Project Report

Web Engineering

Course Code: CSE-415

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Project Title: Hotel Reservation System

1. Introduction

The Hotel Reservation System is an online application designed to automate and streamline the process of booking hotel rooms. This project provides a simple interface for users to book rooms and for administrators to manage hotel data efficiently. The system reduces manual work, minimizes booking errors, and enhances user experience by offering easy access to hotel services anytime and from any device.

2. Objectives

- To build an efficient and secure room booking system.
- To enable users to book, cancel, and manage reservations online.
- To provide hotel staff with an admin panel for managing room inventory.
- To integrate user feedback into the requirement analysis.

3. Problem Statement

Manual booking systems are time-consuming and error-prone. Users often struggle with:

- Lack of transparency in room availability.
- Manual errors in booking records.
- Inaccessibility of booking services outside working hours.

4. Methodology

The system was developed using a User-Centered Design (UCD) approach, where requirements were collected from real users using a Google Form. The development followed basic SDLC phases: planning, analysis, design, implementation, and testing.We use htmal,css,javascript and php for the project.
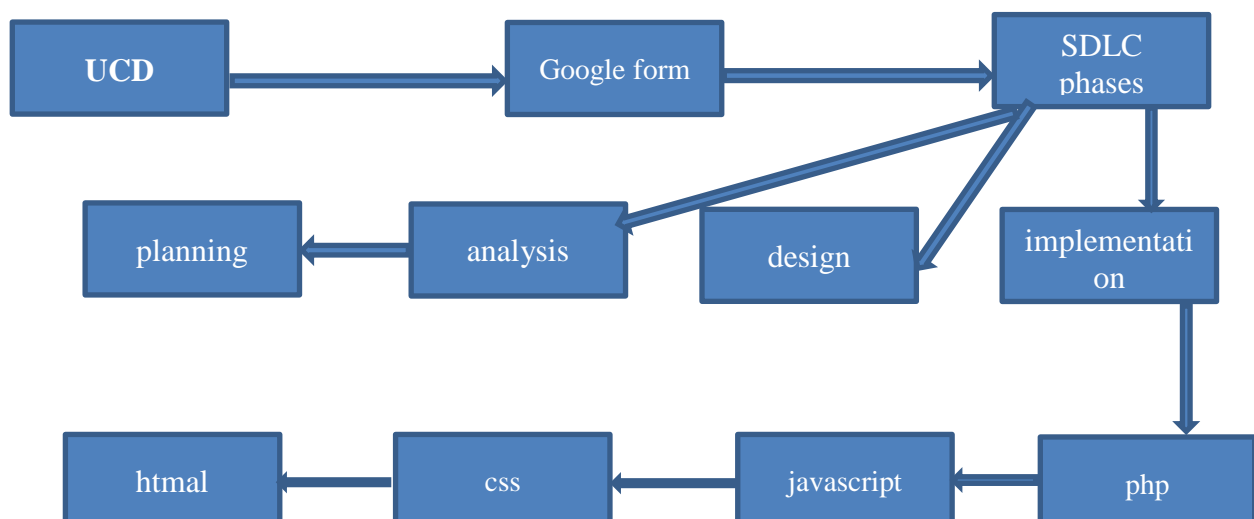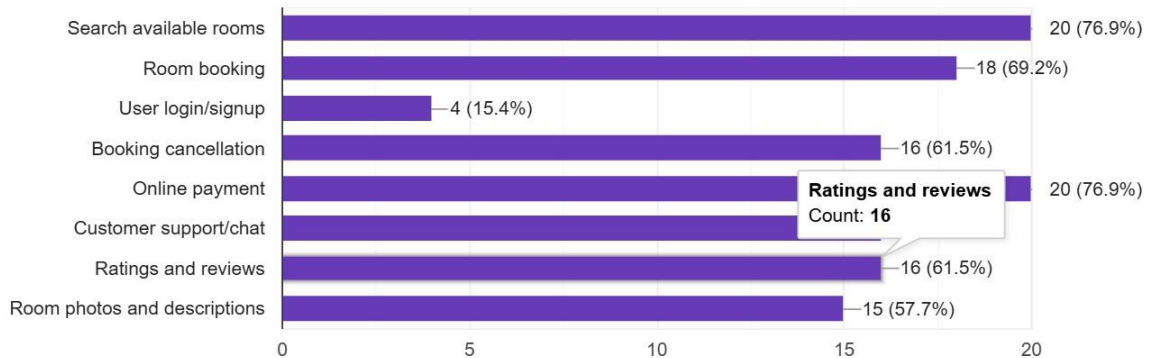
5. User Requirement Analysis

A Google Form was used to gather data from 30 users. The form included questions about booking preferences, device usage, desired features, and common frustrations.

a.76% want to Search available rooms:

What features do you expect in a hotel booking system?

