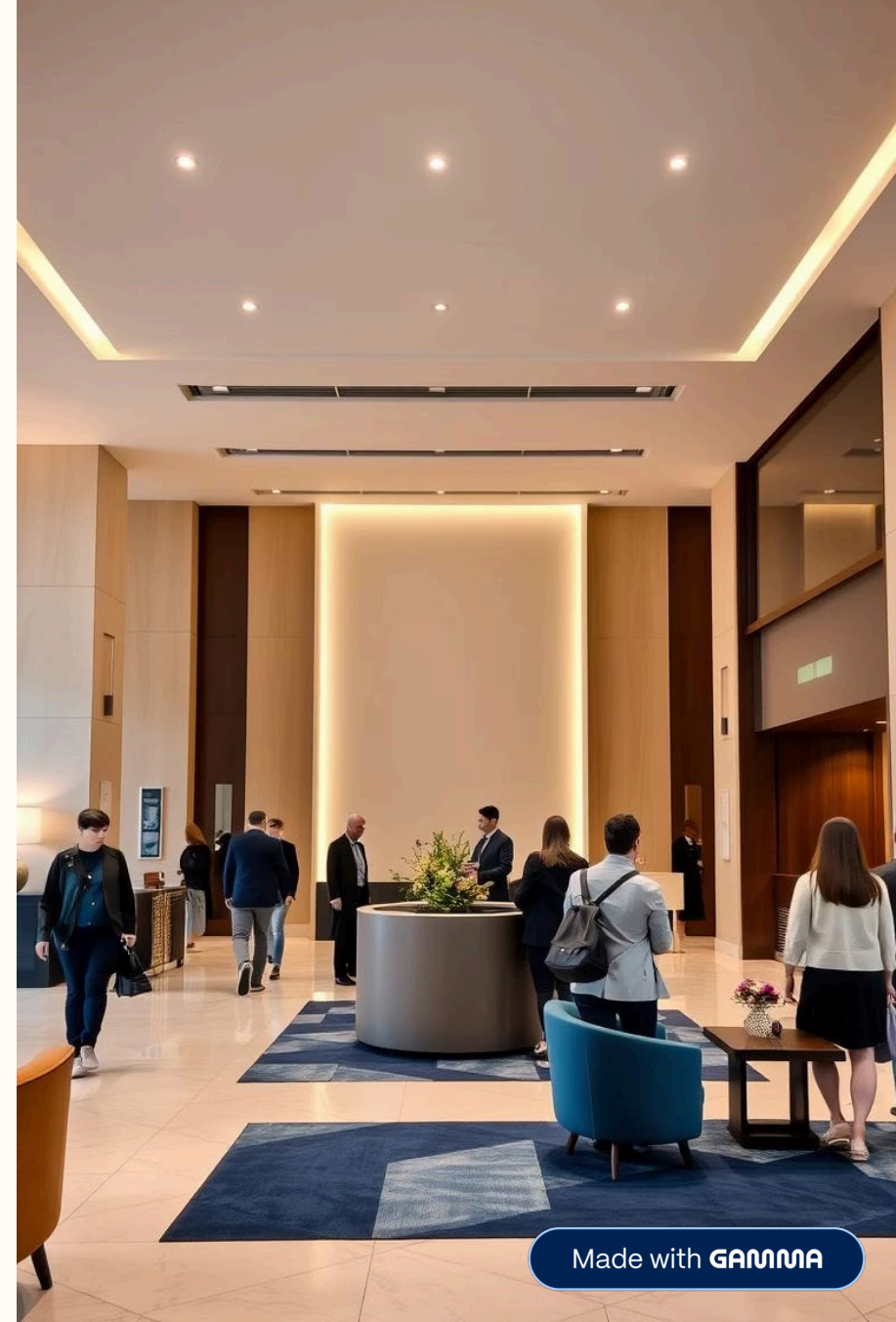# Hotel Booking System

**System Analysis & OOP Implementation**

**by Salma Elmaghawry**

# System Entities

**Hotel**

Stores details of the hotel.

