### SOLID PRINCIPLES ASSIGNMENT

### **1. Single Responsibility Principle (SRP):**

* **AuthenticationServiceImpl:**
  + Responsible for authenticating a user based on the provided credentials.
  + Follows SRP by having a single responsibility: user authentication.
* **LoginService:**
  + Manages the authentication process using an Authenticator.
  + Follows SRP by handling user authentication without getting involved in the actual authentication logic.
* **SignUpValidator:**
  + Validates user email, password, and confirms sign-up email.
  + Follows SRP by handling validation concerns related to sign-up.
* **PlatinumAccountService, PremiumAccountService, SilverAccountService:**
  + Each service is responsible for creating a specific type of account.
  + Follow SRP by having a single responsibility: creating an account of a specific type.

### **2. Open/Closed Principle (OCP):**

* **AccountType Interface:**
  + Defines the contract for creating an account.
  + Open for extension: New account types can be added by implementing this interface.
  + Closed for modification: Existing code using AccountType doesn't need to be modified to accommodate new account types.

### **3. Liskov Substitution Principle (LSP):**

* **Account, PlatinumAccountService, PremiumAccountService, SilverAccountService:**
  + Subtypes can be substituted for their base type (AccountType).
  + LSP is followed as each account service implements the createAccount method from the AccountType interface.

### **4. Interface Segregation Principle (ISP):**

* **AccountType Interface:**
  + Contains a single method (createAccount) specific to its purpose.
  + Follows ISP by not forcing implementing classes to provide methods they don't need.

### **5. Dependency Inversion Principle (DIP):**

* **MainApplication:**
  + Depends on abstractions (interfaces: Authenticator, ValidateUserEmail, ValidatePassword, ValidateConfirmSignUpEmail, AccountType) rather than concrete implementations.
  + Allows for easy substitution of different implementations for these interfaces.