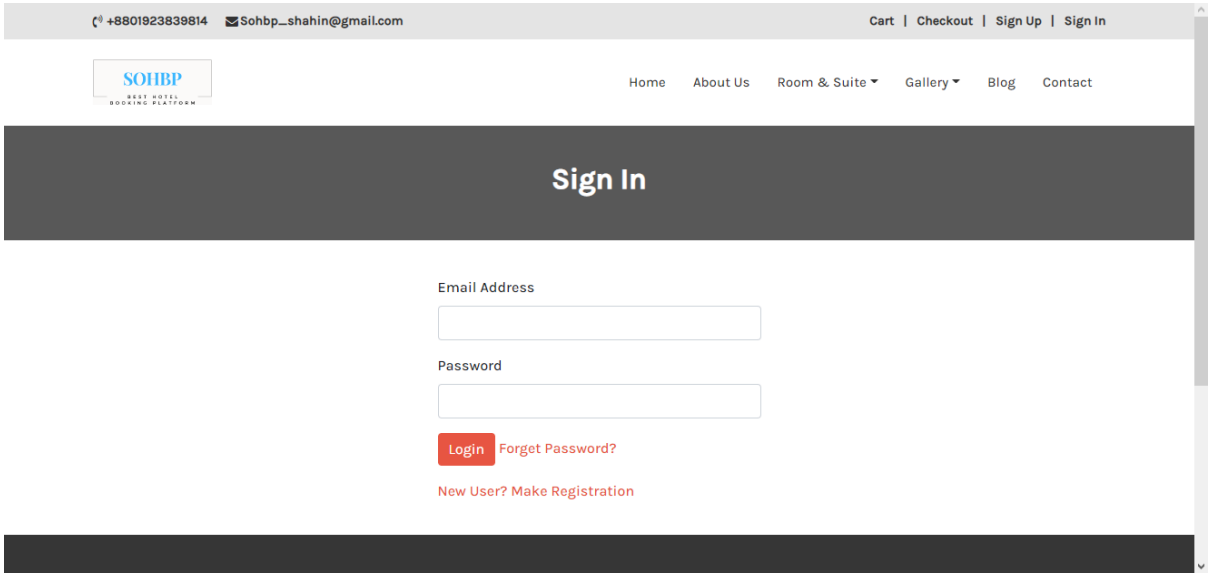


Figure 6.2: Home Page for customer

From Here, the customer logs into the website by using his/her email and password.

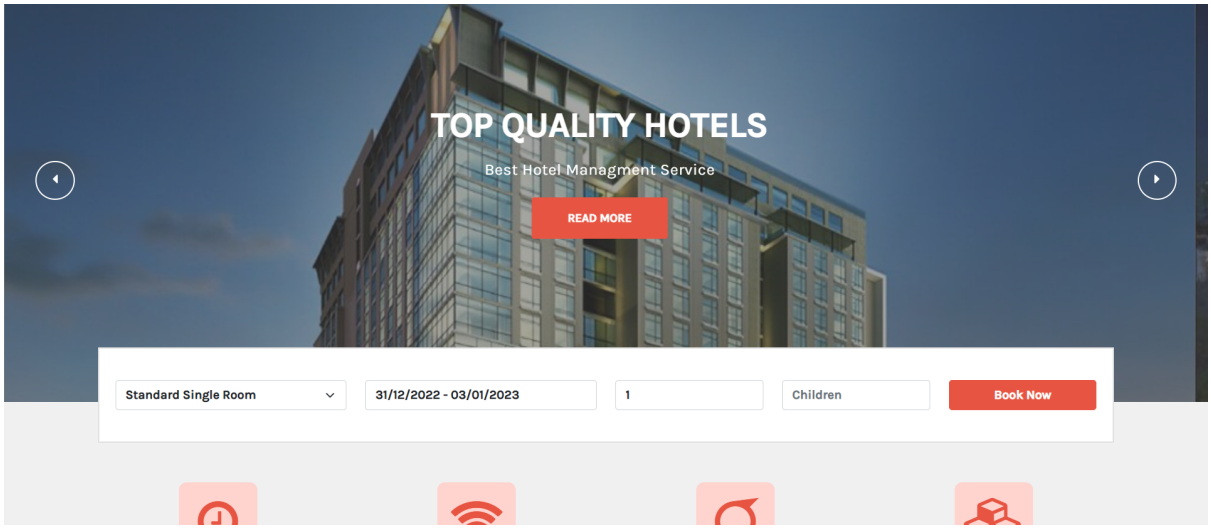


Figure 6.3: Booking Page for Customer

Here the customer can book their desired room/suite by adding their check-in/check-out date and selecting how many adults/children will come with him.