26 responses

Feature	Count (%)
Search available rooms	20 (76.9%)
Room booking	18 (69.2%)
User login/signup	4 (15.4%)
Booking cancellation	16 (61.5%)
Online payment	20 (76.9%)
Customer support/chat	Ratings and reviews Count: 16
Ratings and reviews	16 (61.5%)
Room photos and descriptions	15 (57.7%)

Copy chart
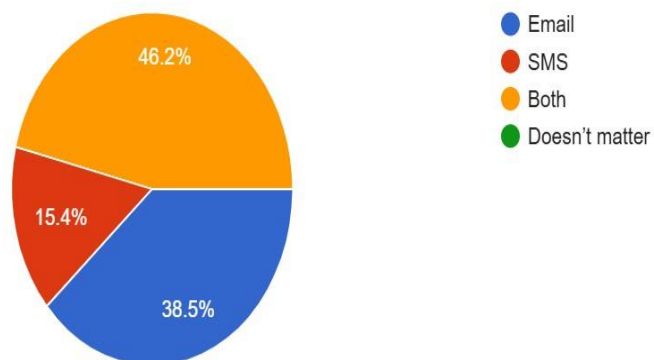
b. 46% people says that online payment integration is important:

Would you prefer to receive booking confirmation by email or SMS?

26 responses

Copy chart

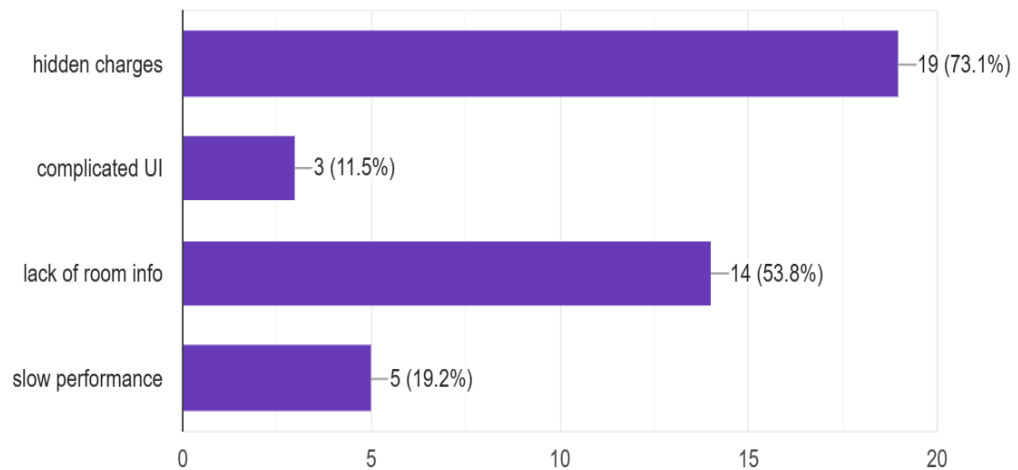- Email — 38.5%
- SMS — 15.4%
- Both — 46.2%
- Doesn't matter

c. 73% people are frustrates when booking hotels online because of:

What frustrates you the most when booking hotels online?

