

A Project Report on  
“Online Hotel Booking System”



*Submitted To*  
**Department of Computer and Software Engineering**  
**School of Engineering**  
**Pokhara University**

In the Partial Fulfillment of the  
Requirements for the Degree of Bachelor of Engineering in Software  
Engineering Awarded by Pokhara University

**Submitted By:**

Saunak Shrestha [19180081]

Bibek Bhujel [19180049]

Ashish Mahato [19180048]

Prajwal Adhikari [19180064]

**(Sep 2022)**

# **ONLINE HOTEL BOOKING SYSTEM**

**Submitted By:**

Saunak Shrestha [19180081]

Bibek Bhujel [19180049]

Ashish Mahato [19180048]

Prajwal Adhikari [19180064]

**Submitted To**

**Department of Computer and Software Engineering**

**School of Engineering**

**Pokhara University**

## **Acceptance**

We recommended the project entitled "Online Hotel Booking System" submitted by Saunak, Bibek, Ashish, Prajwol in partial fulfillment of the requirements for the degree of Bachelor of Engineering in Software Engineering has been examined by us and accepted for the award of the degree under Pokhara University.

.....

**Dr. Udaya Raj Dhungana**

**Asistant Professor**

**Program coordinator**

School of Engineering

Pokhara University

.....

**Er. Rishi Saran Khanal**

**Assitant Professor**

**Supervisor**

School of Engineering

Pokhara University

## **Abstract**

**Online Hotel Booking System** project aims at providing the user to reserve accommodation at hotels online. The system shall take the start and end dates from the user and check for availability of rooms. It shall check for the number of guests and reserve the rooms for the user. This is a simple user interface which displays the information about the hotel, its contact address and the amenities at the hotel. It also provides the rates of rooms in that hotel. This tool shall enable the user to check for information regarding the hotel and reserve rooms. It enables the user to make payments online. The hotel industry is a business venture for the owner and a solace for the traveler and/or tourist. A customer can get stranded in the quest to secure a hotel room to pass the night if he has not made adequate plans by the existing system. It creates an online hotel room booking system enabling customers to choose the room they wanted after a virtual tour guaranteeing him a room.

Keywords:

Booking, Hotel, Customer, Reservations.

## Table of Contents

.....	I
<b>CHAPTER 1 .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 BACKGROUND .....	1
1.2 PROBLEM STATEMENT .....	2
1.3 OBJECTIVES .....	2
<b>CHAPTER 2 .....</b>	<b>3</b>
<b>LITERATURE REVIEW.....</b>	<b>3</b>
<b>CHAPTER 3 .....</b>	<b>5</b>
<b>METHODOLOGY.....</b>	<b>5</b>
3.1 INTRODUCTION .....	5
3.2 TECHNOLOGY USED .....	5
3.3 GANTT CHART .....	7
3.4 SYSTEM DESIGN .....	8
3.4.1 <i>Block Diagram</i> .....	8
3.4.2 <i>Use-Case Diagram:</i> .....	9
3.4.3 <i>Sequence Diagram</i> .....	10
3.4.4 <i>Class Diagram</i> .....	11
3.4.5 <i>Object Diagram</i> .....	12
3.4.6 <i>E-R Diagram</i> .....	13
3.5 SOFTWARE DEVELOPMENT PROCESS .....	14
3.6 HARDWARE REQUIREMENT.....	16
3.7 SOFTWARE REQUIREMENT .....	17
<b>CHAPTER 4 .....</b>	<b>18</b>
<b>DELIVERY.....</b>	<b>18</b>
5.1 MOBILE VIEW.....	18
9.2 DESKTOP VIEW.....	19
<b>CHAPTER 5 .....</b>	<b>20</b>
<b>LIMITATION &amp; FUTURE WORKS .....</b>	<b>20</b>
<b>CHAPTER 6 .....</b>	<b>21</b>
<b>CONCLUSION.....</b>	<b>21</b>
<b>REFERENCES.....</b>	<b>22</b>

## **List of Figures**

FIGURE 1 GANTT CHART .....	7
FIGURE 2 BLOCK DIAGRAM .....	8
FIGURE 3 USE-CASE DIAGRAM.....	9
FIGURE 4 SEQUENCE DIAGRAM.....	10
FIGURE 5 CLASS DIAGRAM .....	11
FIGURE 6 OBJECT DIAGRAM .....	12
FIGURE 7 E-R DIAGRAM.....	13
FIGURE 8 ITERATIVE INCREMENTAL MODEL .....	14
FIGURE 9 MOBILE VIEW .....	18
FIGURE 10 DESKTOP VIEW.....	19

## **List of Tables**

TABLE 1 HARDWARE REQUIREMENT .....	16
TABLE 2 SOFTWARE REQUIREMENT .....	17

## **Abbreviations**

OHBS	Online Hotel Booking System
SDLC	Software Development Life Cycle



# **Chapter 1**

## **Introduction**

### **1.1 Background**

Nepal is a growing tourist destination, there has been a good rise in the number of hotels and resorts in Nepal and the tourism sector is broadening thus we have chosen this sector to do our project and we are making an Online Hotel Booking System. The advancement in mobile technology and availability of broadband have made it easier to search for a hotel and book through an online booking system. Travelers can book rooms on a computer by using online security to protect their privacy and financial information. Prior to the Internet, travelers could write, telephone the hotel directly to make a reservation. Nowadays online reservations for a hotel room are becoming popular especially to those people who like to travel. It gives them the ability to book anytime, from anywhere with Internet access.

