A
Mini-Project Report on
Hotel Sync – Hotel Management Website

Submitted in partial fulfillment of the requirements
for the degree of
BACHELOR OF ENGINEERING
IN
Computer Science & Engineering
Artificial Intelligence & Machine Learning

by

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2023-2024

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CERTIFICATE

This is to certify that the project entitled "**Hotel Sync – Hotel Management Website"** is a bonafide work of Soham Waradkar (23206002), Jay Yadav (23206007), Pranal Vernekar (23206008), Manas Jagtap (23206011) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning).**

Prof. Ranjita Asati
Mini Project Guide

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A.P. SHAH INSTITUTE OF TECHNOLOGY

Project Report Approval

This Mini project report entitled **"Hotel Sync - Hotel Management Website"** by **Soham Waradkar, Jay Yadav, Manas Jagtap and Pranal Vernekar** is approved for the degree of *Bachelor of Engineering* in *Computer Science &Engineering*, (AI&ML) *2023-24*.

External Examiner: _____

Internal Examiner: _____

Place: APSIT, Thane
Date:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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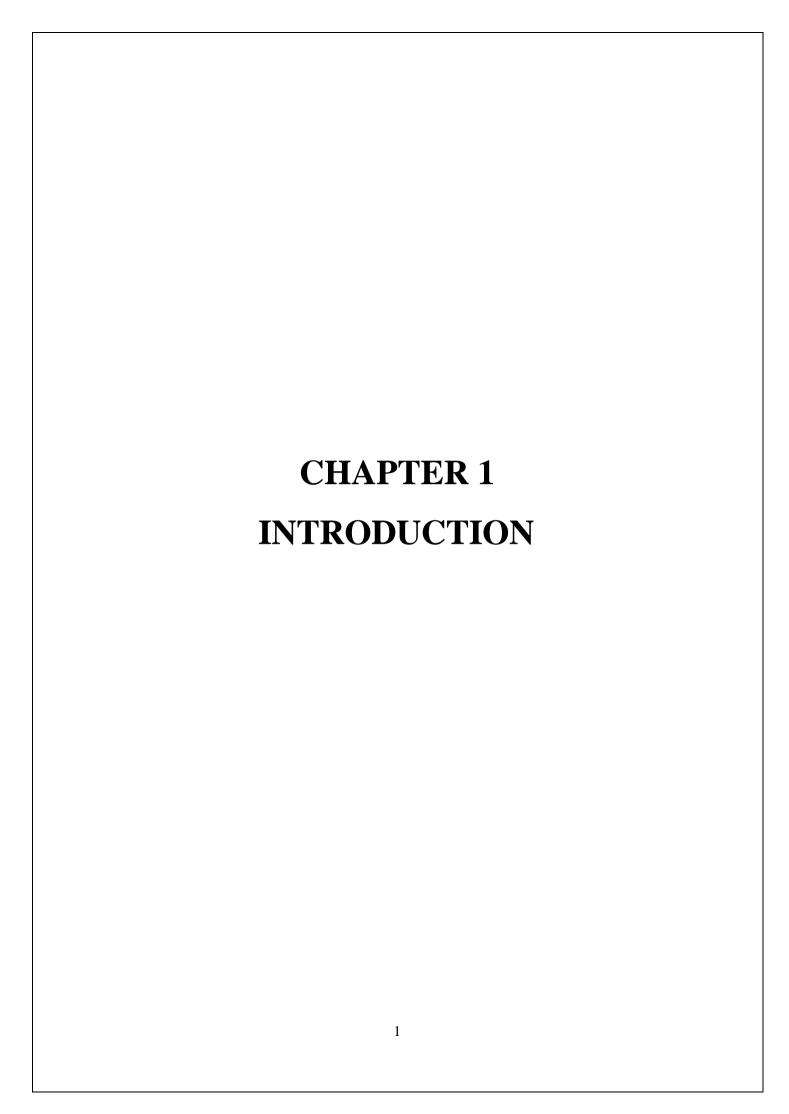
ABSTRACT

Hotel Sync is a comprehensive web-based hotel management system tailored for efficient hotel operations. It offers user authentication for hotel employees, enabling secure access to features like cabin and booking management. The system allows employees to upload avatars, update personal information, and modify passwords within the application. Cabin management features include creating, updating, and deleting cabins, complete with photo uploads and detailed information on capacities, prices, and discounts. Booking management facilitates reservation handling, displaying key details like arrival and departure dates, booking status, and payment information. Guests can be managed with records of their full names, email addresses, national IDs, nationalities, and country flags for identification. The dynamic dashboard provides real-time insights into hotel performance, including guest check-ins and check-outs, recent bookings, sales figures, occupancy rates, and stay durations. Hotel Sync also offers customizable application-wide settings and supports a user-friendly dark mode interface.