Copy chart

26 responses

6. Functional Requirements

- User Registration & Login
- Room Search & Availability Check
- Booking Confirmation with Email/SMS
- Booking Cancellation
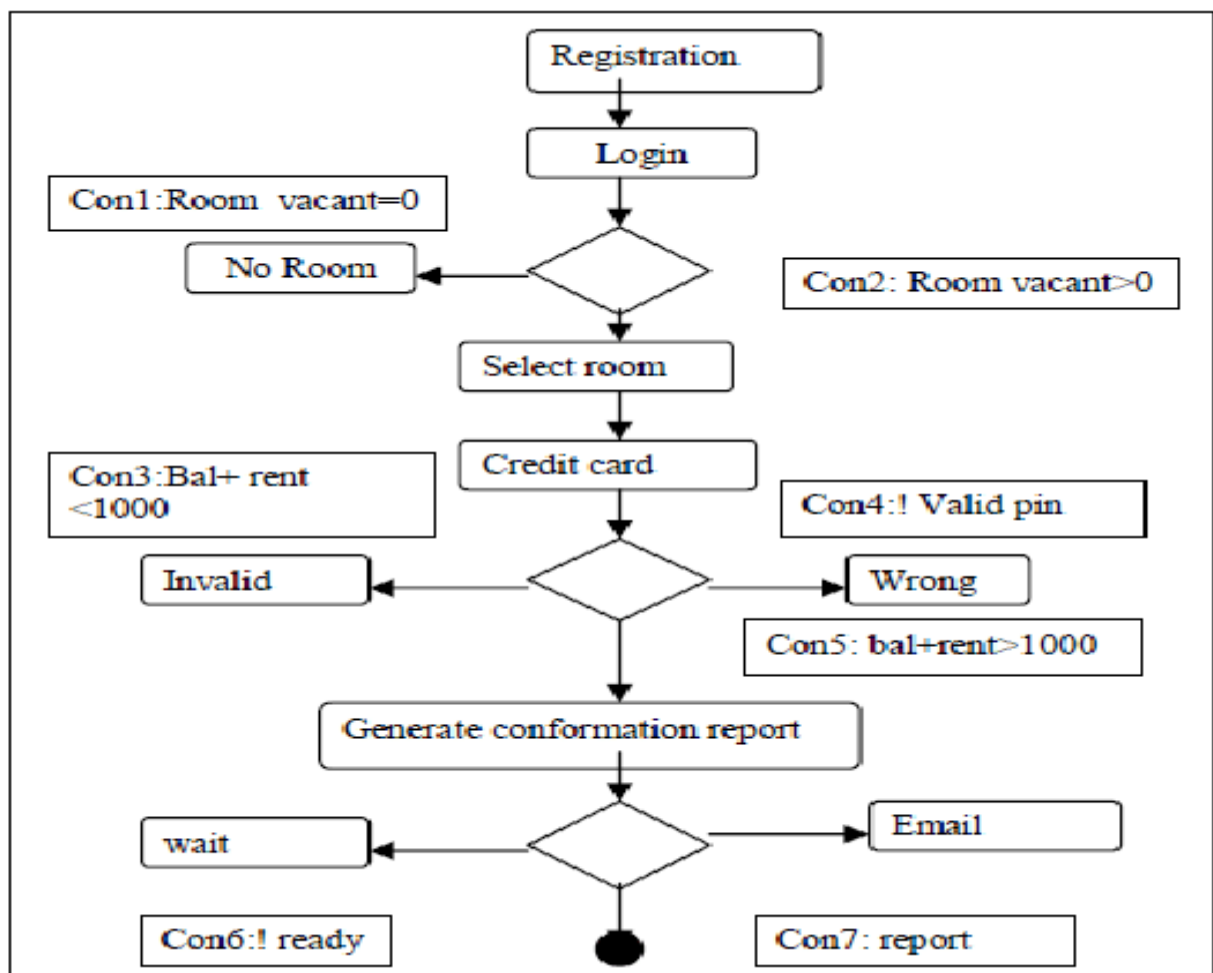- Admin Panel for Room & Booking Management

