

Scenario: Hotel Room Booking System

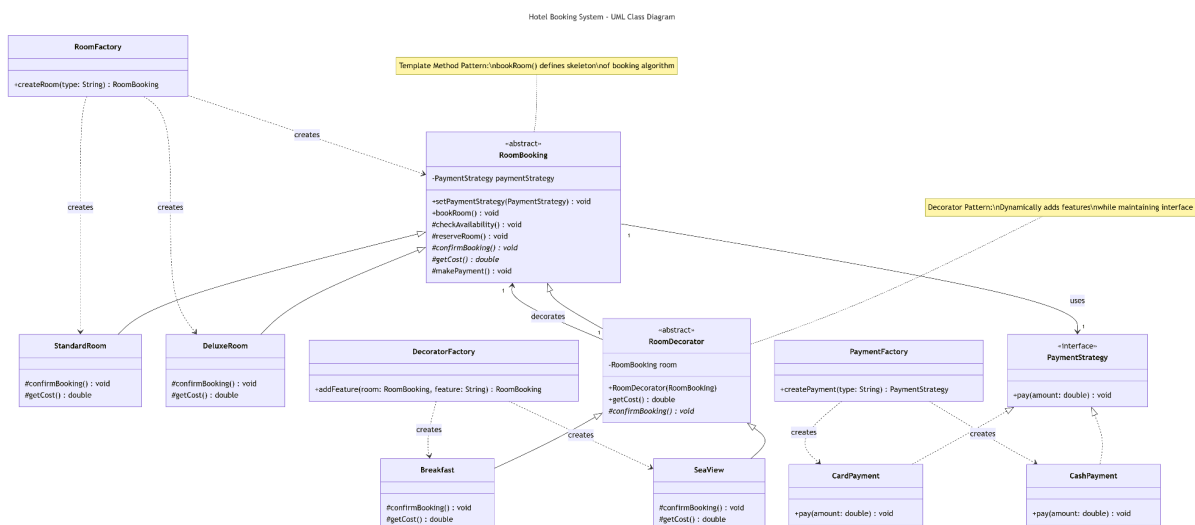
A hotel offers two types of rooms: Standard Room (Base cost \$100) and Deluxe Room (Base cost \$180). Customers can enhance their booking with optional amenities such as Breakfast Inclusion (additional cost: \$20), Sea View Upgrade (additional cost: \$50), etc. The system should support multiple payment options such as card payment, cash payment. All bookings must follow a standardized sequence:

- Check room availability
- Reserve the room
- Confirm booking
- Process payment

Patterns Implemented:

1. Factory Pattern: For handling object creation (Rooms, Decorators, payment methods)
2. Decorator Pattern: For dynamically adding optional features to bookings
3. Strategy Pattern: For handling different payment methods
4. Template Method Pattern: For defining the standard booking process

UML Diagram:



Expected Output:

```
Checking room availability  
Room reserved  
Deluxe room booking confirmed  
Breakfast included  
Sea view added  
Paid $250.0 using Card
```

** GitHub Link is attached to the submission.