List of Figures
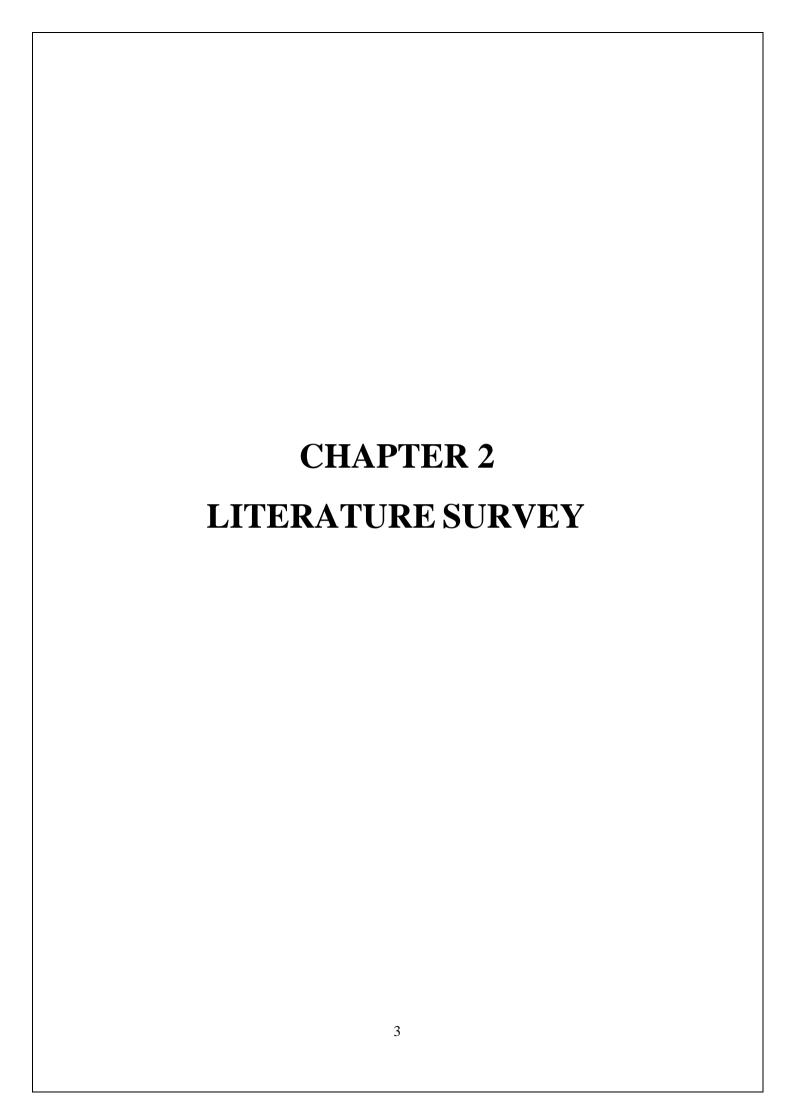
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CHAPTER 1
INTRODUCTION

1. INTRODUCTION

Tourism from the very inception of life, travel has fascinated man. Travel and tourism have been important social activities of human beings from time immemorial. The urge to explore new places with in one's own country or outside and seek a change of environment & experience has been experienced from ancient times.

Tourism is one of the world's most rapidly growing industries. Much of its growth is due to higher disposable incomes, increased leisure time and falling costs of travel. With the invention of rail transport and air transport besides road and sea transport, hotel industry developed from in to present day hotels, it is the part of the hospitality industry which is among the oldest commercial activities in the world. It is actually the integral part of travel and tourism industries which provides a wide range of travel related services, such as food, lodging, mode of transport etc. This unit has tried to explain the relation between tourism and hotel industries their evolution and growth till present day situation.

It serves the purpose of giving consumers hospitality services. These clients may be locals, foreigners, business people, tourists, etc. Customers are mostly confined in their attempts to get a place to spend the night since it is customary to hunt for a hotel once they have arrived in a specific spot, step inside, and see if there is an open room. If there isn't a room available, customers must go on to the next nearest hotel and re-inquire. What transpires then if customers seek for a room at times extremely late at night and discover that all nearby hotels are completely booked. Other times, Customer might be fortunate to have the hotel's phone number and can call to make a reservation [1].

The hotel industry is a highly competitive market, and hoteliers must find ways to provide excellent customer service while keeping their costs low. One of the ways to achieve this is through the implementation of a hotel management system. A hotel management system is a software solution that can help hotels automate and streamline their daily operations. In this project the details are maintained like customer details, reservation details, booking details and billing details The reservation process of reserving rooms for the customers, canceling the reserved rooms, booking the rooms, vacating the rooms, cabin management etc.

With the development of hotel industry several international chains or group also came into existence a detail of few is given in this unit.

CHAPTER 2
LITERATURE SURVEY

2. LITERATURE SURVEY

2.1-HISTORY

Hotel management systems have undergone a remarkable evolution, transitioning from manual processes to sophisticated digital solutions. In the past, hotels relied on labor-intensive manual systems, including paper-based records and physical keys for room management. However, with the advent of computers in the 1970s, early computerized systems began automating tasks such as reservations and guest billing. These systems evolved into integrated Property Management Systems (PMS) in the 1990s and 2000s, offering centralized management of reservations, check-ins, billing, and more. The emergence of cloud computing in the 2010s revolutionized hotel management, enabling the development of cloud-based PMS solutions. These solutions provide greater flexibility, scalability, and accessibility, empowering hoteliers to manage their properties efficiently from anywhere with an internet connection. Today, hotel management systems continue to advance, incorporating innovative technologies like artificial intelligence and data analytics to optimize operations and enhance guest experiences.