The customer can easily browse from site to site and book a room he/she desires with the time and date the user preferred, it gives them instant answers to their queries in just a click of button. This saves them time, energy and less hassle. With faster online reservation transactions, the client can easily carry out booking, change the booking details, cancel the booking, view the booking history, or view the hotel information along with customer ratings by following its simple and clear GUI (Graphical user interface) design. The customer immediately receives a guarantee of obtaining services.

## **1.2 Problem Statement**

In Nepal, there are more than 1000 hotels which are gaining their international customers but online booking system is implemented by some renowned hotels only so online hotel booking system is one of the projects that will be required in the Nepali tourism sector so we have chosen it. For the solution faced by small and medium scaled hotels, online hotel booking system will ensure that all these hotels are also included along with the renowned hotels so that customers can book any hotels according to their budget. This will ultimately help in making a marketplace for small and medium scaled hotels as well.

The hotel industry customers can be travelers, foreigners, businessmen, tourists, visitors, etc. Customers are mostly constrained in trying to get a room to pass the night, as the usual practice is to look for a hotel when you have arrived in the particular location, walk in and find out whether there is a vacant room. In the case that there is no vacant room, you have to move to next closest hotel to enquire once more. On other times too, if you have friends or family members in the area you want a room booked, they have to go and do the checking for you. There is no system in place that bonds the hotel and the customer that the customer has actually booked a room and for that matter he is guaranteed a room. This can make customers really stranded especially if it is getting late in the night.

## **1.3 Objectives**

Major Objectives of online hotel booking system are listed below:

1. To maximize occupancy (aiming at close to 100%) and improve small to medium scale hotels and lodges for maximizing business sales and market.
2. To provide people seeking hotel rooms with accurate information about available accommodations.
3. To provide options to the customers for choosing affordable hotels with respect to the price, facilities.

## **Chapter 2**

### **Literature Review**

Various theories and conceptual models have been proposed to explain travel decision-making behaviors, yet there is no unifying theory to fully account for the process. Consumer purchasing behavior of travel products is a complex process that requires extensive decision-making strategy due to high cost and involvement. In these circumstances, the choice-set model that explains how individuals make purchase decisions when confronting a wide range of alternatives is a suitable approach to explaining high-risk purchasing behaviors.[1]

Online hotel booking system are becoming a very popular method for booking hotel rooms. Travelers can book rooms from home by using online security to protect their privacy and financial information and by using several online hotels information to compare prices and facilities at different hotels. People can book directly on an individual hotel's website. An increasing number of hotels are building their own websites to allow them to market their hotels directly to consumers. Non-franchise chain hotels require a “booking engine” application to be attached to their website to permit people to book rooms in real time. 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.

Online Hotel Booking Software is an easy-to-use arrangement that enables agents and guests to reserve rooms directly via the internet once they have confirmed availability of rooms in accordance with the itinerary. It grants complete authority and power on hotel or motel room booking over the internet. This entails that one can accumulate all guest payments; enter their own room descriptions, facilities, rates and allocations into the reservation system. It also allows to confirm accommodation in real-time at the hotel's website and close the sale without more ado. [2]

Online hotel reservations are also helpful for making last minute travel arrangements. Hotels may drop the price of a room if some rooms are still available. Large hotel chains typically have direct connections to the airline national distribution systems. These in turn provide hotel information directly to the hundreds of thousands of travel agents that align themselves with one of these systems. Individual hotels and small hotel chains often cannot afford the expense of these direct connections and turn to other companies to provide the connections. Several large online travel sites are, in effect, travel agencies. These sites send the hotels' information and rates downstream to literally thousands of online travel sites, most of which act a travel agent. They can then receive commission payments from the hotels for any business booked on their websites. [3]

# **Chapter 3**

## **Methodology**

### **3.1 Introduction**

In order to achieve the specific objectives stated, a set of methods will be used. System requirements will be achieved using different data collection techniques. System design will be achieved using entity relation diagrams and UML diagrams. The system will be implemented using different programming languages. Finally, system will be tested and validated to check for errors in the system to be designed and see if the system does what it will be intended for.

### **3.2 Technology Used**

We have used following technology and tools for our project.

- Programming Languages: Html, CSS, JavaScript
- Front-End Framework: React js
- Back-End: Node js
- Back-End Frameworks: Express js
- Database Management Program: MongoDB
- Web Browser: Firefox, Chrome, Safari
- Code Editor: Visual Studio Code, Sublime Text 4
- IDE: WebStorm

## Special Algorithms Used :

### 1. JWT:

JSON Web Token (JWT) is an open standard that defines a compact and self-contained way for securely transmitting information between parties as a JSON object. This is the major authentication algorithm used in server and client side authentication.

### 2. Bcrypt:

Bcrypt algorithm is a way to hash and store the user's password in a database. It is implemented with the help of Node.js used for one way transformation on a password and turning it into another string.

