

# **Financial Management System**

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## Introduction

The **Financial Management System (FMS)** is designed to manage essential banking operations through a secure and user-friendly interface. Developed with a focus on modularity, this system allows users to perform critical financial functions such as login with a PIN, checking account balances, making deposits and withdrawals, viewing transaction statements, and performing secure transactions.

## Key Components & SOLID Principles

1. **Login PIN**
  - Ensures secure access via PIN.
  - **SRP**: Handles only user authentication.
2. **Deposit & Withdrawal**
  - Allows deposits and withdrawals with balance updates.
  - **SRP**: Each class focuses on a single task.
  - **ISP**: Interfaces separate transaction types.
3. **Transaction**
  - Manages account transfers and transaction history.
  - **OCP**: New transaction types can extend existing functionality without modification.
4. **Balance Inquiry**
  - Retrieves account balance without changes.
  - **LSP**: Any account type can be used, supporting substitution.
5. **Statement**
  - Generates transaction history for user review.

## Benefits of Using SOLID Principles

- **Modularity**: Clear separation of responsibilities makes the system more modular and easier to extend.
- **Maintainability**: Adhering to SRP and ISP ensures each class or interface has a single focus, making future modifications easier.
- **Scalability**: The system can be easily scaled by adding new transaction types or account types without impacting existing functionality.
- **Testability**: Each class is focused on a single responsibility, making it easier to test independently.

## **Conclusion**

This Financial Management System provides a robust, secure, and modular solution for managing essential financial tasks. By separating functionalities into dedicated classes, it ensures ease of maintenance, improved security, and a user-friendly experience.