

# Project Title

- **Personal Budgeting & Expense Forecaster** (Phase 1: Secure User Access and Data Entry)

## Introduction

- This project addresses the initial struggle many people face in managing their money: the lack of a secure place to track spending and plan for the future.
- The overall project goal is to stop financial waste; historically, projects with poor financial planning often fail, and about **11.4% of investment is wasted** due to bad performance.
- This first phase creates the essential, secure foundation needed before any financial forecasting can happen.

## Objectives

- **Establish Security:** Create a strong and secure access point for every user to protect their sensitive financial data.
- **Enable User Identity:** Set up user profiles so the system can keep track of each person's unique information.
- **Allow Basic Data Input:** Build the first interface where users can manually enter their expense and income information to begin creating their financial history.

## System Overview

- The system begins with the user accessing the platform and inputting data.
- **Step 1: User Login/Registration:** The user creates an account or signs in securely.
- **Step 2: Profile Access:** The user's personal financial space (profile) is loaded.
- **Step 3: Data Acquisition:** The user manually enters their transaction details (date, amount, type).
- **Step 4: Data Storage:** This basic data is saved to be processed in future development phases.

# Methodology / Workflow

- **Security Standard:** Security is the first priority. We use **JWT (JSON Web Token)** to secure the user's session after they log in. This token ensures that all communication is verified and protected.
- **Framework Selection:** The basic web screens will be built using simple, efficient frameworks like **Flask or Streamlit** for quick and reliable development.
- **Core Functionality:** The main workflow is a simple cycle: the user enters a transaction, and the system saves it to the user's secure profile.

## System Design

- **User Registration Design:** Requires standard components: email and password fields. The password must be stored securely.
- **Profile Design:** A basic structure is created in the database to hold user-specific settings and all their financial transactions, keeping each user's data separate.
- **Transaction Input Design:** The screen must clearly ask for only the necessary information for each financial event:
  - Date
  - Amount (the money value)
  - Description (what it was for)
  - Type (Income or Expense)

# Implementation

## A. Environment Preparation (Initial Setup)

- Install the Python programming language.
- Set up a separate, protected virtual environment for the project software.
- Install the core required software libraries, including any initial framework (e.g., Flask or Streamlit) needed for the web interface.

## B. Development Milestone: (Module 1: User Authentication & Basic Transaction Input)

- **User Registration:** Implement a secure sign-up process for new users using email and password, protected by JWT (JSON Web Token) security.
- **Login System:** Create a reliable process to check and confirm who the user is (authentication).
- **Profile Management:** Set up user profiles to store and manage their personal financial settings.
- **Manual Transaction Input:** Design a simple web screen that lets users manually type in basic financial transactions. The entry requires the date, amount, description, and type (income/expense).

# Testing & Results

- **Authentication Testing:** Test the login and registration system to ensure users can securely sign up and log in reliably. Verify that JWT security works to protect the session.
- **Profile Testing:** Check that user profiles are created correctly and that data is saved and loaded only for the correct user.
- **Data Entry Testing:** Test the manual transaction input interface to confirm that the date, amount, description, and type are saved correctly in the database.

# Conclusion

- Milestone 1 successfully establishes the secure foundation and basic data entry mechanism for the entire project.
- By implementing secure user authentication and the profile system, the project is ready to move forward to the next stage: processing and categorizing the financial data.

# Future Scope

- The next steps will focus on automatically categorizing the basic transactions entered here (Milestone 2).
- Later phases will involve integrating the advanced forecasting model (Prophet) and visualization tools (Seaborn) to start making predictions.