### 3.3 Gantt Chart

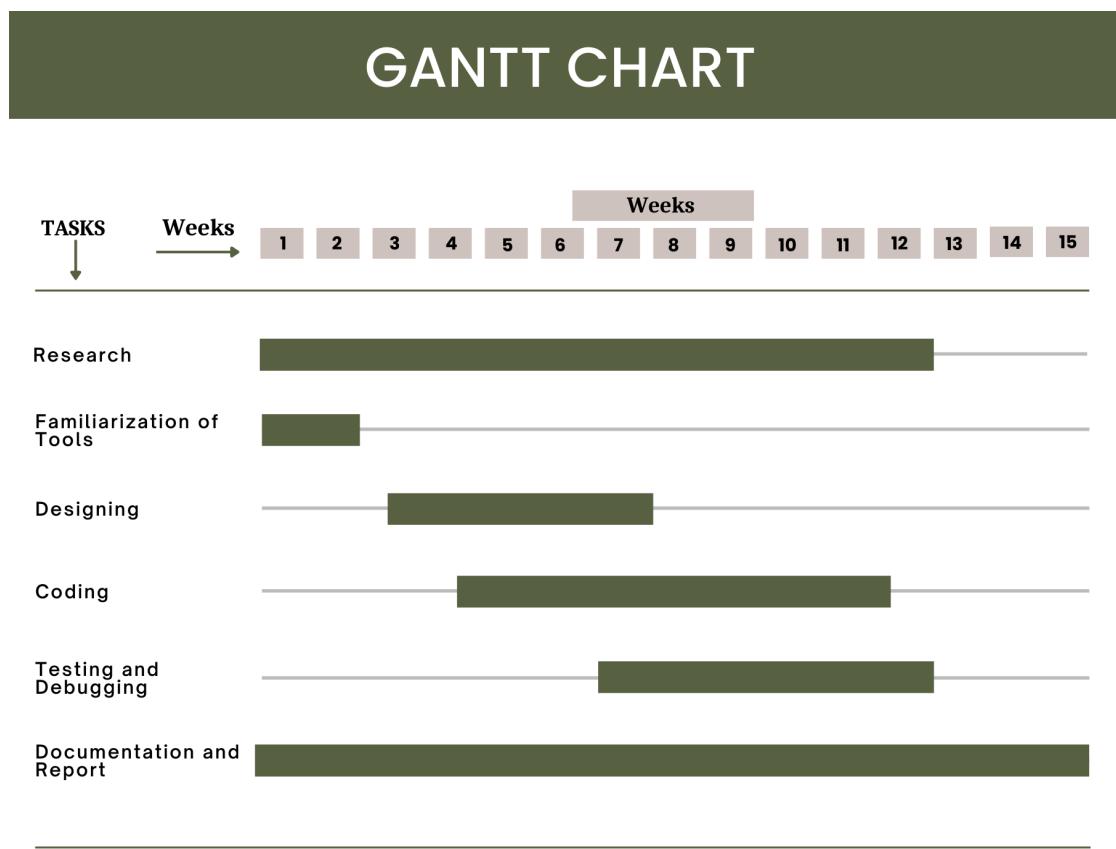


Figure 1 Gantt Chart

## 3.4 System Design

The system will be designed using the following design approaches.

