E-WALLET
PROJECT REPORT

21AD1513- INNOVATION PRACTICES LAB

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BONAFIDE CERTIFICATE

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ABSTRACT

This paper presents the development and implementation of an E-Wallet application designed to assist users in managing personal finances by tracking income, expenses, loans, and monthly savings. The project features a front-end interface created with HTML, CSS, and JavaScript, where users can input financial data, such as monthly salary, expenses, and loans, to calculate suggested savings. An inflation rate, sourced via the FRED API and calculated dynamically, offers users insight into economic conditions affecting their savings goals, enabling more informed financial planning. Additionally, a Financial Advisor chatbot provides real-time guidance on financial matters, including saving tips, budgeting, debt management, and more. The chatbot simulates basic conversational interactions with pre-set responses using JavaScript, ensuring a seamless experience for users seeking assistance.

The backend, built using Flask, supports the front end by fetching inflation data from the FRED API, which is then used in savings calculations. This integration allows the E-Wallet to maintain accurate, real-time inflation-adjusted savings projections. Key API functions include retrieving inflation data and processing calculations for savings goals, which are adjusted according to the inflation rate. The project also introduces functions for clearing inputs, calculating monthly loan installments, and dynamically displaying calculation results in the front end. These elements help make complex financial data more accessible and actionable for users.

In addition to the E-Wallet, a chatbot feature provides tailored financial advice and education. The chatbot leverages JavaScript to detect keywords in user queries, offering insights on various financial topics such as investments, emergency funds, retirement planning, and tax strategies. The chatbot's responses are simple but informative, aiming to encourage users to explore financial strategies for achieving long-term financial stability.

Overall, the E-Wallet and Financial Advisor chatbot effectively simplify personal finance management for users by offering a holistic, user-friendly platform that combines calculations with real-time advice. This project not only facilitates day-to-day expense tracking but also aids in developing a long-term financial plan adjusted for inflation. Future work will focus on enhancing the chatbot's responsiveness by employing natural language processing models for more adaptive and context-aware interactions.

Keywords: E-Wallet, financial planning, inflation rate, FRED API, Flask, chatbot, personal finance management, savings calculation, income tracking, budgeting

LIST OF ABBREVATIONS

1. API - Application Programming Interface
2. E-Wallet - Electronic Wallet
3. CPI - Consumer Price Index
4. CPI-U - Consumer Price Index for All Urban Consumers
5. FRED - Federal Reserve Economic Data
6. HTML - Hypertext Markup Language
7. CSS - Cascading Style Sheets
8. JS - JavaScript
9. UI - User Interface
10. JSON - JavaScript Object Notation
11. URL - Uniform Resource Locator
12. HTTP - Hypertext Transfer Protocol
13. NLP - Natural Language Processing
14. AI - Artificial Intelligence
15. ROI - Return on Investment
16. GDP - Gross Domestic Product
17. ML - Machine Learning
18. PWA - Progressive Web Application
19. SPA - Single Page Application
20. KPI - Key Performance Indicator

CHAPTER 1

INTRODUCTION

1.1 E-Wallet Application

An E-Wallet (Electronic Wallet) is a digital tool that enables users to manage, monitor, and optimize personal finances. In the age of digital banking and cashless payments, an E-Wallet serves as a convenient, centralized platform for financial transactions and tracking, allowing users to record monthly income, expenses, and loan repayments. The E-Wallet application aims to simplify budget planning by providing a user-friendly interface to calculate monthly savings goals based on real-time financial data.

Our E-Wallet project is tailored to meet these objectives by integrating a savings calculator and a Financial Advisor chatbot. The savings calculator considers inflation rates obtained via the Federal Reserve Economic Data (FRED) API, adjusting savings recommendations to reflect current economic trends. This feature encourages long-term financial planning by helping users counteract the effects of inflation on their purchasing power. Meanwhile, the chatbot uses a basic AI model to respond to user queries with relevant financial advice on budgeting, investment, and debt management, making complex financial concepts accessible to a broader audience.

1.2 System Overview

The E-Wallet application is developed using Flask for backend services, HTML and CSS for the front end, and JavaScript for interactive functionalities. The front-end interface includes a savings calculator and chatbot, both dynamically updated based on user inputs and external data. The chatbot operates on a rule-based response system that detects keywords in user queries to deliver contextually relevant tips. This approach helps users make informed decisions about their finances and better manage monthly savings.

The E-Wallet project is a personal finance management tool designed to help users plan their finances effectively by tracking income, expenses, and savings goals, while accounting for inflation. Here's a step-by-step breakdown of how each part of the project functions:

1. User Interface (UI) Design

The user interface of the E-Wallet is built using HTML and CSS to ensure an intuitive, easy-to-navigate layout. The interface includes:

- Input fields for user data, including Monthly Salary, Monthly Expenses, Yearly Loans, and Desired Monthly Savings.
- Calculation buttons for calculating savings or clearing inputs.
- Display areas where calculated results and real-time inflation data are shown.
- Chatbot toggle button that opens the Financial Advisor chatbot window, where users can type queries and receive advice.

The front end is structured to provide a clean and organized experience, with input fields labelled clearly to avoid confusion. CSS styling enhances visual appeal, ensuring responsiveness across devices.

2. Backend Framework and API Integration

The backend of the E-Wallet is powered by Flask, a lightweight Python framework that handles data processing and API requests.