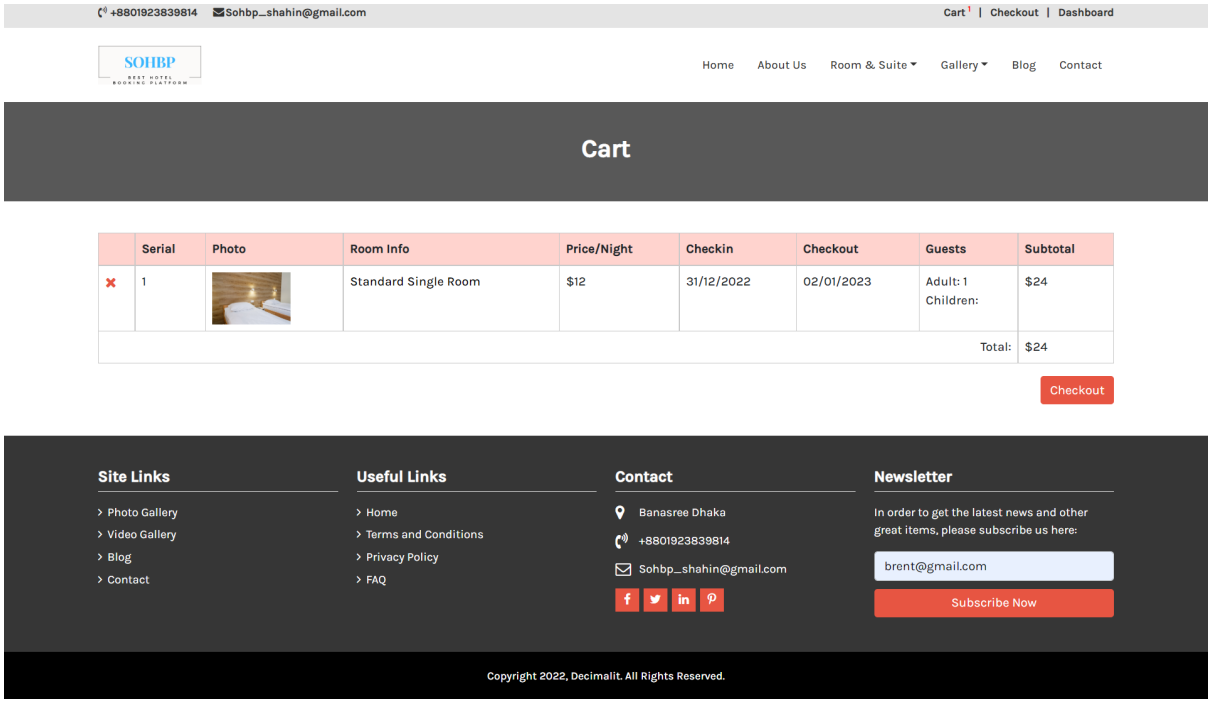


Figure 6.4: Cart Page for Customer

Here the customer can check the cart and re-check their booking details before clicking checkout for payment.

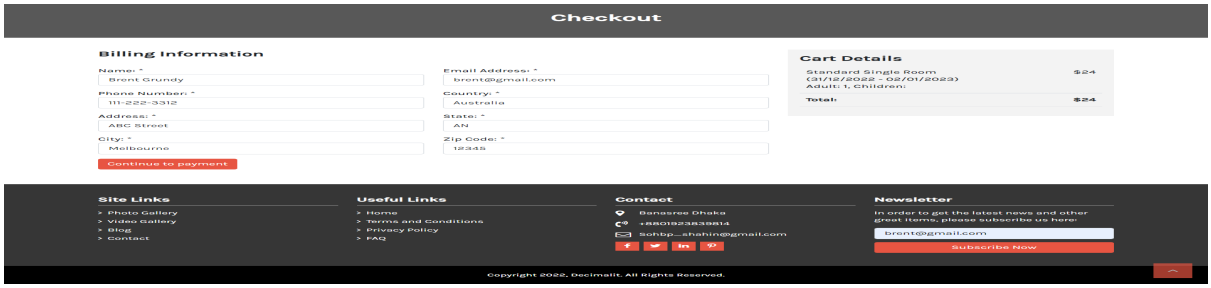


Figure 6.5: Billing Information Page

Here the customer checks their billing details before they press continue to payment.

