Simple Hotel Room Management Project (CSharp Project 2)

Develop a simple Hotel Room Management System that allows an admin to manage room bookings. The system should support the following operations:

◆ System Operations

1. Add a new room (Room Number, Daily Rate)

2. View all rooms (Available and Reserved)

3. Reserve a room for a guest (Guest Name, Room Number, Nights)

4. View all reservations with total cost

5. Search reservation by guest name (case-insensitive)

6. Find the highest-paying guest

7. Cancel a reservation by room number

8. Exit the system

◆ Required Logic and Implementation Details

1. Menu System (Using switch-case & loop)

- A looped menu that continues until the admin selects "Exit".

Data Structures (Using Parallel Arrays)

- int[] roomNumbers → Room Numbers

- double[] roomRates → Daily Rate for each room

- bool[] isReserved → Reservation status for each room

- string[] guestNames → Guest names (aligned with room numbers)

- int[] nights → Nights booked per reservation

- DateTime[] bookingDates → Set using DateTime.Now

Use roomCount for number of registered rooms, and MAX_ROOMS as system capacity.

◆ Add a New Room

- Input: Room number and daily rate

- Validations:

  o Room number must be unique

  o Rate must be >= 100

◆ View All Rooms (Available + Reserved)

- Loop through all rooms

- Print status as:

    o Available: Not reserved

    o Reserved: Show guest name and total cost (nights × rate)

◆ Reserve a Room

- Input: Guest name, room number, and number of nights

- Validations:

    o Room must exist

    o Room must not already be reserved

    o Nights > 0

◆ View All Reservations

- Display guest name, room number, nights, rate, total cost

◆ Search Reservation by Guest Name

- If found, show full reservation; else, print "Not found"

◆ Highest-Paying Guest

- Calculate total cost for each reserved room

- Track and display guest with the highest amount

◆ Cancel Reservation by Room Number

- Input room number

- If reserved, set isReserved = false, clear guest name and nights