2.2-LITERATURE REVIEW

The literature review we consider and examine the work done by researchers who have broached on this particular topic (Hotel Management System). As mentioned above, the main purpose of hotel industry is to offer consumers' hospitality services. Technology has a considerable impact on Hospitality industry in previous years and will continue to do so with the increasing use of computer Technology, controlled equipment" (Jones and Lockwood, 1989,) Really in the last two to four years, technology has become far more advanced, easy to use and far more widely used throughout all types of industry. They mostly use a range of computer programs system from everything to bookings, communications, security and payments. the reason why hotels utilize technological systems in their operations is because it keeps them up to date in terms of where they are placed in the Technology market.[1].
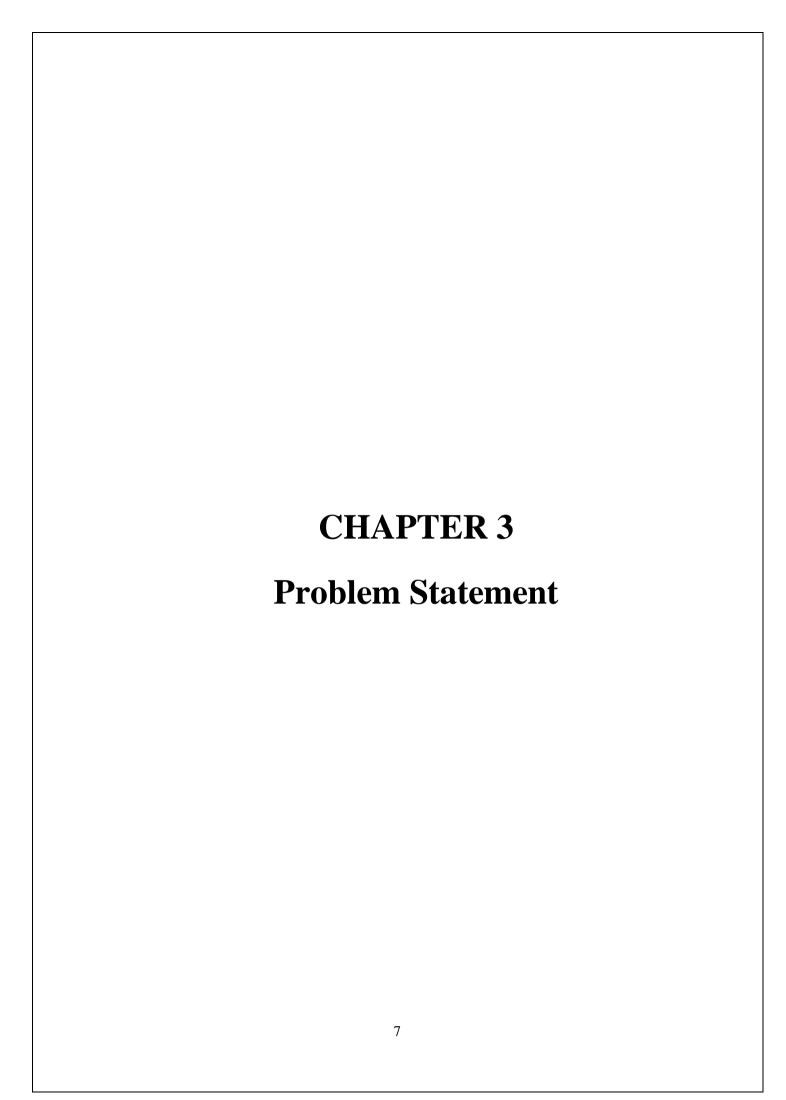
Hotel management system is an e-commerce web application that support to manage the chores of the hotel system. When developing this system different types of tools and technologies. Tools for this application are, Azure Boards, GitHub, SonarQube and Selenium. Azure Boards provides interactive and customizable tools for the software development teams which they need to manage their software projects. It provides a wide variety of features, such as calendar views, configurable dashboards, and integrated reporting, as well as native support for Agile, Scrum, and Kanban processes. The Kanban board shows the features to add, edit and filter tasks, bugs, features and epics.[1].

According to that, if we can promote hospitality better from our website, we can get more reviewers for our system. Therefore, providing better hospitality service is crucial fact in the hotel management system. With the current state of the economy and the strong rivalry in the hotel industry, internet marketing has been seen as a very successful technique to stand out as distinctive in the business. According to Srinivasa R. (2014), keeping aside the complication in the hotels, today hotel management are basically performed as internet-based system. The majority of the world's regions in the modern day have technological amenities like the internet, smartphones, computers, laptops, etc. With the use of the internet, customers can book a hotel room, purchase their desired meals and beverages at any time etc. by following a few simple online steps. This may be appreciated by customers since it saves them valuable time. Our system also is an ecommerce web application that provide numerous facilities for the customer such as booking rooms, order foods and beverages from the user friendly and convenient way. According to Kalaskar P. (2013), hotels upgrade as luxury accordance with the amenities provided by the hotels like 5 Star [2]