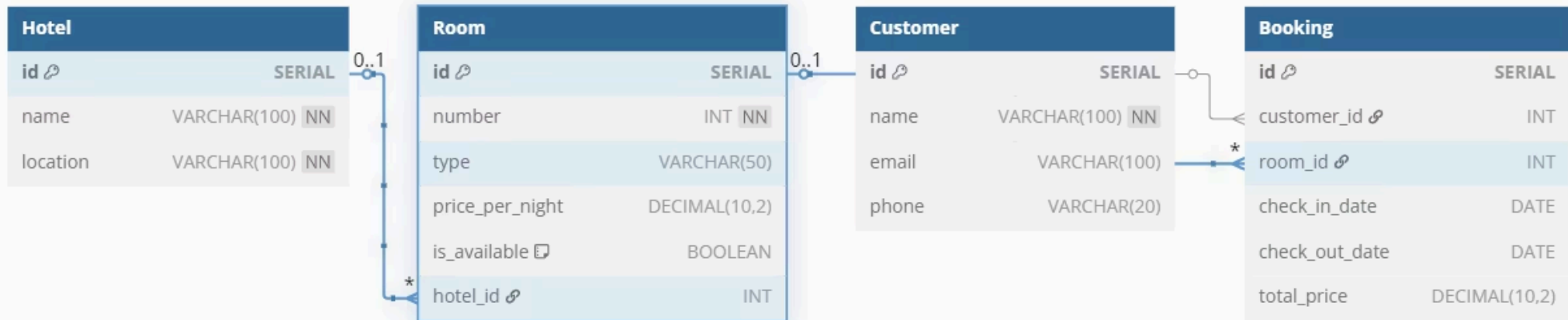**Room**

Represents individual rooms with availability.

**Customer**

Manages customer information and booking history.

**Booking**

Tracks booking details and status.

**Hotel**

| id 🔑 | SERIAL |
|---|---|
| name | VARCHAR(100) NN |
| location | VARCHAR(100) NN |

**Room**

| id 🔑 | SERIAL |
|---|---|
| number | INT NN |
| type | VARCHAR(50) |
| price_per_night | DECIMAL(10,2) |
| is_available | BOOLEAN |
| hotel_id 🔗 | INT |

**Customer**

| id 🔑 | SERIAL |
|---|---|
| name | VARCHAR(100) NN |
| email | VARCHAR(100) |
| phone | VARCHAR(20) |

**Booking**

| id 🔑 | SERIAL |
|---|---|
| customer_id 🔗 | INT |
| room_id 🔗 | INT |
| check_in_date | DATE |
| check_out_date | DATE |
| total_price | DECIMAL(10,2) |

# Hotel Class

```dart
import 'room_class.dart';

class Hotel {
  String name;
  String location;
  List<Room> rooms;

  Hotel(this.name, this.location, this.rooms);

  List<Room> availableRooms() {
    return rooms.where((room) => room.isAvailable).toList();
  }
}
```

# Customer Class

```
class Customer {
  String name;
  String email;
  String phone;

  Customer(this.name, this.email, this.phone);
}
```

# Room Class

```
class Room {
  int number;
  String type;
  double pricePerNight;
  bool isAvailable;

  Room(this.number, this.type, this.pricePerNight, {this.isAvailable = true});
}
```

# Booking Class

```dart
import 'customer_class.dart';
import 'room_class.dart';

class Booking {
  static int _bookingCounter = 0;

  int id;
  Customer customer;
  Room room;
  DateTime checkInDate;
  DateTime checkOutDate;
  double totalPrice;

  Booking(this.customer, this.room, this.checkInDate, this.checkOutDate)
      : id = ++_bookingCounter,
        totalPrice = _calculateTotalPrice(room, checkInDate, checkOutDate) {
    room.isAvailable = false;
  }

  static double _calculateTotalPrice(Room room, DateTime inDate, DateTime outDate) {
    int nights = outDate.difference(inDate).inDays;
    return nights * room.pricePerNight;
  }
}
```

# Thank You

We appreciate your time and interest in this presentation.