### 3.4.1 Block Diagram

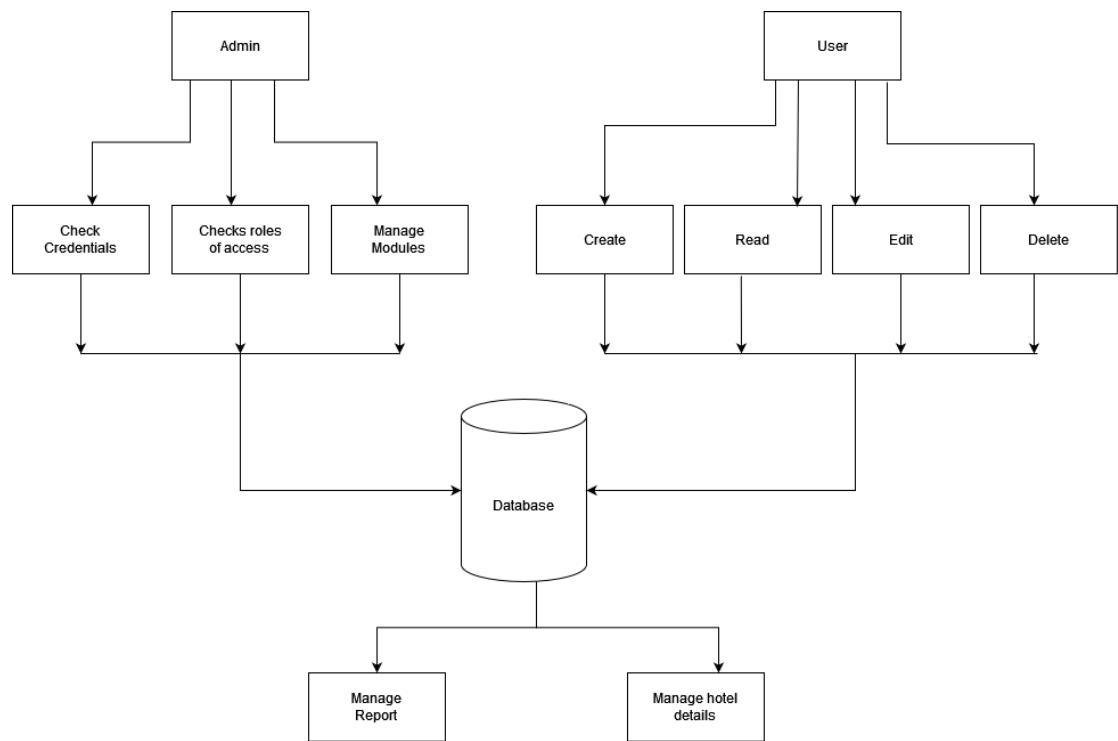


Figure 2 Block Diagram

### 3.4.2 Use-Case Diagram:



Figure 3 Use-Case Diagram

### 3.4.3 Sequence Diagram

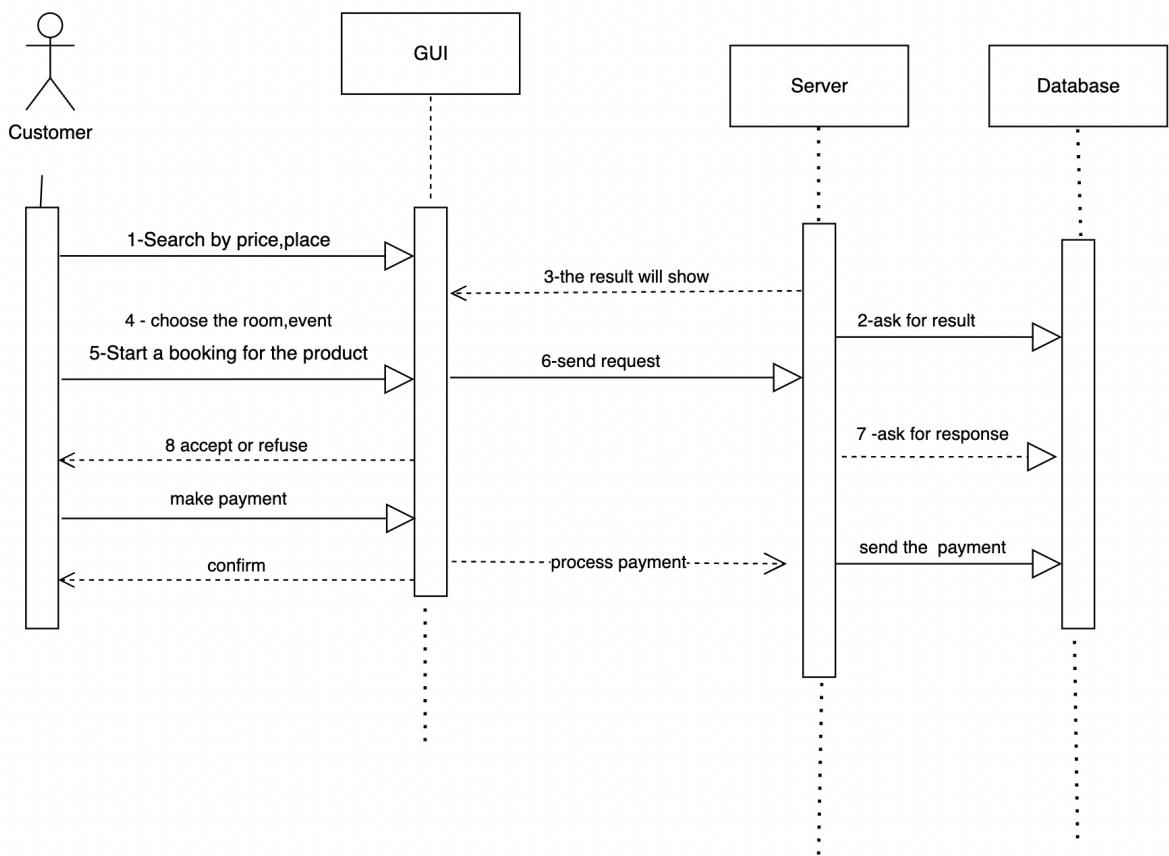


Figure 4 Sequence Diagram

### 3.4.4 Class Diagram

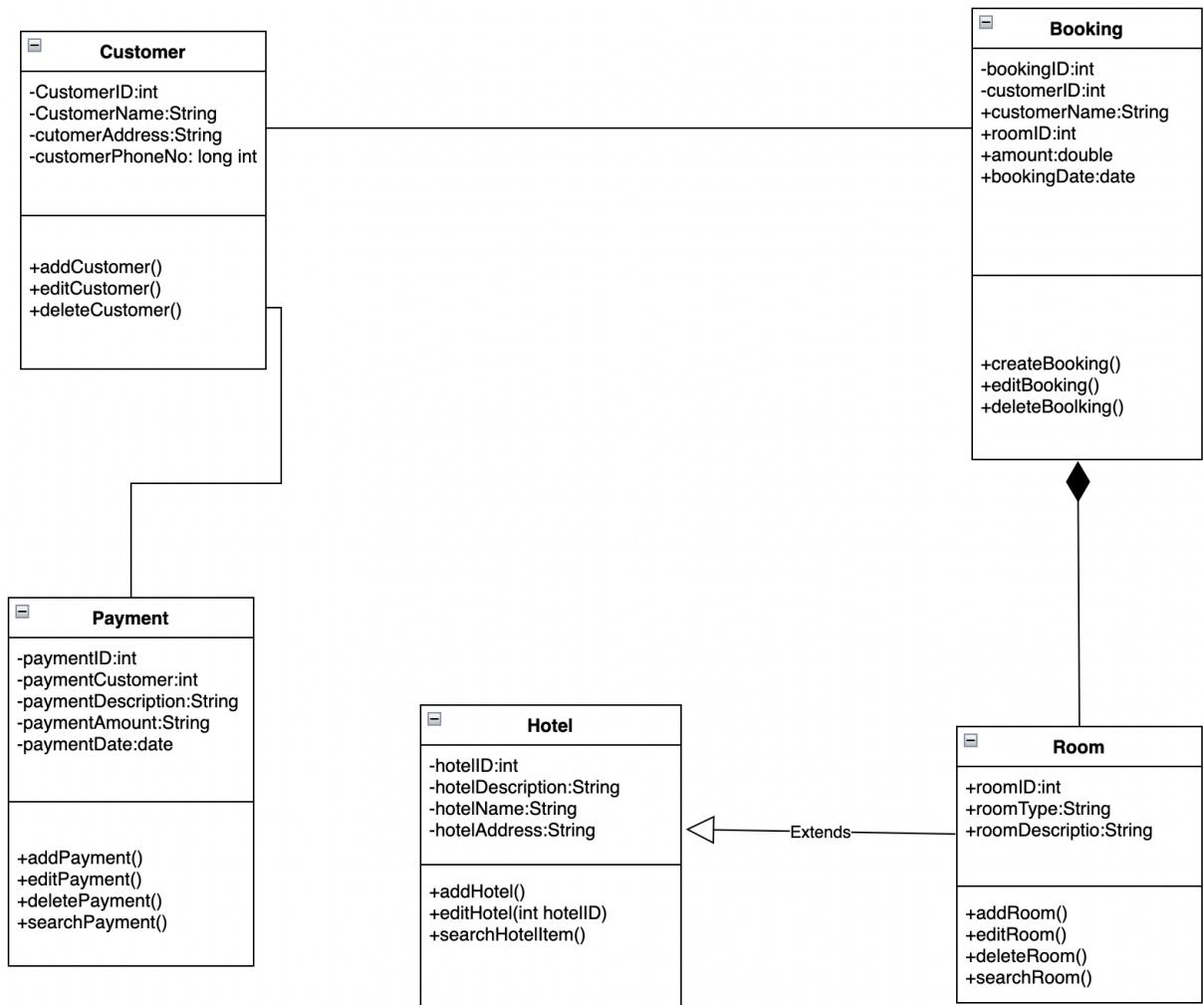


Figure 5 Class Diagram

### 3.4.5 Object Diagram

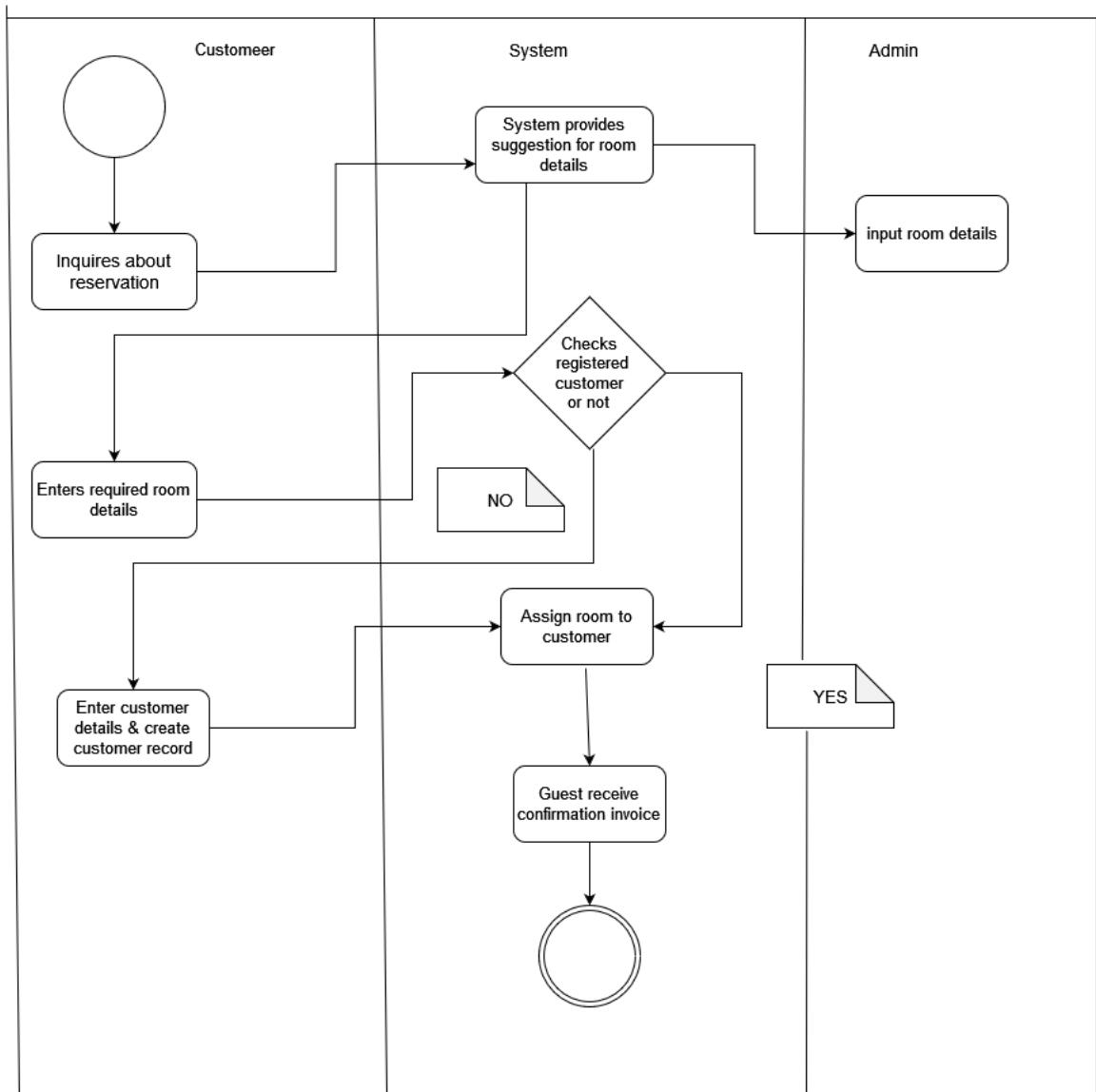


Figure 6 Object Diagram