The system should have no issues with any of its management features. It involves the hotel administration, financial department, Room service, employee department and food and catering service etc. Our system also provides a user-friendly way to manage those administrators for the user. This system features number of managements that are integrated with one another, including user management, staff and supplier management, room and reservation management, and restaurant management. These enable the administrator to manage hotel resources with ease, which will improving the property's ratings. Reviews and comments are particularly influential for all industries' development. Review articles become very important role not only for the users but for the hotels and travel industry [7]
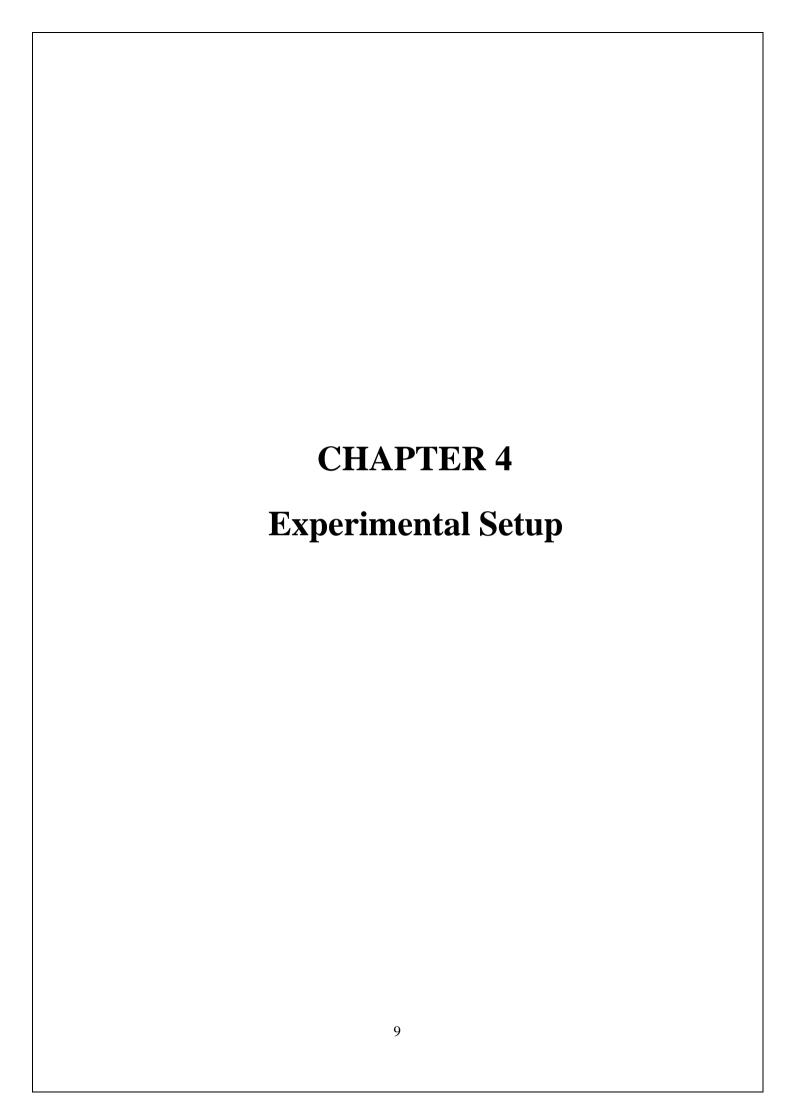
Here the first solution can be especially useful because it solves most of the problems addressed by the client. Using mobile phones customers can easily book their rooms from anywhere. Admin can also manage the system remotely using the mobile phone. Receptionists can easily check in guests and give rooms because there is no need for any additional verification. OTA is used for most verification processes so there will be no longer queues at the front desk, and it minimizes the time dealing with administrative paperwork.

But this method has severe cons. The native application requires a lot more requirements in hardware level and every guest should download the application in their mobile phones. Some can be easily downloaded but some people can't download it because some operating system does not allow the users to download files from unknow sources. OTAs will not provide much information about customers, and it will lead to difficulty in maintaining customer records.[3]

CHAPTER 3

Problem Statement

3. Problem Statement

The hospitality industry faces challenges in effectively managing hotel operations, reservations, and guest experiences. Manual systems are outdated and prone to errors, while existing hotel management software may lack comprehensive features or user-friendly interfaces. To address these issues, there is a need for a modern web-based hotel management system. This system should provide hotel employees with intuitive tools for managing cabins, bookings, guest information, and financial transactions. Additionally, it should offer guests a seamless booking experience and efficient check-in/check-out processes. The system must support features such as user authentication, cabin management (including photo uploads and pricing), booking management (including status updates and payment processing), guest data management, dynamic dashboards for real-time insights, customizable settings, and a user-friendly interface with dark mode support. By developing such a system, hotels can streamline operations, enhance guest satisfaction, and improve overall efficiency in the hospitality industry.