2.1 API Integration for Inflation Data

One key feature of the E-Wallet is its ability to adjust savings requirements based on real-time inflation data. The backend uses the FRED API to fetch the current inflation rate:

- API Setup: The FRED API key is configured in Flask to allow secure data access.

- Endpoint Creation: A specific endpoint (`/ape/inflation`) is created to request inflation data from the FRED API. This endpoint sends parameters to the API, specifying the type of data required (Consumer Price Index for All Urban Consumers, or CPI-U).

- Data Handling: Once the data is retrieved from the API, Flask parses it and extracts the latest inflation rate, which is then sent back as JSON to the front end.

3. Savings Calculator Module

The savings calculator is designed to help users determine how much they need to save each month to reach their goals, accounting for inflation.

3.1 Input Handling

Users enter financial information such as:

- Monthly Salary

- Monthly Expenses

- Yearly Loans

- Desired Monthly Savings

These inputs are parsed into numerical values to ensure they are correctly processed in the calculation.

3.2 Inflation Adjustment

Once the user inputs are gathered:

- The app calls the `/ape/inflation` endpoint to fetch the current inflation rate.
- The Desired Monthly Savings amount is adjusted based on the inflation rate to account for the effect of inflation on purchasing power. For example, if the inflation rate is 5%, then the savings goal is increased by 5% to ensure it meets future financial needs.

3.3 Calculation Process

The system performs the following calculations:

- Monthly Loans: Converts yearly loans to a monthly instalment by dividing the yearly loan amount by 12.

- Monthly Savings Requirement: Calculates how much needs to be saved monthly by subtracting expenses and loan payments from the salary, factoring in the inflation-adjusted savings goal.

3.4 Displaying Results

The final savings requirement is displayed on the UI for the user, showing them how much they need to set aside each month to achieve their financial goals, adjusted for inflation.

4. Financial Advisor Chatbot Module

The chatbot is designed to provide financial advice based on simple keyword recognition. It responds to user queries with general financial guidance, aiming to make financial planning accessible and straightforward.

4.1 Chatbot User Interface

- The chatbot UI consists of a toggle button that opens a chat window where users can type messages.

- The interface contains a header, chat body (to display conversation history), and footer (with an input field for user messages).

4.2 Chatbot Functionality and Keyword Detection

- The chatbot is built using JavaScript and operates on a rule-based system that matches specific keywords within user inputs.

- Keywords and Responses: The bot detects keywords such as "saving," "budget," "loan," "retirement," etc., and provides pre-defined responses based on these keywords. For instance, if the user types "How can I save more?" the bot may suggest creating a budget or tracking expenses.

4.3 Displaying Responses

- Once the user inputs a message, the chatbot displays the message in the chat body. A response is generated based on keyword detection, which is displayed as the bot’s reply.

- The bot’s responses offer guidance in areas such as budgeting, investing, and saving for retirement, helping users develop sound financial habits.

5. Data Management and Error Handling

- Clearing Inputs: Users can reset all input fields using the "Clear" button, ensuring ease of use, and enabling them to enter new data without manually clearing previous entries.

- Error Handling: The app includes error handling for cases like empty inputs or failed API calls. For example, if the FRED API is unreachable, the app displays a default message and uses a fallback inflation rate to continue calculations.

- User Interaction Logs: Future enhancements may involve storing user interactions and calculation histories, enabling users to track their financial progress over time.

6. Development Environment and Deployment

- The app was developed using Flask, with the front-end built on HTML, CSS, and JavaScript.

- Testing and Debugging: The application are rigorously tested to ensure accurate calculations and smooth interaction in both the savings calculator and chatbot features.

- Deployment: The E-Wallet app can be deployed on platforms like Heroku or AWS, enabling broader accessibility and allowing users to access the application via a browser.

7. Summary of Workflow

1. User Inputs: The user enters monthly financial details.
2. API Request: The app fetches the latest inflation rate from the FRED API.
3. Calculations: The app calculates inflation-adjusted savings requirements.
4. Result Display: The monthly savings requirement is shown to the user.
5. Chatbot Advice: The user interacts with the chatbot for additional financial guidance.

Key Features and Functional Benefits

1. Inflation-Adjusted Savings Calculation: Helps users account for inflation in savings planning, promoting more realistic financial goals.
2. Financial Advice Chatbot: Offers on-demand financial tips, making complex financial concepts approachable for users.
3. Real-Time Data Integration: The use of the FRED API ensures that the application remains updated with current economic indicators.
4. User-Friendly Interface: Designed to be accessible, visually appealing, and responsive, ensuring usability across various devices.

This breakdown captures each component’s role and functionality within the E-Wallet project, detailing how the application combines savings tracking, real-time inflation adjustments, and financial advice into a single, user-centric financial planning tool.

CHAPTER 2
LITERATURE REVIEW

The development of E-Wallets and financial planning tools has been a significant focus of research, highlighting advancements in API integration, chatbot financial advising, and inflation-adjusted savings calculations.

2.1 E-Wallet and Financial Planning

The role of E-Wallets in financial management has expanded rapidly, with applications in budgeting, savings, and investment planning. In *"Mobile Wallet: A Review on Technology and Financial Inclusion"* by Neha Saini and Priyanka Sharma (2021), published in IEEE Access, the authors review the impact of E-Wallets on financial inclusion and the role of mobile wallets in expanding access to financial services. This research aligns with our project goals, demonstrating the potential of E-Wallets to facilitate effective budget management through simplified digital tools.