7. Non-Functional Requirements

- Responsive design for mobile & desktop
- Secure login and data encryption
- Fast response time
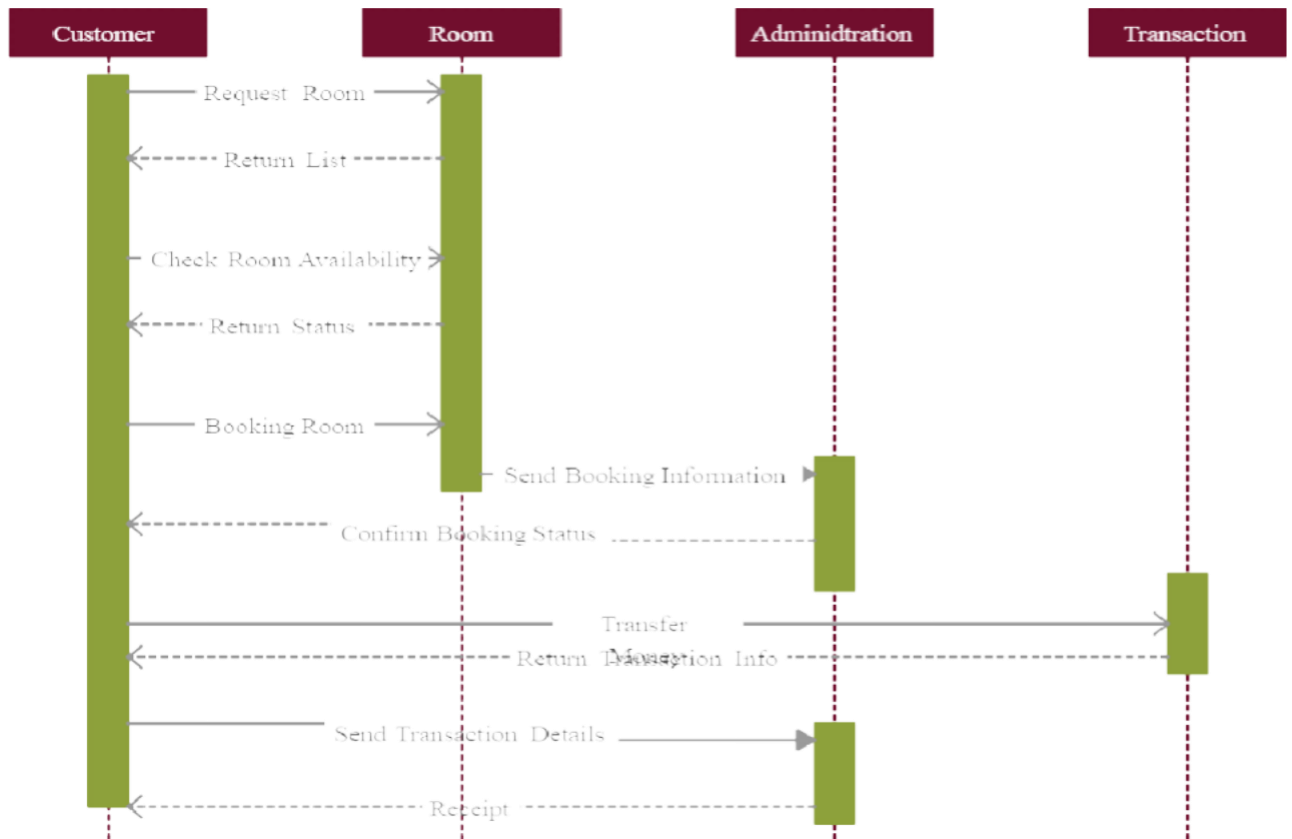- Scalable architecture
- Easy-to-use interface

8. System Diagrams:

a. Use Case Diagram

b. Activity Diagram

c. Sequence Diagram

9. Technologies Used

Technology	Purpose
HTML/CSS/Bootstrap	Frontend UI
PHP/Python/JS	Backend Logic
MySQL / SQLite	Database
Google Forms	Requirement Collection
draw.io	Diagram Design
XAMPP / Flask	Local Server Environment

10. Code Snippet Example:

```html
hotel management  >  <> index.html  >  ⊗ html  >  ⊗ body  >  ⊗ head  >  ⊗ nav  >  ⊗ div.nav__bar  >  ⊗ div.nav_header
 1    <!DOCTYPE html>
 2    <html lang="en">
 3
 4    <head>
 5      <meta charset="UTF-8" />
 6      <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 7      <link href="https://cdn.jsdelivr.net/npm/remixicon@3.5.0/fonts/remixicon.css" rel="stylesheet" />
 8      <link rel="stylesheet" href="styles.css" />
 9      <title>HOTEL CAMELLIA</title>
10    </head>
11
12    <body>
13
14      <head>
15        <!-- Navigation Bar  -->
16        <nav>
17          <div class="nav__bar">
18            <div class="nav_header">
19              <div class="logo nav__logo">
20                <div>H</div>
21                <span>HOTEL<br />CAMELLIA</span>
22              </div>
23              <div class="nav__menu__btn" id="menu-btn">
24                <i class="ri-menu-line"></i>
25              </div>
26            </div>
27            <ul class="nav__links" id="nav-links">
28              <li><a href="#home">Home</a></li>
29              <li><a href="#about">About</a></li>
```

```html
              <div class="nav__bar">
              </div>
          </nav>
          <!-- Header  -->
          <header class="header" id="home">
            <div class="section__container header__container">
              <p class="section__subheader">ABOUT US</p>
              <h1>The Perfect<br />Hotel For You</h1>
              <button class="btn">Take A Tour</button>
            </div>
          </header>
          <!-- Header Another section -->
          <section class="booking">
            <div class="section__container booking__container">
              <form action="/">
                <div class="input__group">
                  <label for="arrival">Arrival Date</label>
                  <input type="text" placeholder="Your Arrival Date" />
                </div>
                <div class="input__group">
                  <label for="departure">Departure Date</label>
                  <input type="text" placeholder="Your Departure Date" />
                </div>
                <div class="input__group">
                  <label for="guests">Guests</label>
                  <input type="text" placeholder="No Of Guests" />
                </div>
                <button class="btn">Check Availability</button>
              </form>
            </div>
          </section>
        </head>
```

ⓘ Restart Visual Studio Code to apply the latest update.