CHAPTER 4

Experimental Setup

4. Experimental Setup

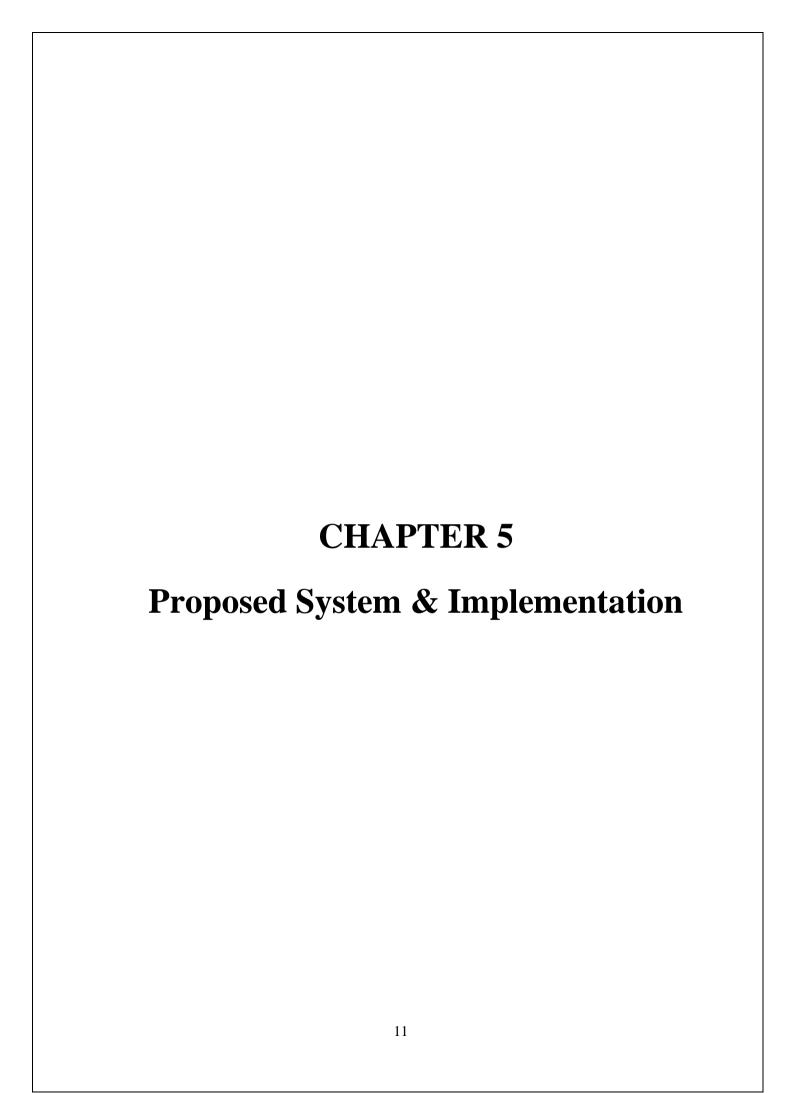## 4.1   Hardware Setup

Processor: Intel i5 8th
gen Ram: 8GB
Storage: 256 GB SSD or more
OS: Windows 10 or MacOS or Linux

4.2   Software

Setup Visual Studio
Code Node Package
Manager
React JS

CHAPTER 5

Proposed System & Implementation

5. Proposed system & Implementation

5.1 Block diagram of proposed system

E-R Diagram:

Staff

StaffID	int	PK
HotelID	int	FK
FirstName	varchar(50)	N
LastName	varchar(50)	N
Position	varchar(50)	N
Salary	decimal(10,2)	N
DateOfBirth	date	N
Phone	varchar(15)	N
Email	varchar(255)	N
HireDate	date	N

Hotel

HotelID	int	PK
Name	varchar(255)	N
Address	varchar(255)	N
Phone	varchar(15)	N
Email	varchar(255)	N
Stars	int	N
CheckinTime	time	N
CheckoutTime	time	N

Room

Room	int	PK
HotelI	int	N FK
TypeID	int	N FK
Status	varchar(20)	N

Booking

BookingID	int	PK
GuestID	int	N FK
RoomNumber	int	N FK
CheckinDate	date	N
CheckoutDat	date	N
TotalPrice	decimal(10,2)	N

Payment

PaymentID	int	PK
BookingID	int	N FK
Amount	decimal(10,2)	N
PaymentDate	date	N
PaymentMetho	varchar(50)	N

RoomType

TypeID	int	PK
Name	varchar(50)	N
Description	varchar(255)	N
PricePerNight	decimal(10,2)	N
Capacity	int	N

Guest

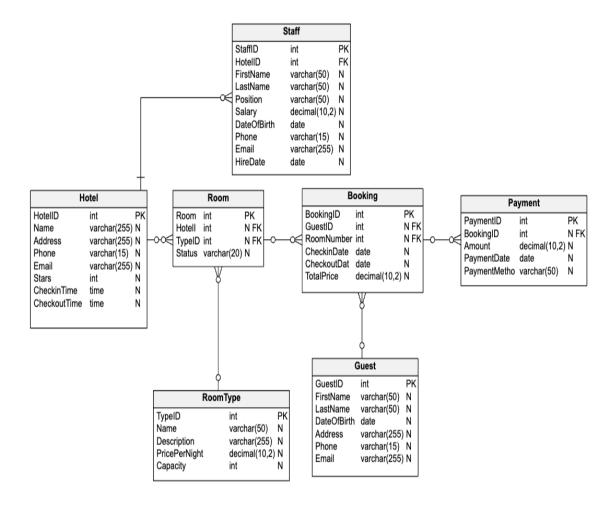| GuestID	int	PK
FirstName	varchar(50)	N
LastName	varchar(50)	N
DateOfBirth	date	N
Address	varchar(255)	N
Phone	varchar(15)	N
Email	varchar(255)	N

