Object– Oriented Programming

HOSPITALITY EDITION

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THE PROBLEM

MonarchsHotel is facing serious challenges that could drive it out of business. They hired you, a software engineer, to help solve these problems. Currently, everything is managed manually with pen and paper, which causes several issues:

❖ Room Confusion:
They don't have a clear system to track which rooms are available. This leads to double-booking, making guests angry and frustrated.

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THE PROBLEM

❖ **Payment Errors:**
Payments are done manually, and mistakes happen often. This has caused Madam Eniife, the owner, to lose money.

❖ **Festive Chaos:**
During busy times like Christmas, the hotel struggles to handle the flood of bookings, leading to disorganization and complaints.
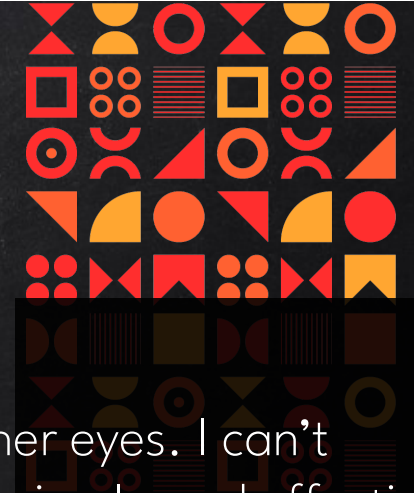
❖ **No Reporting:**
Madam Eniife has no way to check how many rooms are occupied or how much the hotel is earning. This makes managing the business even harder.

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HOPE

Madam Eniife, the owner of MonarchsHotel looks at you with hope in her eyes. I can't afford a big, expensive website or software. Can you build something simple and effective to help us?"

This is your chance to shine! Using Object-Oriented Programming (OOP) and arrays, you know you can create a solution that addresses all these challenges. The task feels big, but you're excited to prove your skills and make a real difference.

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Use Cases (What the System Should Do)

❖ *Book a Room*
✖ *A guest can check if a room is available and book it.*
✖ *The system should record the guest's details and mark the room as occupied.*

❖ *Cancel a Reservation*
✖ *If a guest cancels their booking, the system should free up the room.*

❖ *View Available Rooms*
✖ *The receptionist can see a list of rooms that are available at any time.*

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Use Cases (What the System Should Do)

❖ *Calculate Payment*
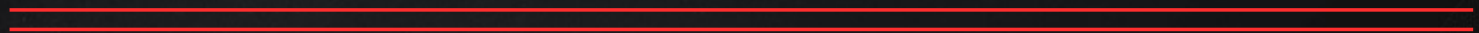✘ *The system should calculate the cost of the stay based on the number of days and the room type.*

❖ *Manage Guest Details*
✘ *The system should store the name, phone number, and email of every guest.*

❖ *Assign Roles*
✘ *Admins like Madam Eniife can manage all the rooms, guests, and reservations.*
✘ *Guests can only view available rooms and make bookings.*

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Use Cases (What the System Should Do)

❖ *Dynamic Pricing*

✘ *Room prices can increase during festive periods like Christmas or reduce during weekdays when there are fewer guests.*

❖ *Generate Reports*

✘ *The system should show how many rooms are occupied and the total money made in a week or month.*

❖ *Send Notifications*

✘ *Notify guests about their booking details, and remind them a day before check-in.*
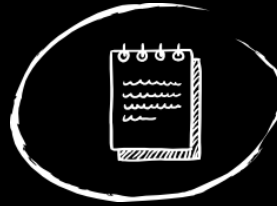
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Use Cases (What the System Should Do)

❖ *Simulate Maintenance*
✖ *Mark a room as unavailable if it needs repairs or cleaning.*

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Input:

Welcome to MonarchsHotel!

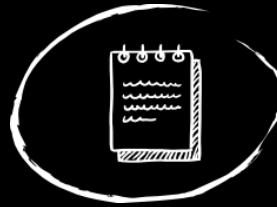Please enter your name: Nelson Ebenezer
Enter your phone number: 08123456789
Enter your email address: nelson.agbaCoder@example.com
Select room type (Single/Double/Suite): Single
Enter number of nights: 3

Use Case 1: Book a Room

Output:

Booking Successful!

Guest Details:
Name: Nelson Ebenezer
Phone: 08123456789
Email:nelson.agbaCoder@example.com
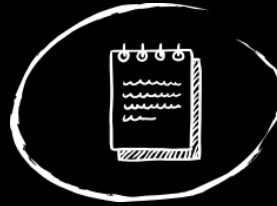Room Details:
Room Number: 101
Type: Single
Price per Night: ₦10,000
Total Payment: ₦30,000
Booking Reference Number: RES1234
Your check-in date is 10th January, and check-out date is 13th January.

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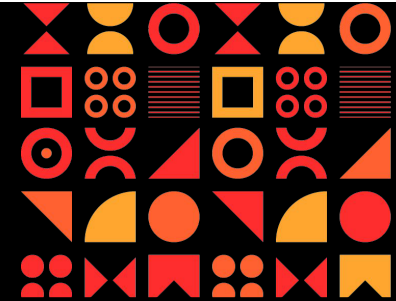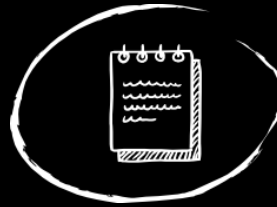**Use Case 2: Cancel a Reservation**

Input:

Enter your booking reference number: RES1234

Output:

Reservation canceled successfully.
Room Number 101 is now available.