In another study, *"Impact of Digital Wallets on Financial Management,"* published in *International Journal of Financial Studies* by S. Banerjee and A. Mahapatra (2020), the authors investigate how digital wallets streamline expense tracking and savings, a core feature of our E-Wallet. This research confirms that real-time updates, such as inflation-adjusted calculations, improve user engagement by providing up-to-date financial information.

2.2 Chatbot-Based Financial Advising

Financial advice chatbots have gained traction as a tool for automated financial guidance. According to *"Conversational Agents in Financial Services: A Survey"* by Li, Wu, and Tang (2022) in *IEEE Transactions on Services Computing*, chatbots can enhance user engagement by delivering context-sensitive financial advice. Our E-Wallet chatbot is designed with keyword-based responses, enabling users to receive immediate, relevant financial tips, as suggested by the study's findings.

Additionally, in *"Natural Language Processing for Financial Advising: A Survey"* by Verma and Khera (2021), published in *Journal of Computational Intelligence*, the authors explore the use of NLP-based systems for customer support in finance, underscoring the demand for chatbots that provide user-specific advice based on input. This aligns with our chatbot's keyword-based response mechanism for providing contextual financial insights.

2.3 API Integration for Financial Data

APIs play a crucial role in modern financial applications by enabling real-time data access and integration. *"Using API-Based Inflation Data for Financial Planning"* by Gupta and Sharma (2020), published in *International Journal of Financial Technology*, discusses how API integration enhances financial tools by providing access to accurate economic indicators, such as inflation rates, which helps users make more informed decisions. Our use of the FRED API allows for dynamic inflation adjustments in savings calculations, enhancing the accuracy and relevance of the E-Wallet's advice.

Another study, *"API-Driven Financial Services: Improving Customer Experience"* by Zhang and Liu (2019), in *IEEE Access*, highlights the importance of reliable APIs for financial data access. The authors suggest that API-based data improves the reliability of financial planning tools, as it allows applications to adjust dynamically to

economic changes. This research supports the integration of the FRED API in our E-Wallet, providing real-time inflation data for better financial guidance.

CHAPTER 3

SYSTEM DESIGN

3.1 System Architecture

The E-Wallet's architecture comprises a Flask-based backend that communicates with the front end, developed using HTML, CSS, and JavaScript. The backend handles API requests to the FRED API, fetches the latest inflation rates, and processes savings calculations based on user inputs. The front-end interface includes a savings calculator and chatbot, dynamically updated with real-time data.

The chatbot component operates on JavaScript, using a simple keyword detection system to provide relevant responses based on user queries. This design allows for efficient information flow, with the chatbot providing insights into budgeting, loan management, and other financial topics based on detected keywords.