Fig. 5.1 (a) E-R Diagram
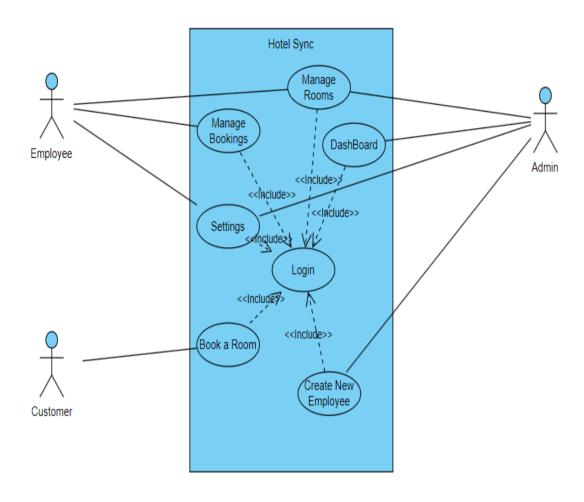
Use Case Diagram:

Fig. 5.1 (b) Use Case Diagram

5.2 Description of block diagram

For Fig. 5.1(a):
The above diagram is an ER diagram which contains entities
Hotel: This entity embodies the physical establishment, holding attributes like hotel name, location, and amenities offered.
Room: Each room is a distinct entity, with attributes like room number, type (single, double, suite), and features (balcony, view).
Room Type: This entity might group similar rooms based on size, amenities, or price range.
Guest: This entity represents the hotel's patrons, storing information like contact details, preferences, and loyalty program membership (if applicable).
Booking: This entity captures guest reservations, with attributes like booking date, arrival and departure dates, number of guests, and the specific room reserved.
Payment: This entity tracks financial transactions, with attributes like payment method, amount paid, and date of payment.
And the Relations it contains are one to many between Hotel-Staff, Hotel-Room, Room-Booking, Booking-Payment, Booking-Guest and Room-RoomType

For Fig 5.1(b):
Actors:
Customer: This represents individuals seeking to book a hotel room. They can interact with the system to search for available rooms, make reservations, and potentially view past bookings.
Employee: This represents hotel staff members who can manage the system. Their actions might include creating new rooms, managing room bookings (including check-in and check-out processes), and potentially accessing system settings.
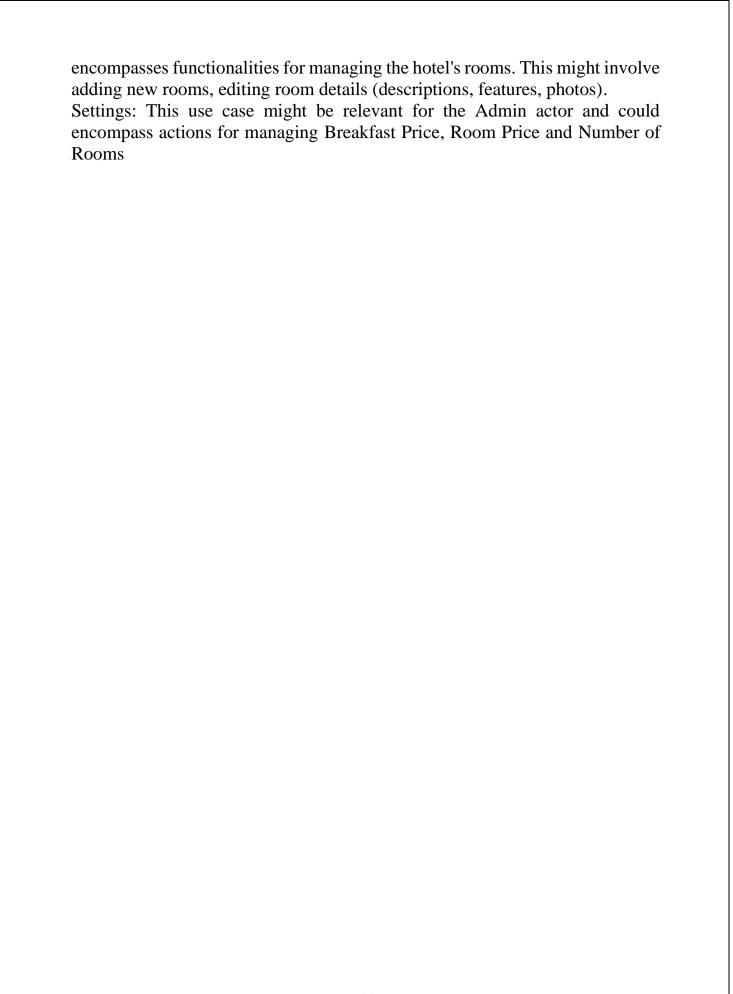Admin: In some cases, the diagram shows an Admin actor, who might possess broader system privileges for tasks like managing user accounts or configuring system settings.
Use Cases:
Book a Room: This central use case signifies the core functionality for the Customer. It encompasses the actions a customer takes to search for rooms based on criteria (dates, room type, etc.), view room details (amenities, price), and ultimately make a reservation.
Manage Bookings: This use case applies to the Employee actor and covers actions related to managing room reservations. It likely includes tasks like viewing upcoming reservations, checking in guests, checking out guests, and potentially modifying reservations.
Manage Rooms: This use case also applies to the Employee actor and

encompasses functionalities for managing the hotel's rooms. This might involve adding new rooms, editing room details (descriptions, features, photos).

