Hotel Booking System

REPORT

Project Title:
Hotel Booking System

Name:
Sodeed Ahmed

Roll Number:
68

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C Microproject

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Introduction

Brief Overview of the Project:

The Hotel Booking System is a C program designed to manage hotel reservations, room availability, and guest check-ins and check-outs. This system allows users to view available rooms, book rooms, and check out guests in a simple, user-friendly interface.

Problem Statement:

In hotels, efficiently managing room bookings, checking the availability of rooms, and handling check-ins and check-outs are essential for smooth operations. Manual tracking may lead to errors and inefficiencies, requiring a system that automates these tasks.

Objective:

The objective of this project is to develop a basic hotel booking system in C that automates room booking, displays room availability, and handles guest check-ins and check-outs.

System Requirements

Hardware Requirements:

- PC with a minimum of 1 GB RAM
- Processor: Intel Pentium or higher
- Minimum 500 MB of free disk space

Software Requirements:

- Operating System: Windows/Linux/MacOS
- C Compiler (e.g., GCC, Turbo C)
- Text Editor (e.g., Visual Studio Code, Code::Blocks)

Design and Development

Description of the Program Logic: The system uses a structured approach by defining a `Room` structure that stores information about each room in the hotel, including room number, availability, and guest name. Functions are created to initialize rooms, display available

rooms, book rooms, check out guests, and show the current status of rooms. The main function controls the program by calling these functions based on user inputs.

Flowchart or Pseudocode:

1. **Initialize Rooms:**
    - Assign room numbers and set all rooms to available status.
2. **Display Available Rooms:**
    - Iterate over all rooms and list those that are available.
3. **Book a Room:**
    - Display available rooms, ask for the room number, and if valid, mark the room as booked.
4. **Check Out a Room:**
    - Ask for the room number and if valid, mark the room as available again.
5. **Show Room Status:**
    - Display the current status of all rooms (available or booked with guest name).
6. **User Menu:**
    - Provide options to the user for booking, checking out, or viewing room status.

Testing and Results

Test Cases:

Test Case	Input	Expected Output	Result
1. Initialize Rooms	-	All rooms set to available	Pass
2. Show Available Rooms	Option 1 selected	List of all rooms as available	Pass
3. Book a Room	Enter room number, guest name	Room booked and confirmation message	Pass
4. Book an invalid room	Enter an invalid room number	Error message stating invalid room	Pass
5. Check Out a Room	Enter room number to check out	Room status reset to available	Pass
6. Show Room Status	Option 4 selected	Show current status of all rooms (booked or available)	Pass
7. Exit	Option 5 selected	Program exits	Pass

Output Screenshots or Results:

CHECK AVAILABILITY OF ROOM:-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 1

Available Rooms:
Room 1 is available
Room 2 is available
Room 3 is available
Room 4 is available
Room 5 is available
Room 6 is available
Room 7 is available
Room 8 is available
Room 9 is available
Room 10 is available
```

BOOKING FIRST ROOM:-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 2

Available Rooms:
Room 1 is available
Room 2 is available
Room 3 is available
Room 4 is available
Room 5 is available
Room 6 is available
Room 7 is available
Room 8 is available
Room 9 is available
Room 10 is available

Enter the room number you'd like to book: 10
Enter the guest name: Sodeed
Room 10 has been successfully booked by Sodeed.
```

BOOKING SECOND ROOM:-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 2

Available Rooms:
Room 1 is available
Room 2 is available
Room 3 is available
Room 4 is available
Room 5 is available
Room 6 is available
Room 7 is available
Room 8 is available
Room 9 is available

Enter the room number you'd like to book: 5
Enter the guest name: Akash
Room 5 has been successfully booked by Akash.
```

BOOKING THIRD ROOM:-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 2

Available Rooms:
Room 1 is available
Room 2 is available
Room 3 is available
Room 4 is available
Room 6 is available
Room 7 is available
Room 8 is available
Room 9 is available

Enter the room number you'd like to book: 3
Enter the guest name: Ruben
Room 3 has been successfully booked by Ruben.
```

BOOKING FOURTH ROOM :-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 2

Available Rooms:
Room 1 is available
Room 2 is available
Room 4 is available
Room 6 is available
Room 7 is available
Room 8 is available
Room 9 is available

Enter the room number you'd like to book: 1
Enter the guest name: Adarsh Nair
Room 1 has been successfully booked by Adarsh Nair.
```

ALL ROOMS STATUS BOOKED AND NOT BOOKED :-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 4

Current Room Status:
Room 1 is booked by Adarsh Nair.
Room 2 is available.
Room 3 is booked by Ruben.
Room 4 is available.
Room 5 is booked by Akash.
Room 6 is available.
Room 7 is available.
Room 8 is available.
Room 9 is available.
Room 10 is booked by Sodeed.
```

CHECK OUT FROM ROOM & EXIT :-

```
--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 3

Enter the room number to check out: 10
Room 10 has been checked out and is now available.

--- Hotel Booking System ---
1. Show Available Rooms
2. Book a Room
3. Check Out of a Room
4. Show All Room Statuses
5. Exit
Enter your choice: 5
Thank you for using the Hotel Booking System. Goodbye!
```

Discussion of Results

The system behaves as expected based on the test cases. Users can seamlessly book and check out of rooms, and the status of each room is accurately displayed at every stage. The program successfully handles edge cases, such as attempting to book an already occupied room or checking out of a vacant room.

Conclusion

Summary of the Project:

This project successfully implements a simple hotel booking system using C programming. The system can handle room bookings, check availability, and manage guest check-ins and check-outs. It uses basic C concepts such as structures, functions, and loops to achieve its functionality.

Future Enhancements:

- Implement a database for persistent storage.
- Add user authentication for hotel management.
- Include features such as modifying bookings or calculating the total cost of stay.

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