Business Problem

A hotel chain wants to optimize its room reservation system to maximize occupancy and revenue. The chain wants to track the availability and utilization of its rooms to ensure efficient allocation and pricing. By analyzing reservation patterns and occupancy rates, the hotel chain can make data-driven decisions to improve room management, optimize pricing strategies, and enhance guest satisfaction.

PART 1: Relational DB Requirements

The relational database schema for a hotel chain must include the following information:

Room information: room number, room type, capacity, price per night, etc.

Guest information: guest ID, name, contact details, etc.

Reservation information: reservation ID, guest ID, room number, check-in date, check-out date, etc.

Payment information: reservation ID, payment amount, payment date, payment method, etc.

PART 2: Inserting Data

Three rooms with the following attributes:

* ﻿﻿Room number: 101, Room type: Standard, Capacity: 2, Price per night: $100.00 Room number: 201, Room type: Deluxe, Capacity: 4, Price per night: $150.00 Room number: 301, Room type: Suite, Capacity: 2, Price per night: $200.00
* ﻿﻿Five guests with the following attributes:
* ﻿﻿Guest ID: 1, Name: John Doe, Contact Details: john.doe@example.com

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Guest ID: 2, Name: Jane Smith, Contact Details: jane.smith@example.com

* ﻿﻿Guest ID: 3, Name: Mike Johnson, Contact Details: mike.johnson@example.com
* ﻿﻿Guest ID: 4, Name: Emily Davis, Contact Details: emily.davis@example.com

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Guest ID: 5, Name: David Wilson, Contact Details: david.wilson@example.com

* ﻿﻿Five reservation records with the following attributes:
* ﻿﻿Reservation ID: 1, Guest ID: 1, Room Number: 101, Check-in Date: 2023-05-01, Check-out Date: 2023-05-05
* ﻿﻿Reservation ID: 2, Guest ID: 2, Room Number: 201, Check-in Date: 2023-05-02, Check-out Date: 2023-05-08

﻿﻿Reservation ID: 3, Guest ID: 3, Room Number: 301, Check-in Date: 2023-05-03, Check-out Date: 2023-05-07

Reservation ID: 4, Guest ID: 4, Room Number: 101, Check-in Date: 2023-05-05,

Check-out Date: 2023-05-10

Reservation ID: 5, Guest ID: 1, Room Number: 201, Check-in Date: 2023-05-05,

Check-out Date: 2023-05-10

* ﻿﻿Three payment records with the following attributes:
* ﻿﻿Reservation ID: 1, Payment Amount: $400.00, Payment Date: 2023-05-05, Payment Method: Credit Card Reservation ID: 2, Payment Amount: $1050.00, Payment Date: 2023-05-08,
* Payment Method: Cash
* ﻿﻿Reservation ID: 3, Payment Amount: $900.00, Payment Date: 2023-05-07,
* Payment Method: Credit Card

PART 3: Solving our Business Problem

* ﻿﻿﻿Show the current rooms available for a 3 night stay from 2023-05-02 to 2023-05-05. Display the room number and room type.
* ﻿﻿﻿Display each guest's name and the total amount they have spent on reservations, ordered by the highest amount spent. Only display guests that have spent more than $1000.
* ﻿﻿﻿Calculate the average gross revenue for each room type (standard, deluxe, suite). Display the room type and the corresponding average gross revenue
* ﻿﻿﻿Which guests have made reservations for both room 101 and room 201? Display the guest\_names.
* ﻿﻿﻿Calculate the amount owed for each reservation that hasn't been paid yet. Display the reservation ID and amount\_owed.