DESIGN PATTERNS

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Title:

Hotel Management System with Guest Complaint Handling

Introduction:

The "Hotel Management System with Guest Complaint Handling" is a software solution designed to enhance the guest experience within the hotel industry. This system combines the power of several design patterns to create a seamless and efficient platform for hotel guests and staff.

Features:

User-Friendly Complaint Submission:

Guests can easily submit complaints and feedback through a user-friendly interface. The Guest class facilitates this functionality.

Secure Authentication:

The system ensures privacy and security by requiring authorized access to the complaint system. The HotelManagementSystem class handles user authentication using the **Strategy Pattern**.

Comprehensive Guest Profile:

The system provides detailed guest profiles, including name, room number, contact information, and reservation details. The GuestProfile class, constructed using the **Builder Pattern,** represents this feature.

Real-Time Communication with Hotel Staff:

Guests can communicate with hotel staff for prompt issue resolution. The MeetingStrategy class, used with the **Strategy Pattern,** enables real-time communication and scheduling meetings.

Complaint Tracking:

Guests can check the status and progress of their complaints. The Complaint class manages and tracks complaint statuses.

Customizable Email Notifications:

The system sends automated email notifications to guests about the status of their complaints. The NotificationStrategy class, part of **the Strategy Pattern**, handles notification methods.

Complaint Resolution Workflow:

The system manages the process of handling complaints, from submission to resolution, ensuring efficient and transparent procedures. The ComplaintTemplate class, utilizing the **Template Method Pattern**, defines the workflow for creating and resolving complaints.
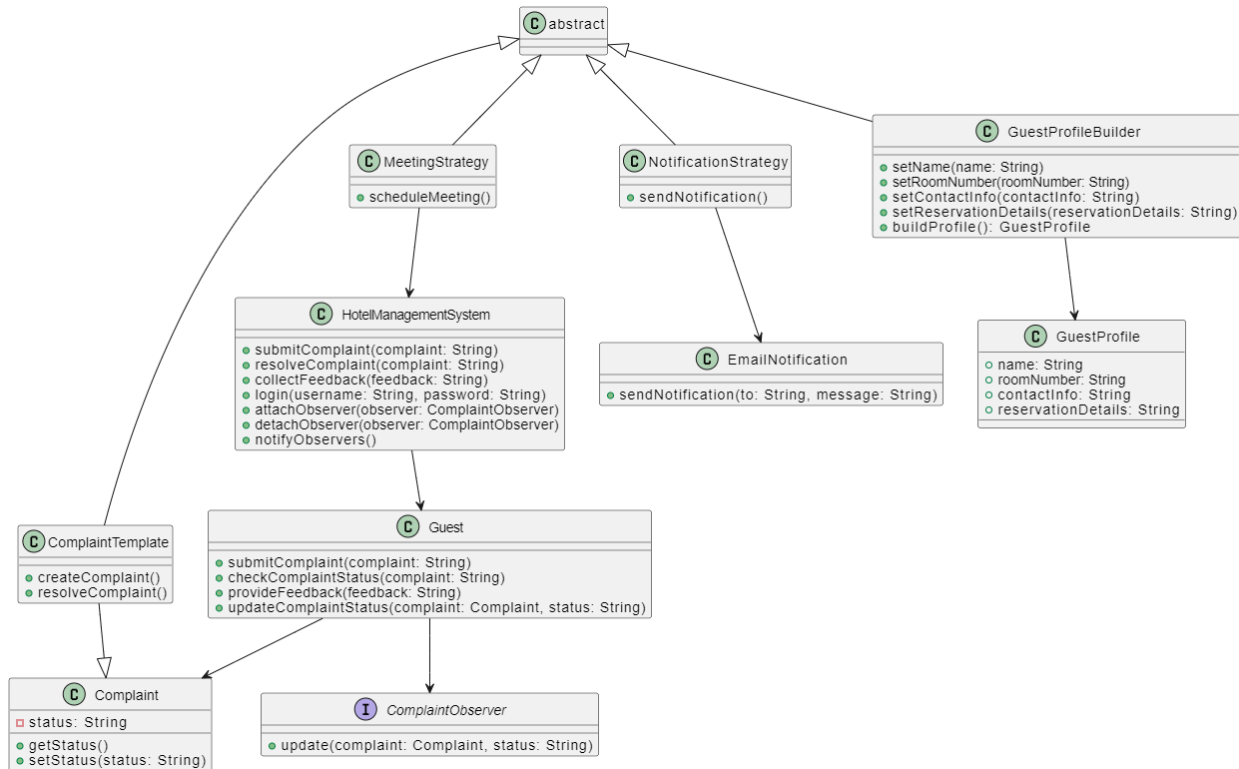
Explicitly class Representation and Design Patterns

1. **Strategy Pattern:**

Class MeetingStrategy:

Design Pattern: Strategy Pattern

Functionality: Represents different strategies for scheduling meetings. Allows for flexibility in how meetings are scheduled.

Class NotificationStrategy:

Design Pattern: Strategy Pattern

Functionality: Represents different strategies for sending notifications. Offers the ability to use different notification methods.

2. **Template Method Pattern:**

 Class ComplaintTemplate:

Design Pattern: Template Method Pattern

Functionality: Defines the steps for creating and resolving complaints, ensuring a consistent process for handling complaints. Subclasses implement specific steps.

3. Builder Pattern:

Class GuestProfileBuilder:

Design Pattern: Builder Pattern

Functionality: Responsible for constructing GuestProfile objects with varying representations. It allows the dynamic creation of guest profiles with different attributes such as name, room number, contact info, and reservation details.

4. Observer Pattern:

Class Guest:

Design Pattern: Observer Pattern

Functionality: Implements the ComplaintObserver interface to receive updates about the status of complaints. Guests can submit complaints, check complaint status, provide feedback, and update the status of their complaints.

Class HotelManagementSystem:

Design Pattern: Observer Pattern

Functionality: Acts as the subject that maintains a list of observers (Guest) and notifies them when the status of a complaint changes. It also uses the Strategy Pattern for meeting scheduling and Notification Strategy for sending notifications.

Other Classes (Not Explicitly Using Design Patterns):