Update Now   Later

```html
<main>
  <section class="about" id="about">
    <div class="section__container about__container">
      <div class="about__grid">
        <div class="about__image">
          <img src="assets/about-1.jpg" alt="about" />
        </div>
        <div class="about__card">
          <span><i class="ri-user-line"></i></span>
          <h4>Strong Team</h4>
          <p>
            Unlocking Hospitality Excellence And Ensures Your Perfect Stay
          </p>
        </div>
        <div class="about__image">
          <img src="assets/about-2.jpg" alt="about" />
        </div>
        <div class="about__card">
          <span><i class="ri-calendar-check-line"></i></span>
          <h4>Luxury Room</h4>
          <p>Experience Unrivaled Luxury at Our Exquisite Luxury Rooms</p>
        </div>
      </div>
      <div class="about__content">
        <p class="section__subheader">ABOUT US</p>
        <h2 class="section__header">Discover Our Underground</h2>
        <p class="section__description">
          Welcome to a hidden realm of extraordinary accommodations where
          luxury, comfort, and adventure converge. Our underground hotels
          offer an unparalleled escape from the ordinary, inviting you to
          explore a subterranean world of wonders.
        </p>
        <button class="btn">Book Now</button>
```

ⓘ Restart Visual Studio Code to apply the latest update.

Update Now   Later

```html
    <section class="about" id="about">
    </section>

    <section class="room__container" id="room">
      <p class="section__subheader">ROOMS</p>
      <h2 class="section__header">Hand Picked Rooms</h2>
      <div class="room__grid">
        <div class="room__card">
          <img src="assets/room-1.jpg" alt="room" />
          <div class="room__card__details">
            <div>
              <h4>Deluxe Suite</h4>
              <p>Well-appointed rooms designed for guests who desire a more.</p>
            </div>
            <h3>15000Tk<span>/night</span></h3>
          </div>
        </div>
        <div class="room__card">
          <img src="assets/room-2.jpg" alt="room" />
          <div class="room__card__details">
            <div>
              <h4>Family Suite</h4>
              <p>Consist of multiple rooms and a common living area.</p>
            </div>
            <h3>18000Tk<span>/night</span></h3>
          </div>
        </div>
        <div class="room__card">
          <img src="assets/room-3.jpg" alt="room" />
          <div class="room__card__details">
            <div>
              <h4>Luxury Penthouse</h4>
              <p>
                Top-tier accommodations usually on the highest floors of a
```
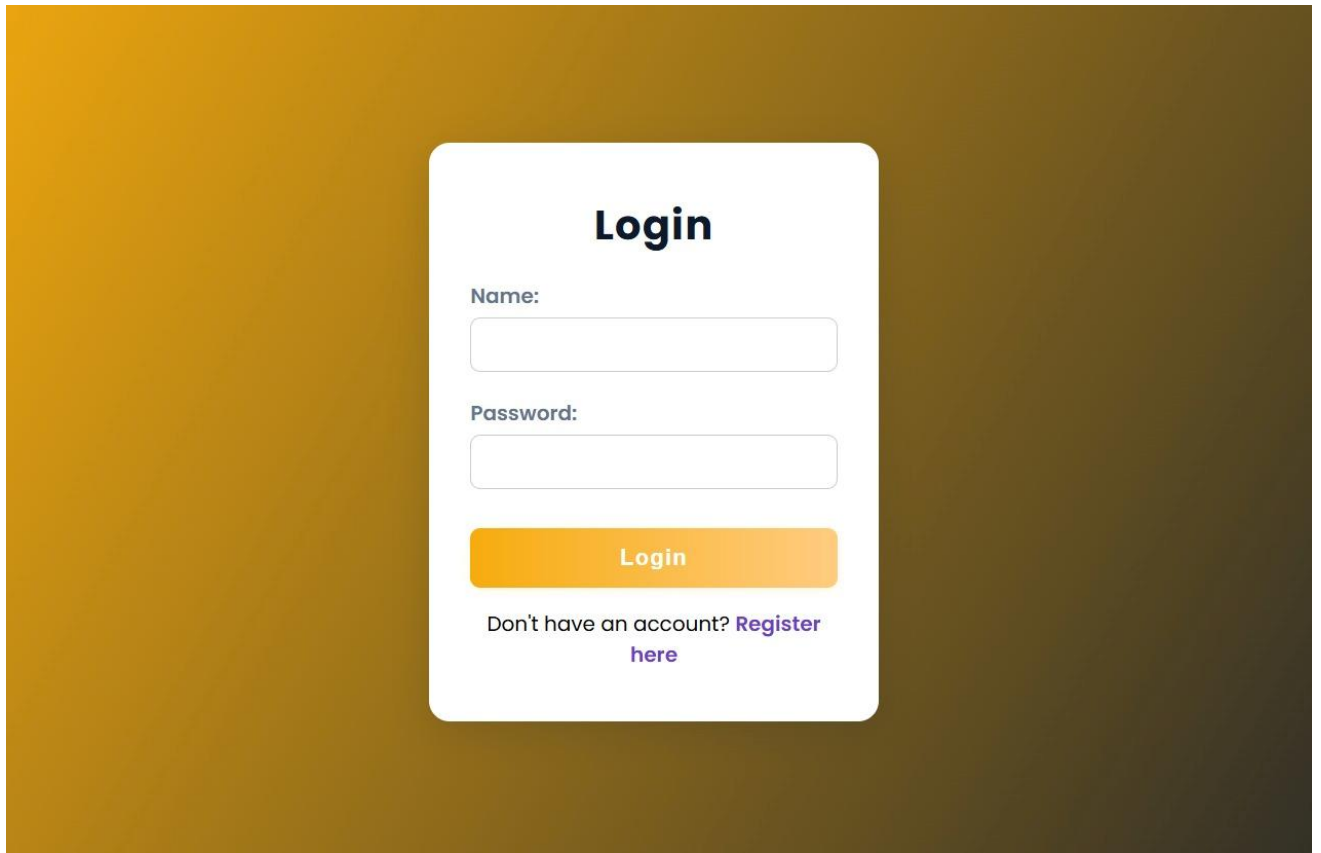
database.php

```php
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "hotel_users";

$conn = new mysqli(hostname: $servername, username: $username, password: $password, database: $dbname);
if($conn->connect_error){
    die("Connection failed: " . $conn->connect_error);
}
?>
```