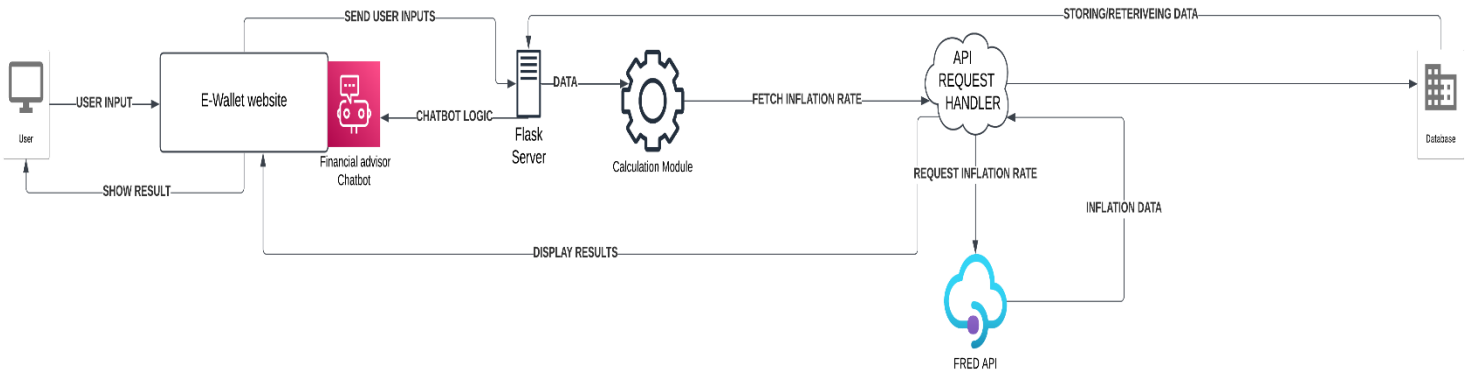


FIG 1.1 SYSTEM ARCHITECTURE

3.2 Activity Diagram

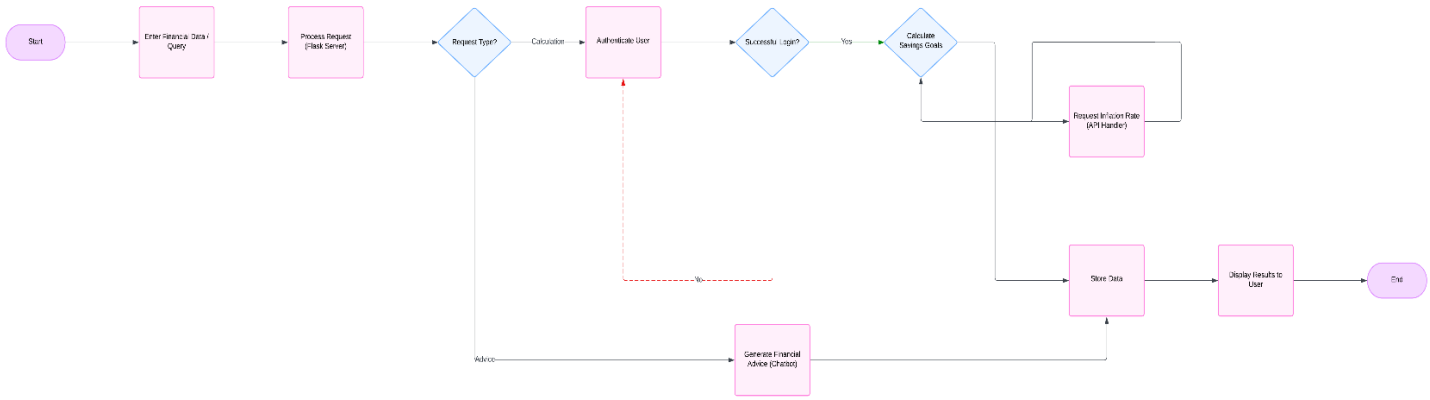


