A screenshot of a computer

Description automatically generated

For my course project, titled "Personal Finance Manager," I embarked on developing a Java-based application aimed at assisting individuals in effectively managing their finances. The project encompassed various aspects, including project overview, objectives, requirements, technologies used, project structure, implementation details, challenges faced, successes achieved, areas for improvement, final outcomes, and mapping of design and implementation elements to project requirements.

The project overview highlighted the aim of providing a user-friendly tool to promote financial literacy and efficient financial management. To meet this objective, specific requirements were identified, such as developing a functional GUI, ensuring secure data storage, robust transaction handling, and enabling financial calculations and report generation.

In terms of technologies used, Java served as the primary programming language, while SQLite was employed as the database for storing user and transaction data, and UUID was used for generating unique identifiers. The project structure was organized around key classes such as Account, App, User, Transaction, and FinancialCalculator, each fulfilling specific functionalities crucial for the application's operation.

Implementation details included the abstraction of account classes to demonstrate polymorphism, secure user authentication through password hashing, and robust database operations management via the SQLiteDB class. Financial operations were facilitated by the FinancialCalculator interface.

Challenges encountered during implementation included implementing secure user authentication and effectively managing different types of accounts. Solutions were devised, such as using SHA-256 hashing for passwords and employing abstract classes and polymorphism to handle various account types seamlessly.

Successes of the project included the development of an effective user interface in the terminal, robust handling of user inputs and financial calculations, and successful integration of a relational database for persistent storage. However, areas for improvement were identified, such as transitioning to a Graphical User Interface (GUI) for enhanced user experience, enhancing security measures, and incorporating advanced financial analysis features.