JS script.js > ...

```javascript
const hotels=[
  {
    name:"Pan Pacific Sonargaon Dhaka",
    image:"https://images.trvl-media.com/lodging/1000000/10000/500/476/a13850cb.jpg?impolicy=fcrop&w=120
    price:"৳ 15,000/night",
    description:"Luxurious hotel in Dhaka with premium amenities.",
    link:"https://www.panpacific.com/en/hotels-and-resorts/pp-dhaka/rooms.html"
  },
  {
    name:"The Peninsula Chittagong",
    image:"https://www.peninsulactg.com/wp-content/uploads/2024/09/standerd-delux.webp",
    price:"৳ 12,500/night",
    description:"Modern rooms in the heart of Chittagong city with rooftop dining.",
    link:"https://www.peninsulactg.com/suite/standard-delux/"
  },
  {
    name:"Best western Heritage Hotel",
    image:"https://bwheritagehotel.com/wp-content/uploads/2022/05/Premium-sea-view-bed.jpg",
    price:"৳ 10,000/night",
    description:"Beachfront hotel with stunning views and an infinity pool.",
    link:"https://bwheritagehotel.com/executive-suit/"
  },
  {
    name:"InterContinental Dhaka",
    image:"https://digital.ihg.com/is/image/ihg/intercontinental-dhaka-8213137108-3x2",
    price:"৳ 18,000/night",
    description:"Iconic luxury hotel in Dhaka",
    link:"https://www.ihg.com/intercontinental/hotels/us/en/dhaka/dachb/hoteldetail/rooms"
  }
]
```

11. Output:

12. Future Scope:

- Add payment gateway integration
- Develop a mobile app version
- Add support for multiple hotels
- AI-based suggestions for available rooms based on preferences
- Real-time room tracking and booking analytics

13. Conclusion:

The Hotel Reservation System provides a reliable and user-friendly platform for hotel room booking. The project was developed after analyzing real user feedback and addresses major issues users face in traditional booking systems. It includes essential features for both users and administrators and is scalable for future improvements.