**Object Oriented Programming II**

**Group Assignment**

**Submission and Presentations: 29th April 2024**

**Finance Tracker**

**Objective:**

The objective of the Finance Tracker application is to provide users with a tool for managing their personal finances efficiently. The application should allow users to track their income, expenses, budgets, and generate reports to analyze their financial activities.

**Requirements:**

* User Authentication: Users should be able to create accounts and log in securely to access their financial data.
* Transaction Management: Users should be able to add, edit, and categorize transactions such as income, expenses, transfers, etc.
* Budget Tracking: Users should be able to set up monthly budgets for different expense categories and track their spending against these budgets.
* Reporting: The application should provide various reports such as monthly expense summaries, income vs. expenses, budget adherence, etc.
* Data Persistence: All financial data entered by the user should be securely stored and retrievable across sessions.
* Security: The application should implement robust security measures to protect users' financial information.

**Implementation Details:**

* Object-Oriented Design:

Classes: User, Transaction, Category, Budget, Report, etc.

Utilize inheritance and composition where appropriate to model relationships between entities.

* Abstract Classes and Interfaces:

Abstract classes: Transaction (with subclasses for different types like IncomeTransaction, ExpenseTransaction), Report.

Interfaces: DataPersistence (for defining methods related to data storage), Security (for defining methods related to authentication and authorization). Use existing libraries to apply security.

* Threads:

Use threads for background tasks such as generating reports asynchronously to avoid blocking the main UI thread.

* Exception Handling:

Implement exception handling for scenarios like invalid input during transaction entry, database errors during data persistence, authentication failures, etc.