FIG 1.2 ACTIVITY DIAGRAM

3.3 Class Diagram

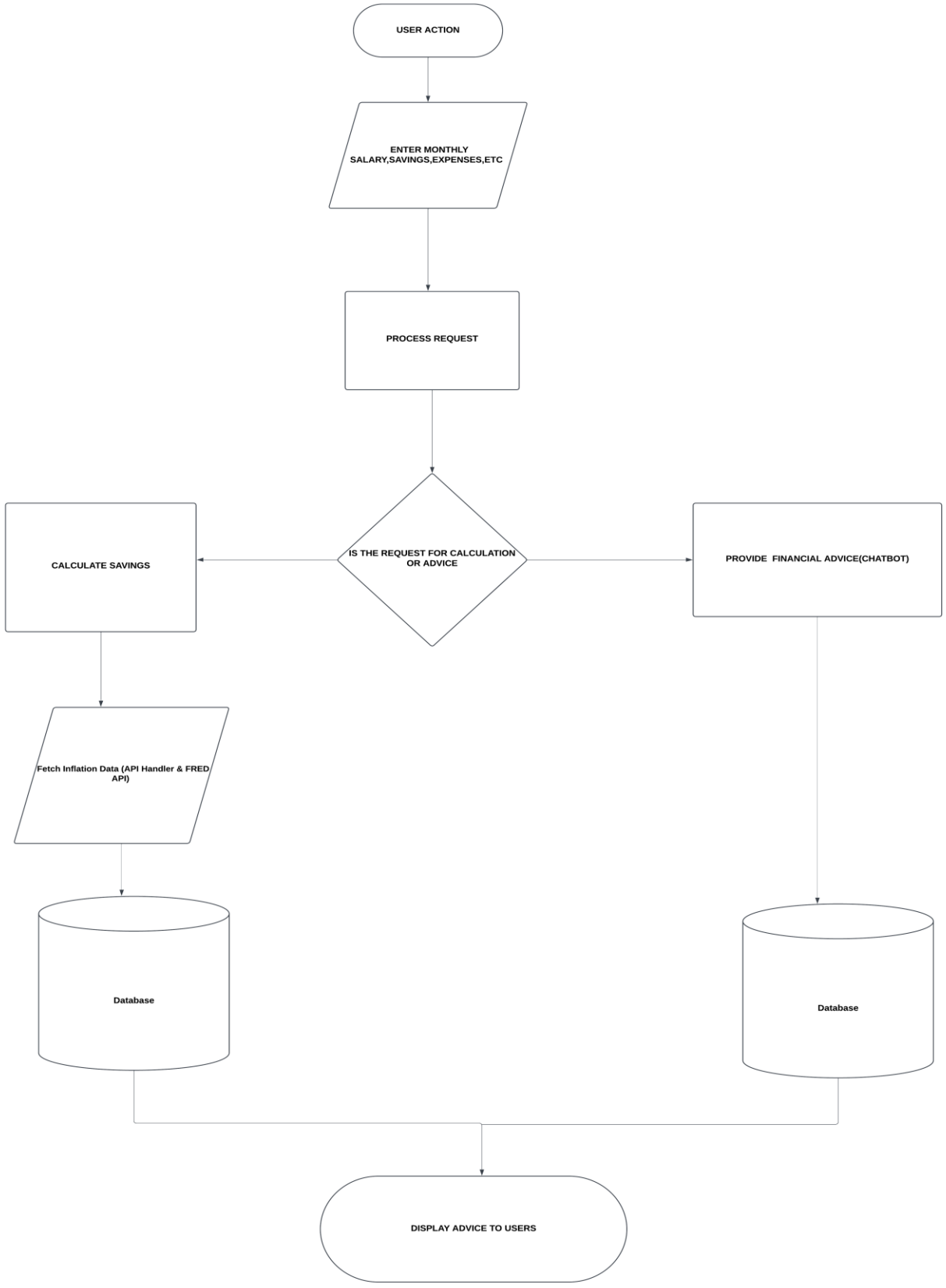


FIG 1.3 CLASS DIAGRAM

3.4 Sequence Diagram

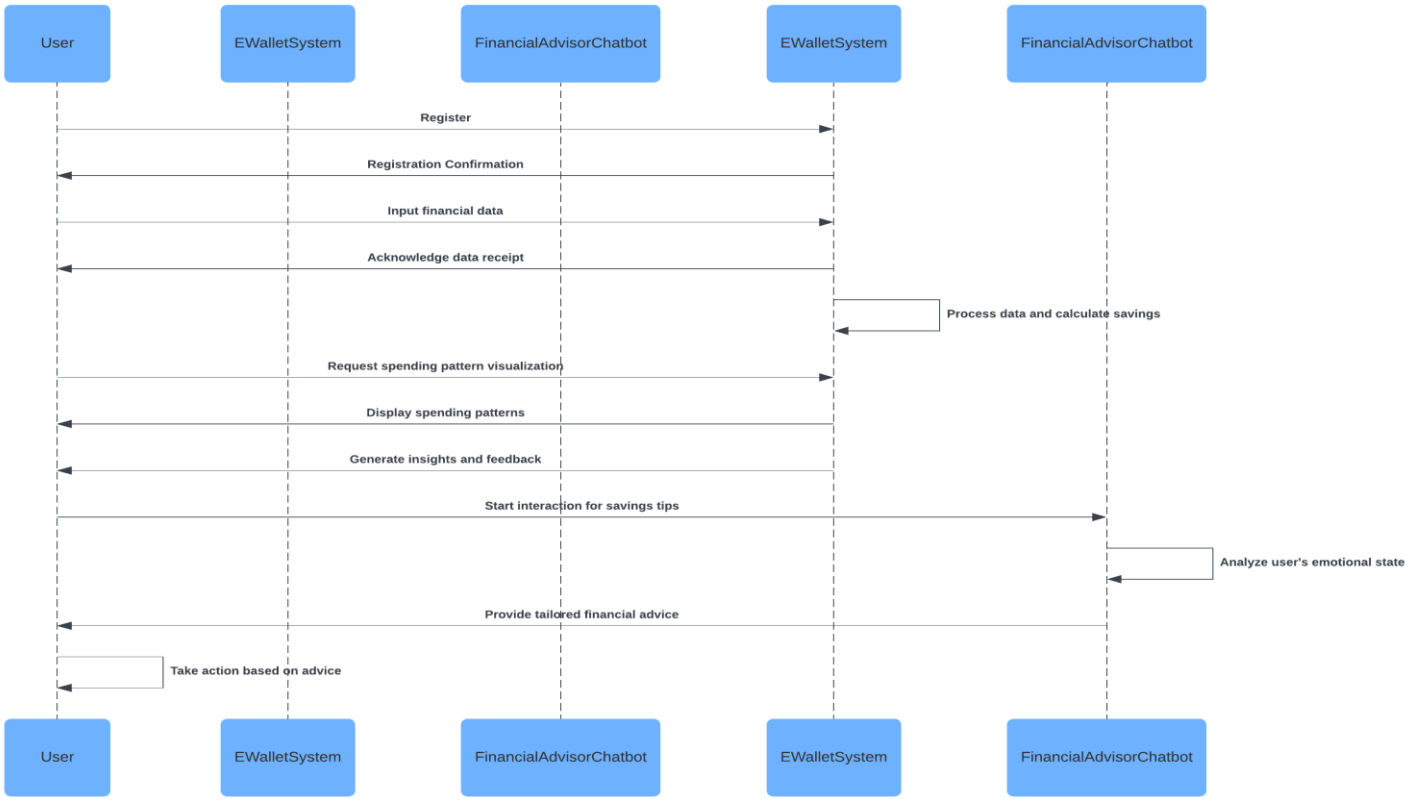