### 3.4.6 E-R Diagram

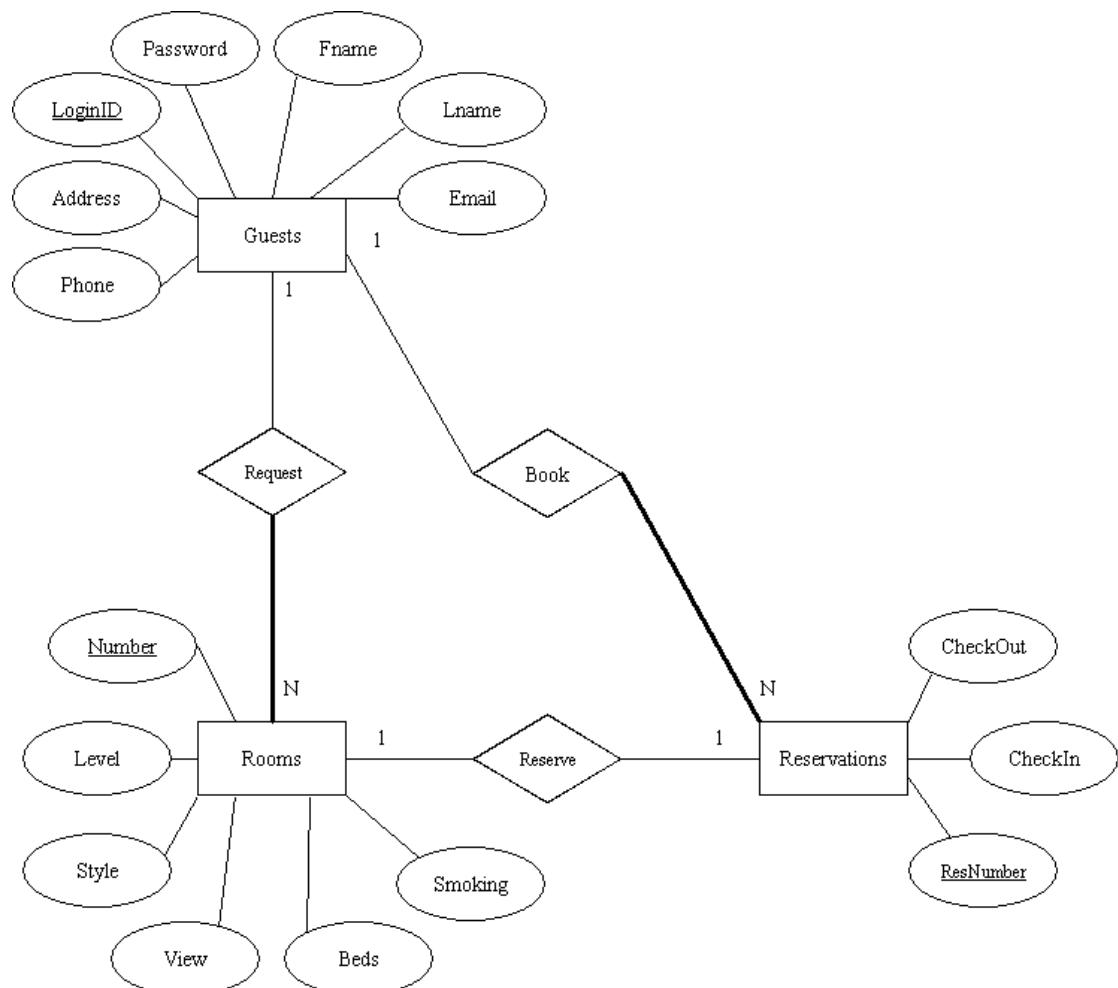


Figure 7 E-R Diagram

### 3.5 Software Development Process

Software Development Life Cycle (SDLC) is a process used by the software industry to design, develop and test high quality softwares. The SDLC aims to produce a high-quality software that meets or exceeds customer expectations, reaches completion within times and cost estimates. We will use an Iterative Incremental model throughout the project.

In an Iterative Incremental model, initially, a partial implementation of a total system is constructed so that it will be in a deliverable state. Increased functionality is added. Defects, if any, from the prior delivery are fixed and the working product is delivered. The process is repeated until the entire product development is completed. The repetitions of these processes are called iterations. At the end of every iteration, a product increment is delivered.

