

# C Programming Project: Hotel Room Booking System

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# Summary of the Project

In this project, a C program has been used to implement an Online Hotel Room Booking System. The system is designed to address the basic needs of managing a hotel's room bookings, and keeping track of customer reservations. It offers the following features:

- For administrators to manage rooms and view all bookings.
- For customers to view available rooms, make and cancel bookings, and review their own reservations.

## Features of the booking system:

The following functions have been used in the program to facilitate the above features:

### 1. Admin Functionalities:

- a) `addRoom`: Administrators can add new rooms to the system by specifying details such as room number, room type, and price per night. Rooms are initially marked as available.
- b) `viewRooms`: Displays all rooms currently in the system, including details like room number, type, price, and availability status.
- c) `updateRoomDetails`: Allows administrators to update the details of a room, such as changing its type, price, or availability.
- d) `removeRoom`: Administrators can remove a room from the system, updating the number of available rooms.
- e) `viewBookings`: Displays all bookings made in the system, showing booking ID, room number, customer ID, and date of booking.

### 2. Customer Functionalities:

- a) `viewRooms`: Allows customers to view all rooms that are currently available for booking.
- b) `bookRoom`: Customers can book a room by specifying the room number and date.

c) cancelBooking: Customers can cancel an existing booking by providing the Customer ID. Only bookings made by the customer are eligible for cancellation.

d) viewMyBookings: Displays all bookings made by the customer, helping them keep track of their reservations.

### 3. Other functions:

a) validateAdminLogin- Checks the Login credentials of the administrator.

b) validateRoomType- Checks if the room type entered by user is valid.

c) isRoomAlreadyBooked- Checks if the room number entered by the user is already booked.

### 4. Data Management:

The system uses files (RoomData.txt, Bookings.txt, and AdminData) to store data. Each file stores the following data:

a) RoomData: Contains details about the hotel rooms.

b) Bookings: Stores booking information, including the room number, customer ID, and date.

c) AdminData: Holds the login credentials of the administrators.

The program includes basic error handling for file operations, such as checking if a file can be opened and printing error messages when necessary. It runs in a loop, providing a simple menu that navigates between the main menu, admin menu, and customer menu, based on user roles and selections

### OUTPUT:

1. Creating admin username and password

```
Enter Username:marita
Enter Password:marita123
Enter Username:james
Enter Password:james123
Admin data has been written to AdminData.
```

## 2. Entering login credentials and accessing the Admin menu

```
Choose user type:
1. Admin
2. Customer
3. Exit
Enter your choice: 1
Enter Admin Username: marita
Enter Admin Password: marita123

Admin Menu:
1. Add Room
2. View All Rooms
3. Update Room Details
4. Remove Room
5. View Bookings
6. Exit Admin Menu
```

## 3. Adding rooms

```
Enter your choice: 1
Enter Room Number (positive integer): 1
Enter Room Type (Single, Double, Suite): Single
Enter Price: 1000
Room details have been added to RoomData.txt.
```

## 4. Viewing available rooms

```
Rooms available:

Room Number: 1
Room Type: Single
Price: 1000.00
Availability: Yes
-----
Room Number: 2
Room Type: Double
Price: 1500.00
Availability: Yes
-----
Room Number: 3
Room Type: Suite
Price: 2000.00
Availability: Yes
-----
Room Number: 4
Room Type: Double
Price: 1800.00
Availability: Yes
-----
```

## 5. Updating rooms

```
Enter your choice: 3
Enter Room Number to update: 2
Room found! Updating details...
Enter New Room Type (Single, Double, Suite): Double
Enter New Price: 1800
Enter New Availability (Yes/No): Yes
Room details updated successfully!
```

```
Room Number: 2
Room Type: Double
Price: 1800.00
Availability: Yes
```

## 6. Accessing Customer menu

```
Customer Menu:
1. View Rooms
2. Book Room
3. cancel booking
4. view my booking
5. Exit Customer Menu
```

## 7. Booking room

```
Enter your choice: 2
Enter Room Number to book: 4
Enter Customer Name: anina
Enter Booking Date (DD/MM/YYYY): 12/09/2024
Room 4 has been successfully booked by anina (Customer ID: 1) for 12/09/2024
```

## 8. Viewing booked room

```
Enter your choice: 4
Enter Your Customer ID: 1

Your bookings:

Customer ID: 1
Customer Name: anina
Room Number: 4
Booking Date: 12/09/2024
```

## 9. Cancel booking

```
Enter your choice: 3
Enter Your Customer ID: 1
Enter Room Number to cancel: 4
Successfully cancelled room 4 for Wóyv►.
```

## 10. Viewing bookings (by admin)

```
Customer Bookings:
Customer ID      Customer Name    Room Number      Booking Date
-----
1      maria      1      24/9/2024
2      anina      4      12/09/2024
```

## 11. Removing room

```
Enter your choice: 4
Enter Room Number to remove: 2
Room number 2 removed successfully!
```

```
Rooms available:

Room Number: 1
Room Type: Single
Price: 1000.00
Availability: No
-----
Room Number: 3
Room Type: Suite
Price: 2000.00
Availability: Yes
-----
Room Number: 4
Room Type: Double
Price: 1800.00
Availability: No
-----
```

### Limitations of the implemented booking system:

1. Customers have to go through all existing rooms in the property to find the room which they want. For this, a search feature can be added to filter rooms by type, availability, or price.
2. There is no fixed format defined for the booking date in the program and hence the user can even input an invalid date. Booking dates can also be validated.
3. Once an administrator has registered, for new administrators to register, the whole AdminData file has to be re-written with the login data of old and new administrators.