Settings: This use case might be relevant for the Admin actor and could encompass actions for managing Breakfast Price, Room Price and Number of Rooms

5.3 Implementation

Implementation of proposed system must be included here. Students can explain implementation using screen shots of output.
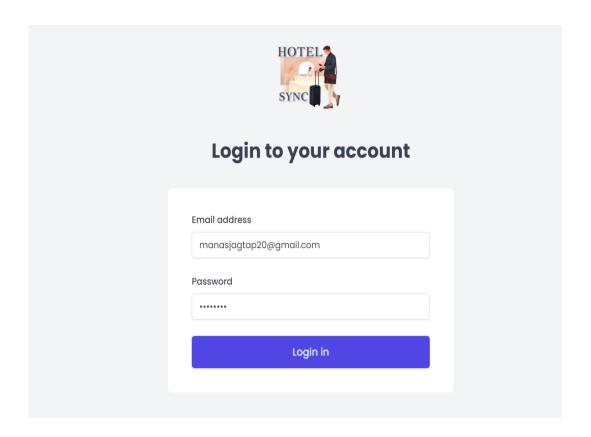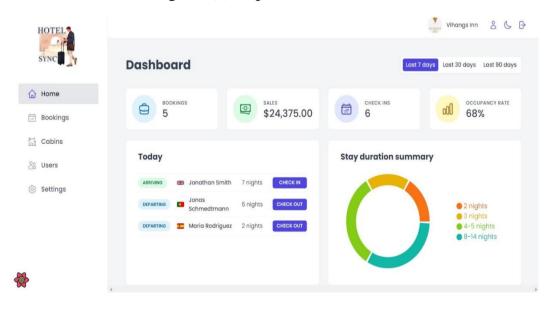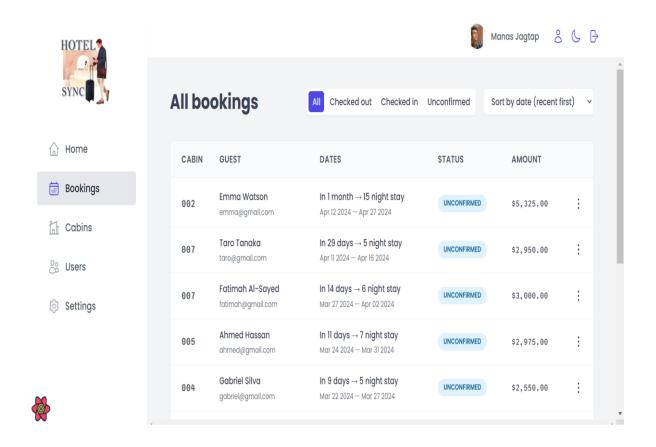

Fig 5.3 (a) Implementation

Fig 5.3 (b) Implementation
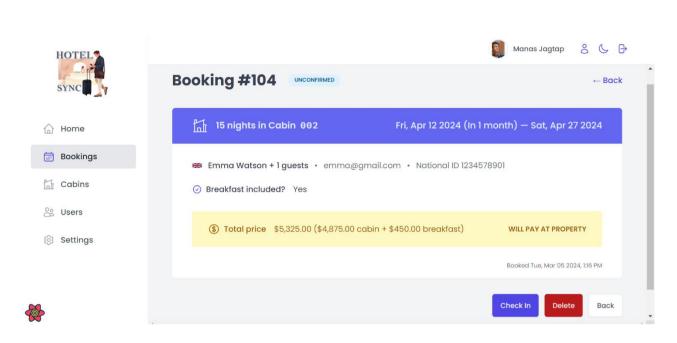
Fig 5.3 (c) Implementation