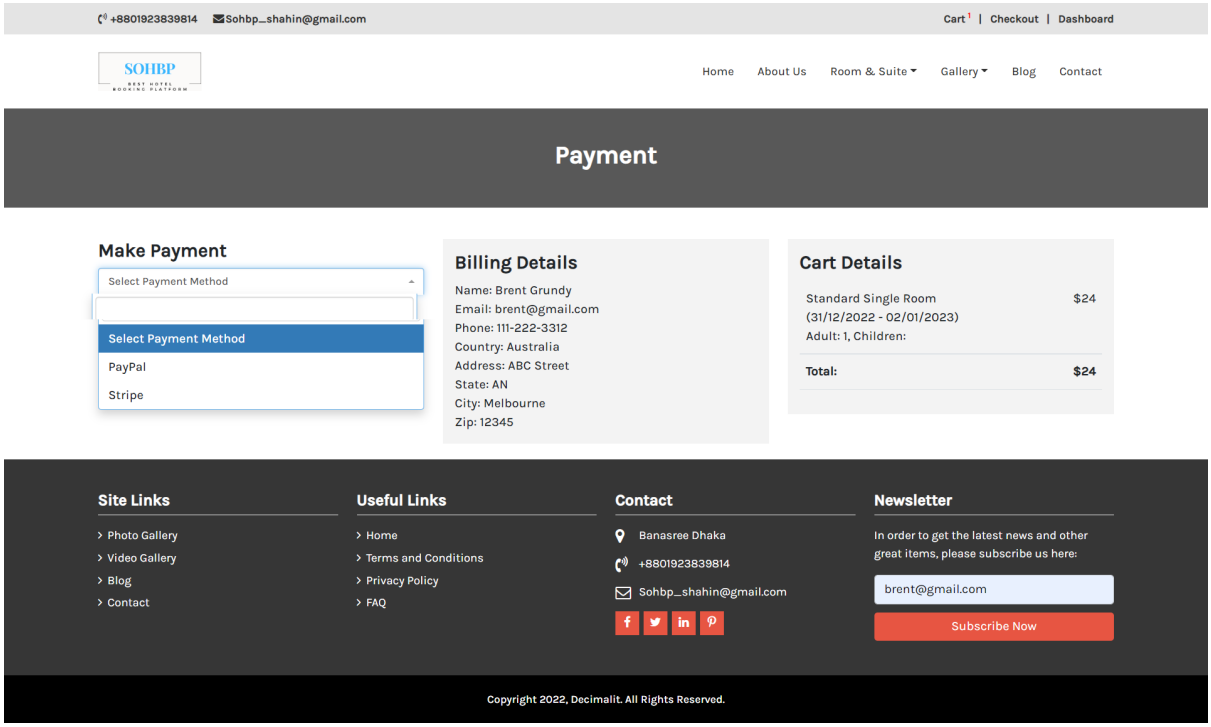


Figure 6.6: Payment Method Page

after pressing continue to payment customer will select which method they will use for payment.

