**Iteration 0 - Proposal**

**Problem Statement**

Many individuals struggle with tracking their daily expenses and maintaining a budget effectively, leading to financial mismanagement and stress. This project aims to provide an easy-to-use personal expense tracker that enables users to record their expenses, categorize them, and monitor their spending against a predefined budget. The application will empower users to gain control over their financial habits and improve their budgeting strategies.

**Scope of the Project**

**1. What the software will do:**

- Allow users to create an account and log in securely.

- Provide a simple and intuitive graphical user interface (GUI) for interaction.

- Enable users to add, edit, and delete expenses.

- Categorize expenses into predefined categories (e.g., food, transportation, entertainment).

- Allow users to set a monthly budget and track their spending progress.

- Generate simple reports, such as a pie chart for category-wise spending.

- Notify users when their spending approaches or exceeds the budget limit.

**2. What the software will not do:**

- It will not integrate with external banking systems or APIs.

- It will not support multiple currencies.

- It will not provide advanced financial planning or investment recommendations.

- It will not handle large-scale enterprise-level financial management.

**Functional Requirements**

1. User Authentication:

- Users can create an account, log in, and log out securely.

2. Expense Management:

- Users can add, view, edit, and delete expense records.

- Users can assign categories to each expense.

3. Budget Management:

- Users can set a monthly budget limit.

- The application will display a progress bar or alert when the budget is exceeded.

4. Reporting:

- The application will generate monthly reports summarizing total expenses.

- It will display category-wise spending using pie charts.

5. Graphical User Interface (GUI):

- The interface will be simple and user-friendly for seamless interaction.

**Non-functional Requirements**

1. Compatibility:
   * The application must run on Windows 10 or later and Ubuntu 20.04 or later operating systems.
   * The system must be testable in standard SoC lab computers.
2. Performance:
   * The system should maintain a response time of less than 2 seconds for all operations with up to 1,000 expense records per user.
3. Usability:
   * The application should allow a first-time user to complete basic tasks (e.g., adding an expense) within 5 minutes without external assistance.
   * The GUI must follow modern design principles to minimize user errors.
4. Security:
   * User passwords must be hashed and stored securely in the database using SHA-256 or better encryption algorithms.
   * The application must implement HTTPS for all data transmission.
   * All user inputs must be sanitized to prevent SQL injection and other common vulnerabilities.
5. Scalability:
   * The system should be capable of handling a 100% increase in user base without requiring significant changes to the architecture.
   * The database must support up to 10,000 users without performance degradation.