Fig 5.3 (d) Implementation
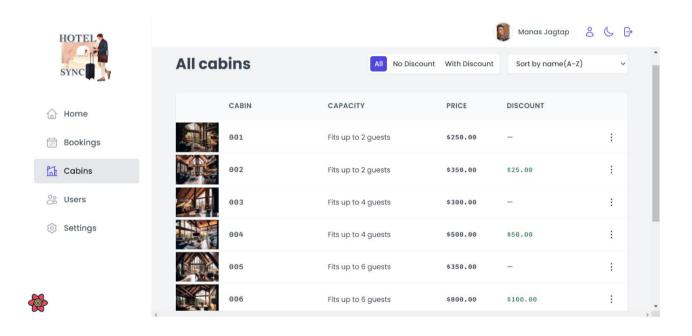
Fig 5.3 (e) Implementation
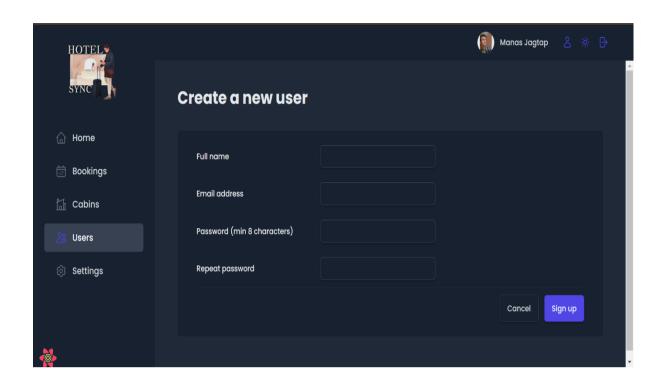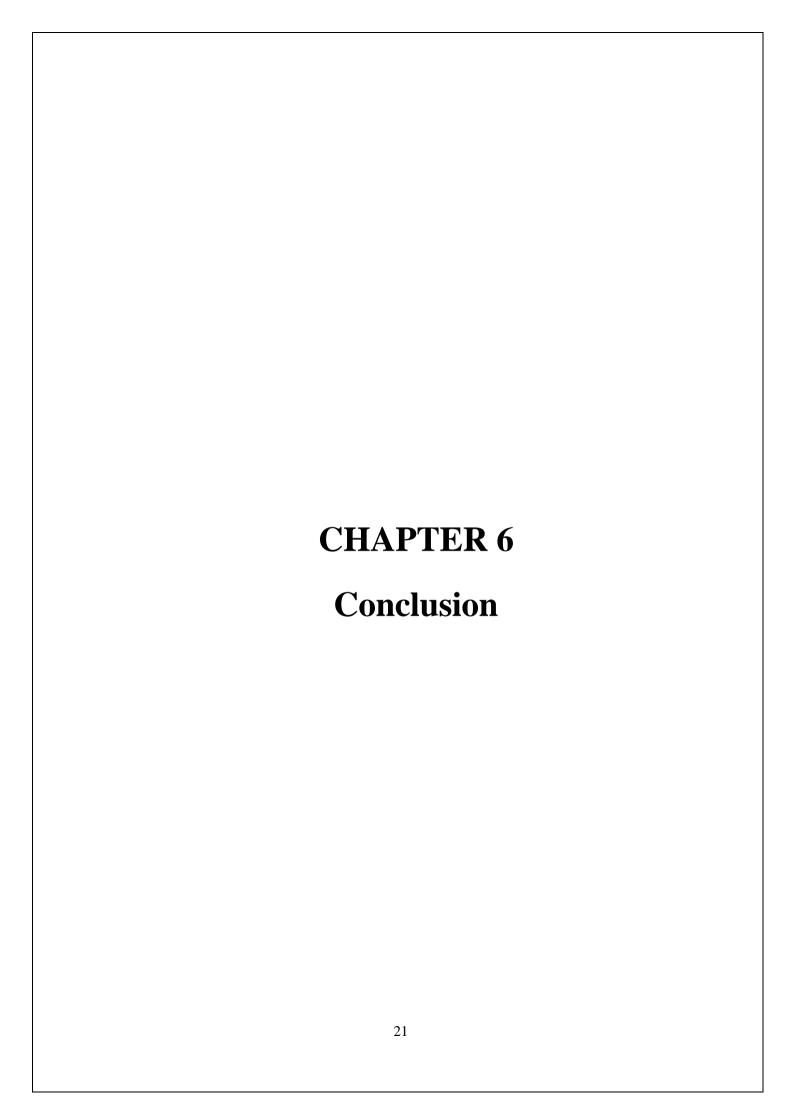

Fig 5.3 (f) Implementation

Fig 5.3 (g) Implementation

5.4 Advantages:

- **Efficiency:** With a centralized system, hotel staff can manage bookings, check-ins, check-outs, and cabin assignments efficiently, reducing manual errors and streamlining operations.
- **Enhanced Customer Experience:** By allowing guests to book cabins online and providing a seamless check-in/out process, Hotel Sync can improve the overall experience for customers, leading to increased satisfaction and loyalty.
- **Customization:** the user interface can be customizable to suit the specific needs and branding of the hotel, providing a unique and personalized experience for both staff and guests.
- **Scalability:** React.js is known for its scalability, making it suitable for hotel management systems that need to accommodate a growing number of cabins, bookings, and users over time.
- **Reservation Management:** Hotel Sync enables efficient management of reservations, including the ability to modify, cancel, or transfer bookings, ensuring optimal utilization of cabin inventory and maximizing revenue.

CHAPTER 6

Conclusion

6. Conclusion

Hotel Sync, powered by React.js offers a comprehensive array of features including authentication, cabin management, booking, and analytics, it streamlines operations and elevates guest experiences. With its user-friendly interface, Hotel Sync optimizes efficiency while ensuring flexibility and scalability. As hotels embrace digital transformation, Hotel Sync emerges as a vital tool, enabling them to navigate industry complexities and deliver exceptional service in today's competitive hospitality landscape.

References

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