FIG 1.4 SEQUENCE DIAGRAM

3.5 Use-Case Diagram

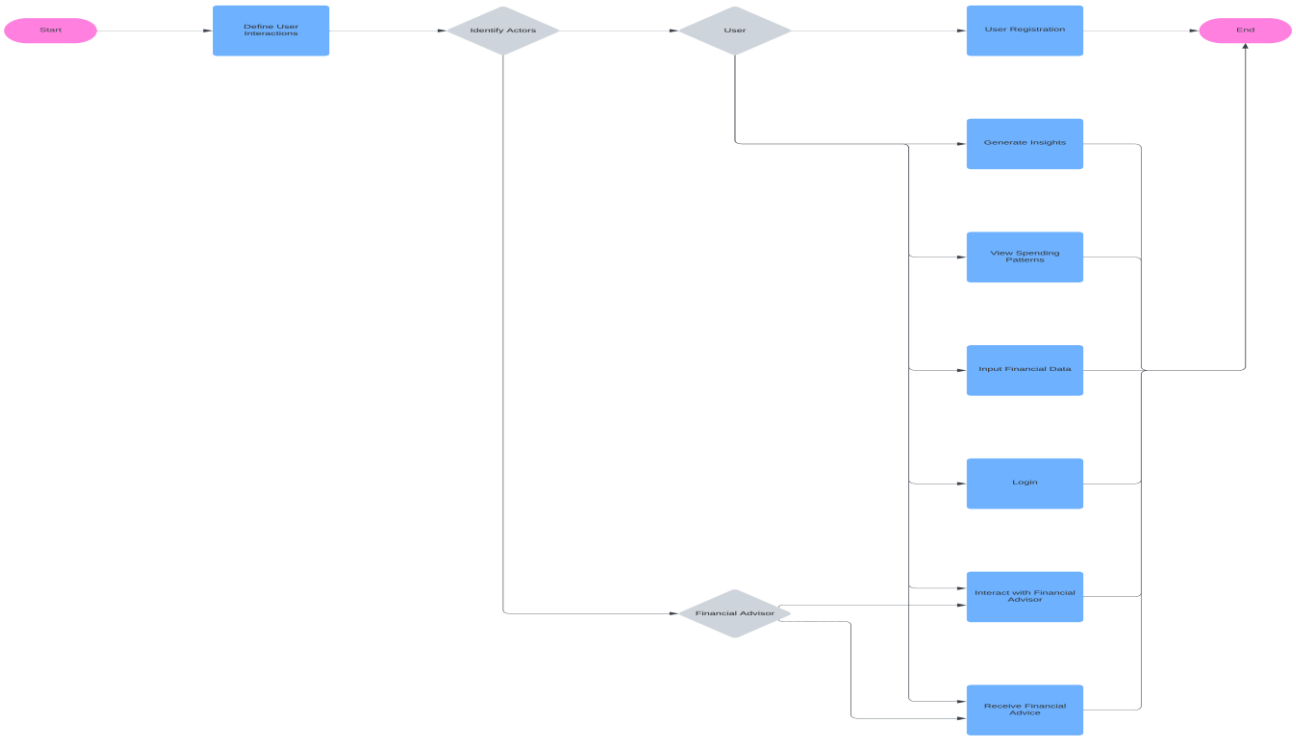
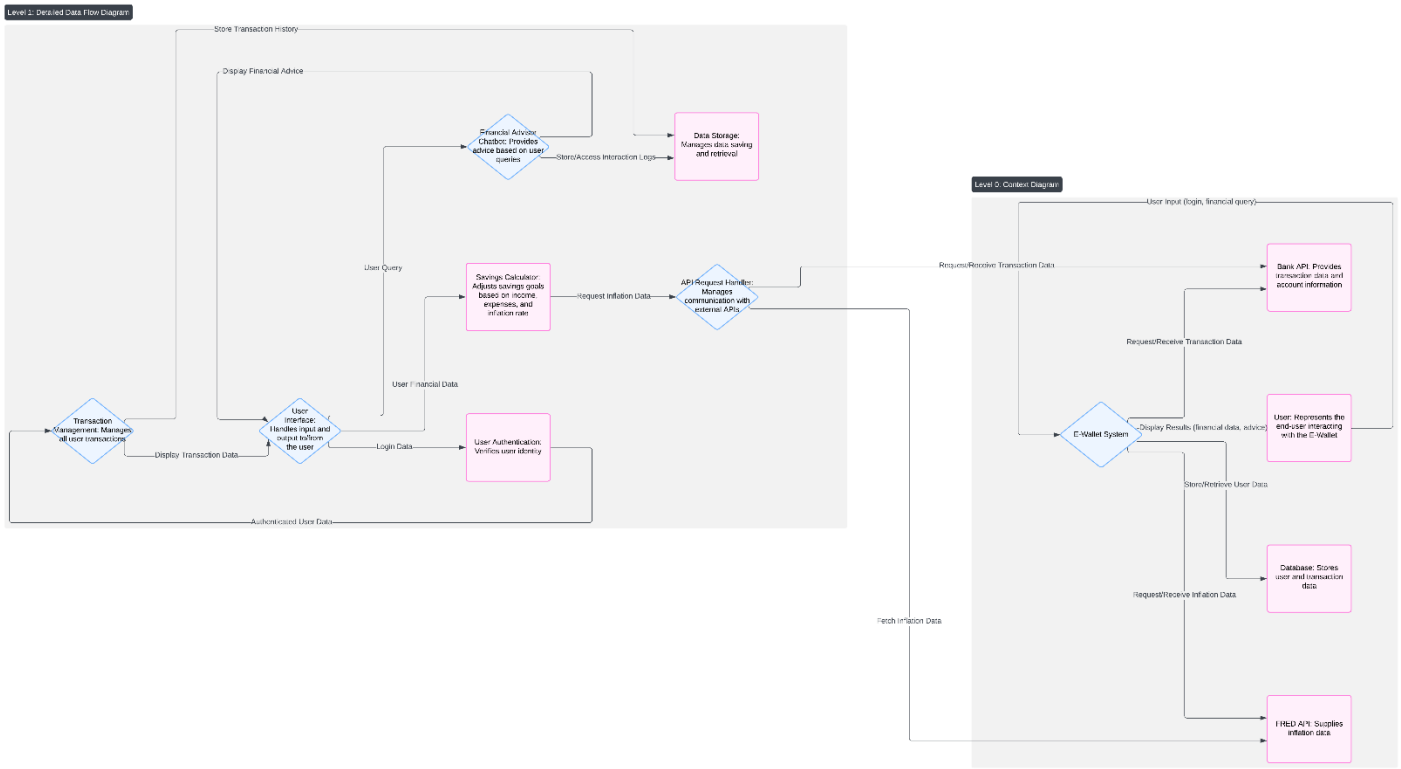