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Input:

View available rooms

Output:

Available Rooms:
Room   Number: 102 | Type: Single | Price: ₦10,000
Room   Number: 203 | Type: Double | Price: ₦15,000
Room   Number: 301 | Type: Suite | Price: ₦25,000

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Use Case 4: Calculate Payment

Input:

Enter room type (Single/Double/Suite): Suite

Enter number of nights: 2
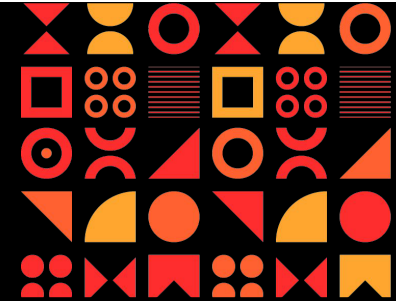
Is this a festive period? (Yes/No): Yes
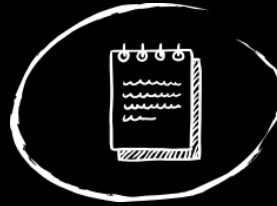
Output:

Room Type: Suite

Price per Night: ₦25,000

Festive Period Surcharge: 20%

Total Payment: ₦60,000

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Use Case 5: Manage Guest Details

Input:

View guest details for room: 101

Output:

Guest Details:

Name: Nelson Ebenezer

Phone: 08123456789

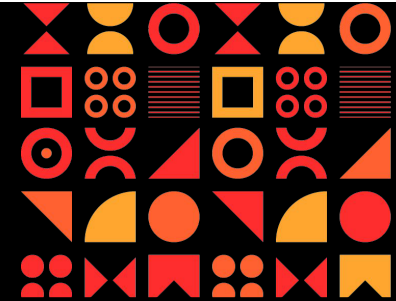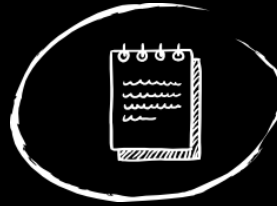Email: nelson.agbaCoder@example.com

Reservation Details:

Room Number: 101
Check-in Date: 10th January
Check-out Date: 13th January
Booking Reference Number: RES1234

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Input:

Login as Admin or Guest? Admin

Enter Admin Password: admin123

Output:

Welcome, Madam Eniife!

Options:

1. View All Rooms

2. Manage Reservations

3. Generate Reports

4. Mark Rooms for Maintenance

5. Add rooms

6. View guest Details

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Use Case 7: Dynamic Pricing

Drop Down:

View pricing for festive period
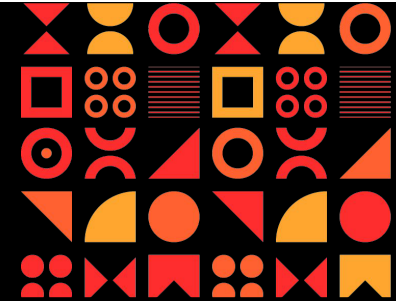
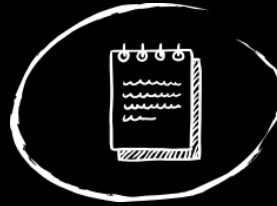**Display:**
Room Pricing During Festive Period:
Single Room: ₦12,000 per night
Double Room: ₦18,000 per night
Suite: ₦30,000 per night

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Display:

Weekly Report:

Total Rooms Booked: 45

Occupancy Rate: 85%

Total Revenue: ₦1,350,000

Drop Down:

Generate weekly report

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Use Case 9: Send Notification

Input:

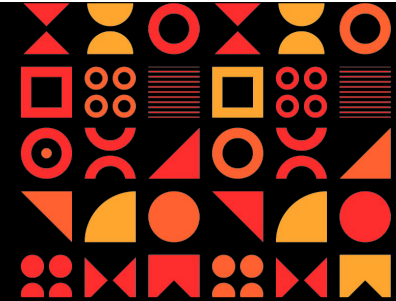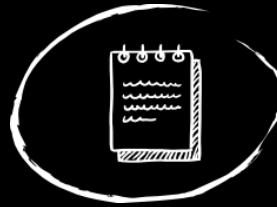Send reminder for booking RES1234

Output:

Notification sent to Nelson Ebenezer:

Dear Nelson Ebenezer, this is a reminder for your stay at

MonarchsHotel.

Check-in Date: 10th January Room Number: 101

We look forward to hosting you!

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Use Case 10: Simulate Maintenance
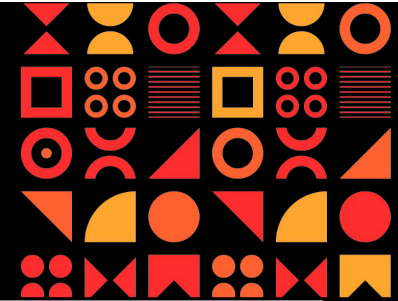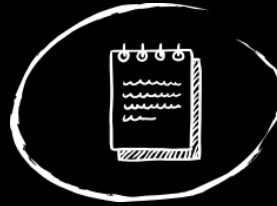
Drop down:
Rooms under maintenance

Display:

Room 202 marked as unavailable for maintenance.
Room 207 marked as unavailable for maintenance.
Room 212 marked as unavailable for maintenance.

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Welcome, Our Esteemed Customer!

Options:

1.   Book Room
2.   View Booking
3.   Edit Profile
4.   Check Room Availability
5.   Payment Status
6.   Cancel Booking
7.   View All Available Room
8.   View Notification

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