Project title: “Hotel Reservation System”.

1. Introduction

In the modern hospitality industry, technology plays a very important role in improving service delivery and customer satisfaction. One of the most widely used technologies in hotels is the Hotel Reservation System. A hotel reservation system is a computerized system that allows customers to book rooms online, check room availability, view prices, and make reservations without physically visiting the hotel.

Traditionally, hotel reservations were managed manually using paper records, phone calls, and face-to-face communication. This method was time-consuming, prone to errors, and difficult to manage, especially during peak seasons. With the increase in internet usage and digital transformation, hotels now rely on automated reservation systems to manage bookings efficiently and accurately.

Objectives of the Hotel Reservation System Project

General Objective

The main objective of this project is to design and develop an efficient, user-friendly, and secure hotel reservation system that automates the process of booking hotel rooms, manages customer and room information, and improves service delivery for both customers and hotel management.

Specific Objectives

- To develop an online system that allows customers to check real-time room availability.
- To enable customers to make, modify, and cancel hotel
- To reduce manual work and human errors such as double bookings and incorrect records.
- To store and manage customer, room, and reservation data in a centralized database.
- To provide quick booking confirmation and reservation tracking for customers.
- To help hotel administrators manage rooms, prices, and booking status efficiently.
- To generate reports on reservations, room occupancy, and revenue for management decision-making.
- To improve customer satisfaction by providing a fast and convenient reservation process.
- To enhance data security and ensure authorized access to the system.
- To support scalability so the system can handle an increasing number of users and bookings.

Scope of the Project:

The scope of this project covers the design and development of a computerized hotel reservation system that automates the process of room booking and reservation management. The system is intended to be used by both hotel customers and hotel administrators through a web-based platform.

Significance of the Hotel Reservation System Project

The hotel reservation system project is significant because it helps improve efficiency, accuracy, and service delivery in the hospitality industry. By automating the reservation process, the system reduces reliance on manual methods such as phone calls and paper records, which are often slow and prone to errors.

Methodology

The methodology describes the systematic approach used to analyze, design, develop, and implement the hotel reservation system. This project follows a structured system development process to ensure reliability, efficiency, and user satisfaction.

1. Requirements Analysis

This phase involves identifying and analyzing the needs of both hotel customers and administrators. Information is collected through interviews, observation, and document review to understand current reservation procedures, challenges, and system expectations. Functional and non-functional requirements are then defined.

2. System Design

- Based on the requirements gathered, the system architecture and design are developed. This includes:
- Database design (tables for users, rooms, reservations, and payments)
- User interface design for customer and admin panels
- System flow diagrams and use case diagrams
- The design ensures usability, data integrity, and security.

3. Development

The system is developed as a web-based application using appropriate programming tools and technologies (e.g., PHP, HTML, CSS, JavaScript, and MySQL). Coding is done in modules such as user authentication, room management, booking processing, and reporting.

4. Testing

- Testing is conducted to ensure the system functions correctly and meets user requirements. This includes:
- Unit testing for individual modules
- Integration testing to ensure modules work together
- System testing to identify and fix errors
- Testing helps to ensure reliability, security, and performance.

5. Implementation

After successful testing, the system is deployed on a web server. Users are given access

credentials, and the system is made available for real use. Basic training may be provided to hotel staff to ensure smooth operation.

6. Maintenance

Maintenance involves monitoring system performance, fixing bugs, updating features, and improving security. Feedback from users is used to enhance system functionality and usability over time.

Development Model Used

The Waterfall Model is used in this project because it provides a clear and sequential approach, making it easy to manage and document each development phase.

System Requirements

1. Functional Requirements

The system shall be able to:

- Allow users (customers) to register, log in, and log out securely.
- Allow administrators to log in with authorized credentials.
- Display hotel information, room types, prices, and facilities.
- Check and display real-time room availability.
- Enable customers to book hotel rooms online.
- Allow customers to modify or cancel reservations.
- Generate booking confirmation for customers.
- Allow administrators to add, update, and delete room information.
- Manage customer records and reservation data.
- Generate reports on bookings, room occupancy, and reservation history.
- Prevent double booking of rooms.
- Store all system data in a centralized database.

3. Hardware Requirements

- Server Side:
- Processor: Minimum Dual-Core Processor
- RAM: Minimum 4 GB
- Storage: Minimum 100 GB
- Internet Connection: Stable broadband connection

Client Side:

- Smartphone, tablet, or computer
- Minimum 2 GB RAM
- Internet-enabled device

4**. Software Requirements**

- Server Side:
- Operating System: Windows, Linux, or macOS
- Web Server: Apache or Nginx
- Programming Language: PHP
- Database Management System: MySQL

- Server Package: XAMPP / WAMP / LAMP

Client Side:

Web Browser: Google Chrome, Mozilla Firefox, Microsoft Edge, or Safari

Literature Review

The hotel industry has experienced significant transformation due to advancements in information and communication technology. One of the most important technological developments in the hospitality sector is the adoption of computerized hotel reservation systems. According to Laudon and Laudon (2018), information systems play a critical role in improving organizational efficiency, customer satisfaction, and competitive advantage, especially in service-oriented industries such as hospitality.

Expected Outputs

The hotel reservation system is expected to produce the following outputs after successful implementation:

1. User Authentication Output

- Successful user registration confirmation
- Secure login and logout responses for customers and administrators

2. Room Information Output

- Display of available room types, prices, and facilities

Real-time room availability status

3. Reservation Output

- Successful room booking confirmation message
- Unique reservation ID for each booking
- Booking details including customer name, room type, check-in and check-out dates
- Reservation modification and cancellation confirmation

4. Administrative Output

- Dashboard displaying total bookings, available rooms, and occupied rooms
- Ability to add, update, or delete room information
- View and manage all customer reservations

5. Reports Output

- Booking history report
- Room occupancy report
- Reservation status report (confirmed, canceled, pending)

6. Database Output

- Secure storage of customer, room, and reservation records
- Updated database after every booking, modification, or cancellation

Conclusion

The hotel reservation system has been designed and developed to provide an efficient, reliable, and user-friendly solution for managing hotel room bookings. The system successfully automates the reservation process, reducing the challenges associated with manual booking methods such as errors, double bookings, and time delays.