FIG 1.5 USE CASE DIAGRAM

3.6 Data Flow Diagram



CHAPTER 4
PROJECT MODULES

4.1 Savings Calculator Module

The Savings Calculator module is a core component that empowers users to manage their monthly finances by allowing them to input essential details such as income, expenses, loan repayments, and desired savings goals. Upon receiving these inputs, the module performs financial calculations adjusted to the latest inflation rate, which it fetches from the Federal Reserve Economic Data (FRED) API. Inflation-adjusted calculations ensure that the user's purchasing power remains stable despite economic fluctuations, helping them set realistic and achievable financial goals. This module also considers each user's unique financial commitments, such as loan repayments, and provides a personalized view of how much they need to save. By accounting for the effects of inflation, the calculator helps users understand the impact of rising costs over time. It not only calculates a target savings amount but also provides insights into spending patterns, empowering users to make informed decisions about their financial future. The Savings Calculator module is an essential tool for users seeking to manage their finances effectively by setting practical and inflation-proof savings objectives.

4.2 Financial Advisor Chatbot Module

The Financial Advisor Chatbot module is an interactive feature designed to provide users with personalized financial advice. This JavaScript-based chatbot parses user queries to identify keywords like "budget," "investment," or "savings," allowing it to offer relevant guidance. For example, if a user asks, "How can I improve my savings?", the chatbot may provide advice on expense reduction, budgeting methods, or investment options. By leveraging natural language processing, the chatbot enhances user experience by making financial guidance accessible and easy to understand. This module goes beyond generic responses; it adapts its answers based on the context of user inputs and the latest economic data, including inflation rates. Furthermore, it is programmed to suggest actionable steps to help users achieve their financial goals, such as minimizing unnecessary expenditures or exploring low-risk investment options. This chatbot ultimately simplifies complex financial topics, encouraging sound financial planning behaviors among users. By making financial advice readily available, this module empowers users to make better financial decisions, contributing to their overall financial well-being.

4.3 Data Management and Storage Module

The Data Management and Storage module is responsible for securely storing and organizing all user-related information, such as inputs for savings calculations, chatbot interactions, and transaction logs. This module ensures data persistence, allowing users to revisit their financial records, past calculations, and chatbot advice. By maintaining a record of previous interactions, the system can provide a more consistent experience and even offer retrospective insights, such as changes in spending habits or progress toward savings goals. The module is also designed with scalability and security in mind, storing data in a structured format that can support additional features in the future, such as generating user-specific financial summaries or personalized reports. Data

privacy is a priority, with mechanisms in place to secure sensitive information, in compliance with relevant data protection regulations. By keeping a reliable history of user interactions and calculations, the Data Management and Storage module not only improves the continuity of the user experience but also supports analytical capabilities that can provide valuable insights into users' financial behavior.

4.4 User Authentication and Security Module

The User Authentication and Security module plays a crucial role in safeguarding user data within the E-Wallet system. This module handles the registration, login, and password management processes, ensuring that only authorized users have access to the platform. The module utilizes encryption protocols to protect login credentials and employs multi-factor authentication (MFA) to add an extra layer of security. Additionally, it regularly verifies user sessions and automatically logs out inactive users to prevent unauthorized access. Security protocols, such as HTTPS and secure hashing algorithms, are implemented to protect data transmission and storage. This module also monitors for suspicious activity, triggering alerts or locking accounts if irregularities are detected. By implementing strict authentication measures, this module maintains the privacy and security of sensitive financial data. Ultimately, it builds user trust and confidence in the E-Wallet platform, as users can be assured that their personal and financial information is protected against unauthorized access.

4.5 API Integration Module

The API Integration module is designed to retrieve real-time data from external services like the FRED API, which provides the latest inflation rates. This module serves as a bridge between the E-Wallet system and external APIs, ensuring that users have access to up-to-date economic data. It handles the request and response process, ensuring that data fetched from external sources is correctly formatted and ready for use in calculations. By accessing real-time inflation data, the system can offer users more accurate financial advice that reflects current market conditions. The API Integration module also enables the E-Wallet system to expand its functionality in the future, potentially integrating with additional APIs for other economic indicators or financial services. This module is essential for maintaining the relevance and accuracy of the system’s financial guidance, helping users make informed decisions based on current economic trends.

4.6 FRED API Module

he FRED (Federal Reserve Economic Data) API Module is essential for providing real-time economic data that influences financial planning and decision-making within the E-Wallet system. This module specifically retrieves the latest inflation rate, allowing other modules, such as the Savings Calculator, to perform inflation-adjusted calculations. By integrating with the FRED API, users can account for the current economic environment when setting their financial goals, ensuring that their savings targets and budgeting plans remain realistic in light of changing purchasing power.

This module is designed to handle frequent data requests efficiently. It establishes a secure connection to the FRED API, fetches relevant economic indicators, and processes them for use across the application. The module also caches data temporarily to minimize repetitive calls to the API, enhancing performance and reducing dependency on constant internet connectivity. Additionally, it includes error-handling mechanisms to manage API outages or connectivity issues gracefully, providing default values or recent data when real-time data is unavailable. By integrating up-to-date economic information, the FRED API Module plays a crucial role in delivering accurate and dynamic financial guidance tailored to the current

economic conditions, ultimately empowering users to make informed financial decisions.