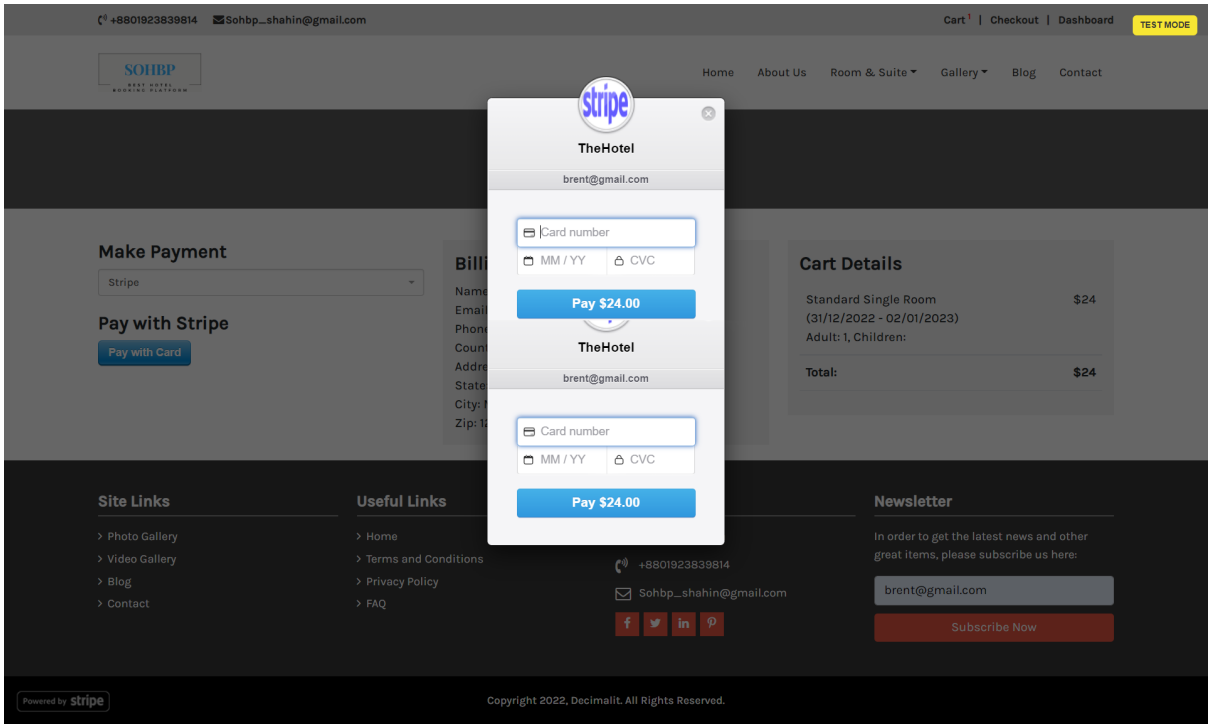


Figure 6.7: Payment Page

Now, customers will pay their bills by giving payment info to the online payment method.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

First and foremost, we must define sustainability in the context of the project. In general, sustainability involves a number of considerations, including economic, social, environmental, and administrative perspectives, all of which highlight the project's cost, value to society, reduced waste, and increased efficiency and resource usage goals. When constructing a project's sustainability, these factors are taken into consideration.

So, why is sustainability such a crucial component of the project? because it helps us to have faith and confidence that the project will provide a beneficial result for a set length of time and will prove to be a worthwhile investment that will generate enough profit and benefits to cover the expenditures of the project. Sustainability also includes maintaining and upgrading the system as needed. [3]

As we have seen the project is sustainable as it provides important and vital service to employees who can post their IT-related problems and get solutions from the IT support team quickly which will be very helpful. There will be vast data, and this allows society to adapt to new changes and utilize the web application to store data in a much more efficient and automated way rather than wasting paper when everything was manual. The stakeholders such as the customer will be more benefited from this web application. The web app is user-friendly and easy to navigate through and as the admin has access rights to all information handling in the database there is no sight of issues to be faced.

The advantage of this web application is it is a unique web application that offers an easier and more convenient process flow which saves time. Also, the maintenance as it is under observation if there are bugs found they will be fixed immediately allowing the system sustainability to increase. Moreover, the web application will be updated twice a year according to the requirements of the clients needs. All the bugs and problems will regularly be updated. All these aspects offer a sustainable ITSM Based User Support Management web application.

7.2 Social and Environmental Effects and Analysis

Social Effects

The main goal of the website was to make customer life easier. so, customers can book their room/service from home without any hassle. Also, hotel employees could give their support for their technical problems even from home rather than personally visiting the office. The web application provides all functionalities that an employee might want when creating a new problem. Also, employees can view their previous problems and solutions if they are facing the same problem again. All these functionalities and features are available to users at their fingertips and have a social effect on the traditional process flow practiced.

Environmental Effects

It's high time that the system can play its best role in global modernization and post covid era. The employees can stay at home and continue to get support for their technical problems from IT to support users with ease and comfort. They will find all the information for their problems if the same problem occurs within the comfort of their homes rather than going out if another pandemic comes. As the web application has no carbon footprint as it is digitized, and it somewhat decreases the wastage of paper and causes no damage to the environment while keeping records of all the information.

