Customer Information Management - Controller Class Design Rationale

Overview

The Controller class in the Customer Information Management prototype is designed in adherence to the Model-View-Controller (MVC) architecture. Serving as the intermediary between the Customer model (data) and the User Interface (UI), it ensures efficient management and real-time updates of customer data. This design supports scalability, allowing seamless integration of multiple interfaces in the future.

Attributes & Methods

Attributes:

- **customerList**: Stores all customer records, enabling efficient retrieval and updates.

Methods:

- **AddCustomer(id: int, name: String): void** – Adds a new customer to the list, ensuring unique identification.
- **UpdateCustomer(id: int, newName: String): void** – Updates an existing customer's details while maintaining data integrity.
- **DeleteCustomer(id: int): void** – Removes a customer from the list to maintain an up-to-date database.

Alignment with MVC Pattern

- **Model**: The Customer class is responsible for storing and validating customer data, ensuring accuracy and consistency.
- **View**: The CustomerView component provides an interface for user interaction, displaying customer details and updates.
- **Controller**: This class processes user input modifies data accordingly, and ensures the UI remains synchronized with data changes.

Business Requirements Alignment

1. **Scalability**:

a. The design enables the addition of new UI interfaces (e.g., web, mobile) without altering the core logic, ensuring future adaptability.

2. **Data Integrity**:
   a. Centralized customer management ensures consistent modifications, preventing data duplication or corruption.

3. **Maintainability**:
   a. A modular structure ensures a clear separation of concerns, simplifying debugging and future enhancements.

By implementing a structured and scalable Controller class, the Customer Information Management prototype effectively balances efficiency, integrity, and maintainability, providing a solid foundation for future expansions and improvements.