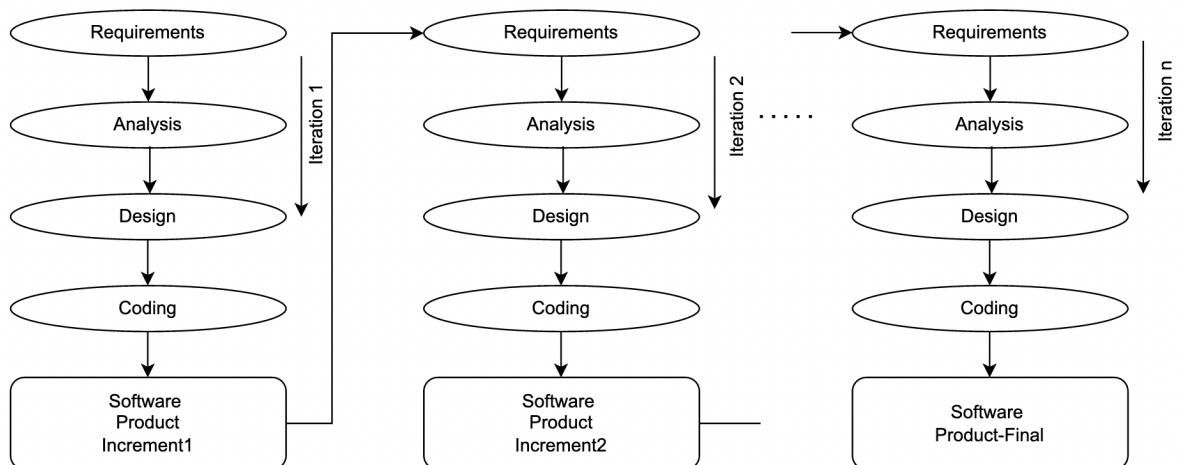


Fig : Iterative Incremental model

Figure 8 Iterative Incremental model

Title : Specifications:

1. Model View Controller Architecture : The Model-View-Controller (MVC) is an architectural pattern that separates an application into three main logical components: the model, the view, and the controller. Each of these components are built to handle specific development aspects of an application. MVC is one of the most frequently used industry-standard web development frameworks to create scalable and extensible projects. MVC is used to handle all the overall operation to manage all internal operations and features in our booking system.

2. JSON database:JSON (JavaScript Object Notation) has become a standard data-interchange format, particularly for semi-structured data. JSON databases are part of the NoSQL family of databases that offer flexibility in storing varied data types and easily accommodating changes in data model or project requirements. The flexibility of a JSON database comes from the way data is stored—as documents instead of rigid tables. Read on to know more. The NO-SQL database used in our booking system is MONGO-DB.

3. Security: The enhancement of security in our booking application is provided by the use of two specific algorithms:

1. JWT:

JSON Web Token (JWT) is an open standard that defines a compact and self-contained way for securely transmitting information between parties as a JSON object.

2. Bcrypt :

Bcrypt algorithm is a way to hash and store the user's password in a database.

It is implemented with the help of Node.js used for one way transformation on a password and turning it into another string.

### **3.6 Hardware Requirement**

<b>Name of component</b>	<b>Specification</b>
Processor	2.2Ghz
RAM	4GB
Hard Disk	256GB
Display	1920 × 1080

*Table 1 Hardware Requirement*

### **3.7 Software Requirement**

*Table 2 Software Requirement*

<b>Name of component</b>	<b>Specification</b>
Operating System	macOS X 10.11+, Windows 8.0, 8.1 and 10, 11 (32-bit and 64-bit)
Language	Html, CSS, Javascript
Database	MongoDB
Browser	Safari 6.0, Google Chrome 30, Firefox 25, Brave 5
Code Editor	Visual Studio Code, Sublime Text 3
IDE	Webstorm