7.3 Addressing Ethics and Ethical Issues

In the world of smartphones with so much data collection, hacking, cybercrime, etc. There are some unspoken rules and ethics guidelines that need to be followed when working on creating and releasing a website. To address this worry, I follow certain ethics and analyze ethical issues ahead of time to avoid unethical activities. I made certain that there were no violations of behavior, such as secretly obtaining personal information by eavesdropping, and that other factors were properly considered. Here are some of the things I thought about:

• **Data Collection:** SSL certificate will be used to encrypt the data exchange between the system and user to avoid any data manipulation in the middle. Only necessary data are collected and transmitted through an encrypted secure channel to avoid a breach of privacy. This ensures privacy and security. Also, as we know, the web server collects information about website visitors through the creation of log files. These automatically generated log files contain information such as the pages a user viewed, the type of browser used, and the duration of a user's visit. So, to create trust it is our responsibility as a web-developer to disclose to our site users what kind of information we're collecting and how it will be used. [4]

• **Data Storage:** All the data is stored in the database which is backed up in the cloud. The admin only has access to the back-end server and database. As it is hosted in the cloud only the admin using private key credentials can access the DB server. Hence, there is less risk of data manipulation, and breach of data integrity, and since the database is backed up, there are low chances of data loss due to system failure or disaster. This ensures authorization, safety, and fault management.

• **Data Security:** Data are secured and encrypted allowing data integrity. A super admin account is provided with access rights to manage other user accounts and given access to the server which is only used and accessible by the admin through certain verification methods. Also, we have to consider that knowingly, we do not spread malicious programs such as viruses that are hosted on our website that can damage users accessing the web pages.

• **Discrimination:** Employees are not classified based on their religious views, skin color, or language, all are treated equally and with respect.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

It was tough for me to do five days of office from 9:00 AM to 6:00 PM while continuing other work. I always tried to give my 100 percent during my internship periods. Collecting the requirement from the different employees was a huge trouble for me. As there was a lot of correction in the requirement according to the requirement provided by them. Research, requirement analysis, and data collection, which are the foundations of the SDLC, were the most difficult aspects. During the design process, several adjustments were necessary for terms of architecture, cost analysis, and resource usage, and subsequently, during development and testing, faults in the code were discovered and some concepts were clarified. These were some of the issues I encountered throughout my internship.

8.2 Solution of those Problems

As problems came across, there were also solutions to it through analysis. During my internship period I have gained new knowledges, skills, and met so many new people. I got insights into professional practice and its relative and required skill set. The internship was also good to find out what my strengths and weaknesses are. Starting from adjusting to new time, learning from employee experience. My external supervisor helped me with solving few problems by guiding me through the process work and due to there being active interactions many problem aspects were covered immediately and efficiently. I faced an issue regarding testing part where certain bugs were detected. Due to working with different people and observing different perspectives in team meetings, it helped me to identify the requirements

for successful project deployment and necessity of positive team communication. I also learnt how to solve problems and give solution feedback.

Chapter 9

Future Work & Conclusion

9.1 Future Works

As the project is still under development, as per requirement our company plans on adding a lot more features and modules to the website to make it even more helpful for the clients/customer to get service through the platform. Moreover, every year there will be two updates to the software according to the client's needs and requirements.

9.2 Conclusion

It was a wonderful experience working with the development team in decimal It as an intern. During the internship period, I learned and applied a great deal. I was introduced to new cutting-edge technologies, and I was pushed to do even better. I was pushed to adapt to changes rapidly and come up with logical solutions. I have used all my knowledge's on analyze the data. During my project, I cooperated with my mentors and seniors to solve the challenges faced. Despite their workload, my supervisors were always there to answer any queries and help me settle nicely. This internship opportunity has taught me how to work under pressure and complete the SDLC before the deadline. I would like to appreciate once again everyone who has made my life as an intern such a great experience. In addition, I gained a deeper understanding of my technical skills, which benefited me personally. Also, I learned to work under pressure and fulfill deadlines.

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[2] "Iterative and incremental development," *Wikipedia*, Oct 2021.

[3] "What is sustainability in project management?," *APM*.

[4] A. Bryant, "11lesson 11: Ethical and legal issues in web development," *Lesson 11: Ethical and Legal Issues in Web Development*.

An Undergraduate Internship/Project on Smart Online Hotel Booking Platform for hospitality industry Under Decimal It

By

Shahin Sikder

Student ID: **1720559**

Autumn, 2022

Consent from Supervisor

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during and/or before final viva, and the department can use this version for archiving as well as the OBE course material for CSE499.

(Signature of the Supervisor)

Mr. Sanzar Adnan Alam

Department of Computer Science & Engineering
Independent University, Bangladesh