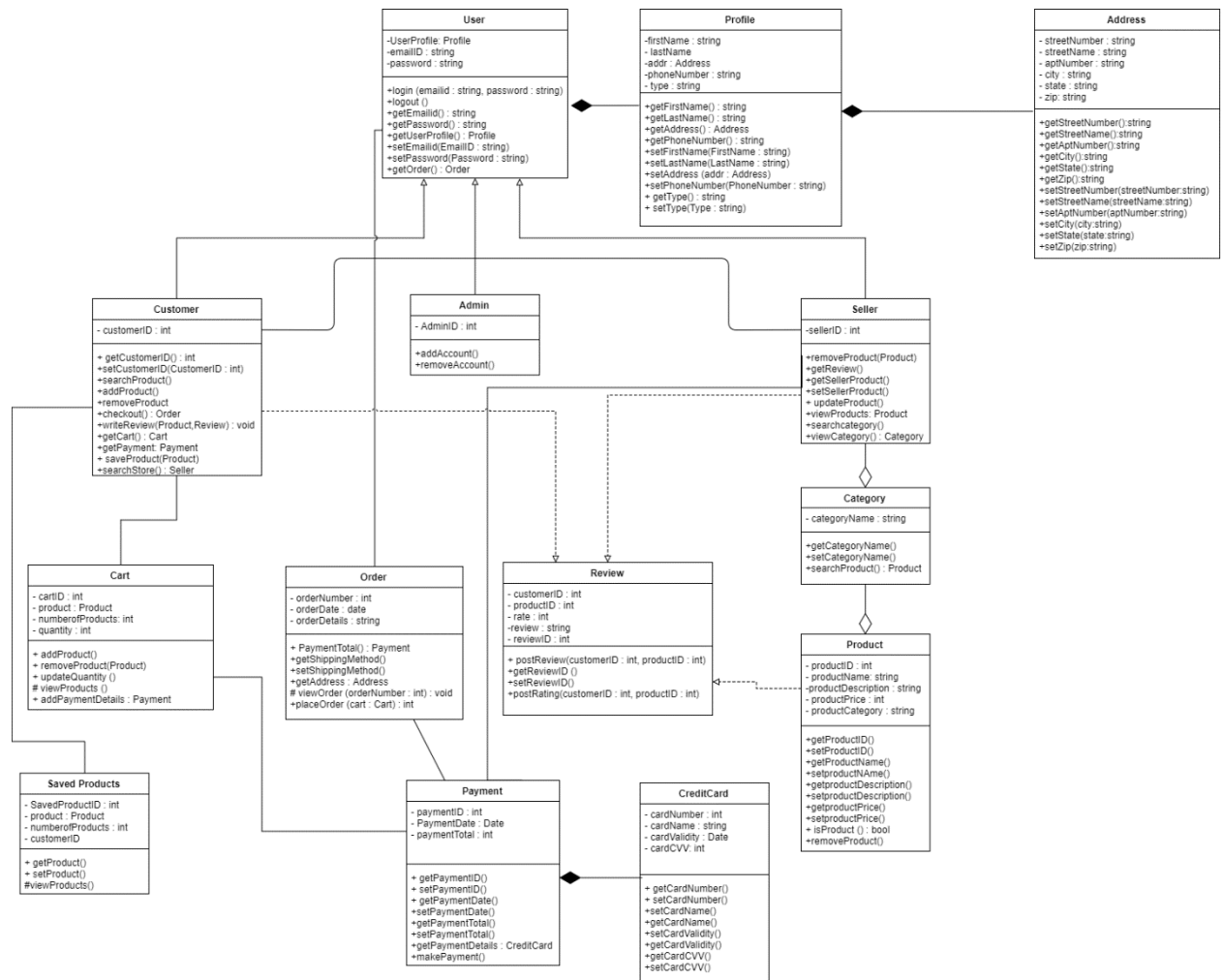


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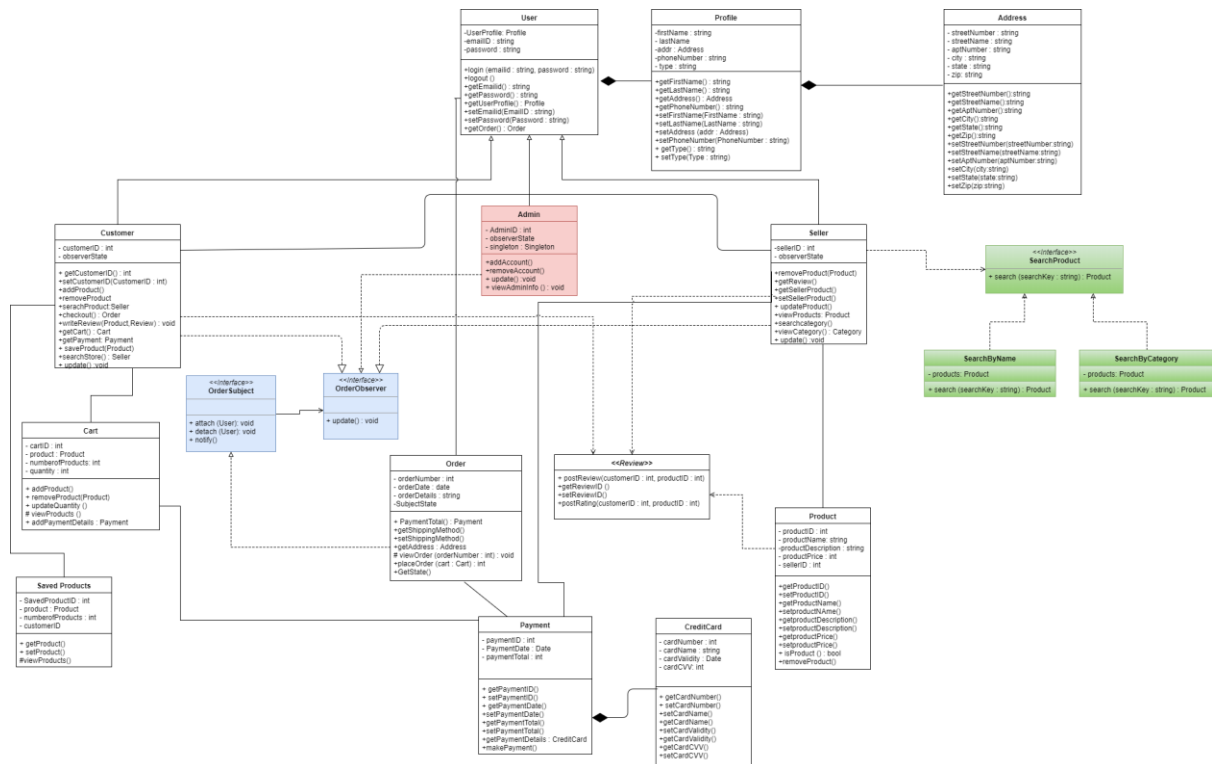
**Title:** QUICKSHOP

## Project Part 3: REFACTORING

### Old Class Diagram:



## New Class Diagram:



Pink Box: Singleton Design Pattern

Blue Boxes: Observer Design Pattern

Green Boxes: Strategy Design Pattern

**Design Patterns:** The old class diagram is refactored by using the three design patterns as shown in the figure.

1.Singleton Design Pattern: The Singleton Design Pattern is used for the Admin Class as we want only one admin instance of that class.

2.Observer Design Pattern: The Observer Design Pattern is used for the Order Class which acts as the ConcreteSubject Class that stores the state of Order and sends a notification to the observers whenever the state is changed. In our case, the order status is notified to the Admin, Seller and Customer who act as the observers.

3.Strategy Design Pattern: The Strategy Design Pattern is used for the seller class. The user can search the product based on two criteria - Search by name and Search by category. We have used the *SearchProduct* Interface for this design pattern. Depending on the type of search specified by the user, the system will make use of that particular algorithm. The search algorithms make use of search key for their implementations.

**Additional change in Class Diagram:** We removed the category class which was initially used as a composition of seller, and instead implemented the strategy design pattern to include it in the type of search used for the product.