# Chapter 4

## Delivery

### 5.1 Mobile View

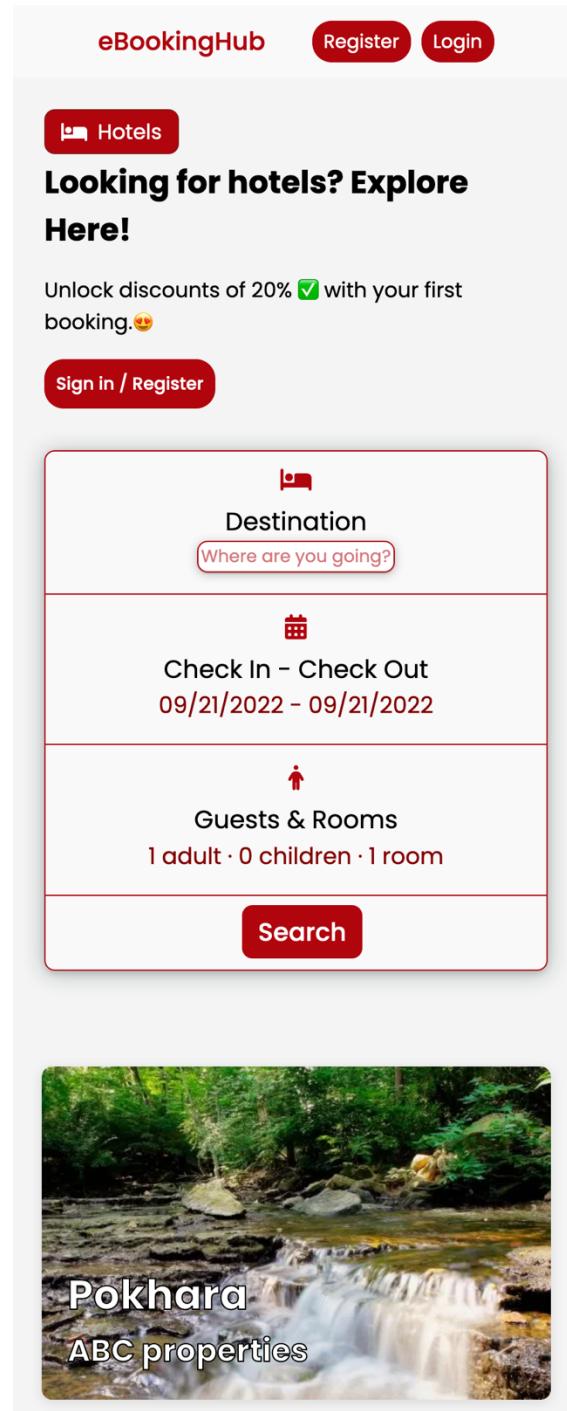


Figure 9 Mobile view

## 9.2 Desktop View

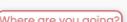
eBookingHub Register Login

 Hotels

### Looking for hotels? Explore Here!

Unlock discounts of 20%  with your first booking.😊

[Sign in / Register](#)

 Destination   Check in - 09/21/2022  Check Out 09/21/2022  Guests & Rooms 1 adult · 0 children · 1 room 



Pokhara  
ABC properties



Kathmandu  
EFH properties



Dhading  
KLH properties

#### Browse by property type



**Hotels**  
175 hotels



**Apartments**  
2800 hotels



**Resorts**  
230 hotels



**Villas**  
91 hotels



**Cabins**  
1255 hotels

#### Home Guests Love



**Hotel Annapurna**  
Kathmandu  
Starting from \$120  




**Hotel Machapuchhre**  
Pokhara  
Starting from \$140  




**Lakeside Lodge**  
Pokhara  
Starting from \$99  




**Hotel Dhaulagiri**  
Mustang  
Starting from \$105  


Figure 10 Desktop view

## **Chapter 5**

### **Limitation & Future Works**

In the course of this project, a few limitations were faced and they are:-

- ❖ In the website, customers can make reservations but are unable to make online payments.
- ❖ The location cannot be detected automatically by user's location. It is manual till now.
- ❖ It doesn't have proper registration for new customers.
- ❖ The Hotel vendors cannot access directly their own hotels details and customize them.
- ❖ The project is bound by time constraints.

The possible improvements that can be made for the Online Hotel Booking System includes:-

- ❖ The graphical user interface will be made friendlier and more functional in the next development. The Online Hotel Booking System aims to provide a user-friendly interface and more functions for real world hotels.
- ❖ This online system only allows users to make a reservation that date is already created accounts. A proper sign in & register system moreover google sign in is thought to be in action for better customer interaction.
- ❖ The Online Hotel Booking System can offer more services such as bus ticketing, car rental, flight ticket purchase, and the vacation package advising. These limitations can be removed in the future.
- ❖ The hotels can be listed automatically based on current location of users acknowledging their privacy.
- ❖ But there is still some room for improvements. For example, the settings and functions of some options in the Web pages can be changed to make them more professional and artistic.

## **Chapter 6**

### **Conclusion**

In conclusion, online hotel booking system is a need for fast-paced world. Booking Hotel right from smart phone without having to enquiry every hotel as per interest. This report has been able to address the issues customers and hotels face when making a reservation using a manual booking system by developing an online booking system for clients to make reservation at their own comfort. It has also discussed on the past studies of online booking and the integration of the internet by hotels to connect more to their customers. It has discussed on the types of method used to gather the requirements needed, the type of development methodology selected for the research and how UML diagrams were created to show the interface of the system. A detailed description of pages on the website was discussed and the types of evaluation used to evaluate the website. Although, this project has limited scope but the further improvements & implementation will surely revolutionize the booking system in our community making booking user-friendly and easy-to-use web app.

## References

1. Aldea et al. (2005) “Computerization of Hotel and Restaurant Management of Auzter’s Plaza” Unpublished Thesis, Lyceum of the Philippines University
2. Atienza et al (2004), “Automated Reservation and Billing System of Juan Carlo Caterer, Unpublished Thesis, Lyceum of the Philippines University
3. Basco et. al (2007) “Webpage Development of Villa Carmelita Resort” Unpublished Thesis, Lyceum of the Philippines University.
4. Oyo: India's Best Online Hotel Booking site for sanitised stays. OYO Rooms. (n.d.). Retrieved June 1, 2022, from <https://www.oyorooms.com/>
5. Tutorialspoint.com. 2022. Free Online Tutorials and Courses. [online] Available at: <<https://www.tutorialspoint.com/tutorialslibrary.htm>> [Accessed 1 June 2022].
6. (n.d.). React – A JavaScript library for building user interfaces. <https://reactjs.org/>
7. Node.js. (n.d.). <https://nodejs.org>
8. The most popular database for modern apps. (n.d.). MongoDB. <https://www.mongodb.com>
9. (n.d.). Figma. <https://www.figma.com>
10. Haverbeke, M. (2018). Eloquent JavaScript: A modern introduction to programming (3rd ed.). No Starch Press.