4.7 API Handler Module

The API Handler Module acts as the intermediary between the E-Wallet application and various external APIs, such as the FRED API, to streamline data retrieval and integration. This module standardizes the way external data is accessed, processed, and incorporated into the application, simplifying the development process and ensuring data consistency. It handles different API protocols, manages requests, and formats responses to be compatible with the application's internal data structure. The API Handler also abstracts complex API interactions, allowing other modules to access external data without needing to understand the intricacies of each API's format and authentication requirements.

Key responsibilities of the API Handler include establishing secure API connections, handling authentication tokens, managing request and response lifecycles, and processing JSON or XML responses. This module is equipped with error-handling routines to detect issues such as connection failures, API rate limits, or invalid responses, ensuring that the application can operate smoothly even when external APIs experience issues. The API Handler is essential for maintaining the reliability of the E-Wallet's external integrations, as it provides a unified interface for API communication. Through this module, the application can seamlessly incorporate data from multiple APIs, enhancing the robustness of features like inflation-adjusted savings calculations and future expansions that may involve additional economic or financial data sources.

4.8 Calculation Module

The Calculation Module is a fundamental component of the E-Wallet application, designed to perform financial computations based on user inputs and real-time economic data. This module processes key user data—such as monthly income, expenses, loan repayments, and savings goals—to offer actionable insights. A primary function is adjusting users' savings targets by factoring in the latest inflation rate from the FRED API, enabling users to set goals that account for purchasing power changes over time.

When a user inputs their financial details, the module calculates disposable income by subtracting expenses from income. It then suggests an inflation-adjusted savings target, ensuring users save adequately amidst economic fluctuations. Additionally, the module analyzes loan data to provide estimates on repayment timelines, interest accumulation, and the impact of additional payments on total debt, guiding users in managing their loans effectively.

This module is deeply integrated with other parts of the application. It collaborates with the Financial Advisor Chatbot to deliver personalized financial advice and interacts with the Data Management and Storage Module to save and retrieve calculation results for consistent user experience. By grounding its recommendations in precise, updated data, the Calculation Module empowers users to make sound financial decisions that align with their long-term goals.

CHAPTER 5
SYSTEM REQUIREMENTS

5.1 Hardware Requirements

- Processor: Intel Core i3 or higher
- RAM: 4GB or more
- Hard Disk: Minimum of 500GB for data storage

5.2 Software Requirements

- Operating System: Windows 7 or later
- Development Environment: Flask (backend), HTML, CSS, JavaScript (front end)
- APIs: FRED API for inflation data
- Libraries: Requests (Python for API calls), JSON (for data handling)

5.3 Technology Stack

- Flask: Backend framework to handle API requests and data processing.
- JavaScript: Handles front-end interactivity, including savings calculations and chatbot responses.
- HTML/CSS: Basic structure and styling for a user-friendly interface.
- FRED API: Provides inflation rate data, updating savings calculations dynamically.

CHAPTER 6
CONCLUSION

The E-Wallet application serves as a powerful tool that integrates real-time financial data with interactive functionalities to help users make informed decisions about their personal finances. Designed with both convenience and accuracy in mind, this application is a comprehensive solution for individuals aiming to manage their income, expenses, and savings effectively. By providing users with inflation-adjusted savings recommendations and an interactive Financial Advisor chatbot, the E-Wallet goes beyond basic budgeting tools to offer a truly responsive and data-driven financial planning experience. The project showcases the advantages of combining digital finance tools with real-time data to deliver meaningful, personalized financial insights.

One of the standout features of this E-Wallet is its inflation-adjusted savings recommendation function. Traditional budgeting tools often overlook the effect of inflation, which can erode purchasing power over time and make long-term savings targets difficult to meet. By using data from the Federal Reserve Economic Data (FRED) API, this E-Wallet continuously updates savings recommendations based on the current inflation rate, providing users with a realistic view of their financial needs. This feature empowers users to plan for the future more accurately, as they can anticipate how inflation may impact their savings and adjust their financial goals accordingly. Such real-time integration demonstrates the value of API-driven applications in financial management, as it allows users to receive insights that reflect the latest economic conditions, making the E-Wallet a practical choice for individuals aiming to safeguard their financial stability.

The Financial Advisor chatbot further enhances the application's value by providing on-demand financial guidance through a user-friendly interface. By responding to users' queries with simple, actionable advice on topics like budgeting, debt management, and saving strategies, the chatbot makes financial planning accessible to users who may not have extensive financial expertise. The chatbot uses a keyword-based approach to detect the user’s intent, delivering responses that are easy to understand yet insightful. For example, if a user asks about saving more effectively, the chatbot can suggest setting up a budget, tracking expenses, or exploring investment options. The chatbot’s real-time responses create a more engaging and supportive experience, as users can receive financial advice whenever needed without consulting an external advisor. This functionality not only encourages positive financial behaviors but also promotes financial literacy, as users can learn about effective money management through their interactions with the chatbot.

Looking ahead, future enhancements to the E-Wallet could include implementing more advanced natural language processing (NLP) algorithms for the chatbot. Currently, the chatbot relies on basic keyword recognition, which can limit its ability to understand complex or nuanced user inputs. By integrating NLP models capable of more sophisticated language understanding, the chatbot could recognize a broader range of financial queries and provide more personalized advice. For instance, with NLP, the chatbot could detect users’ specific financial concerns, such as retirement planning or managing student loans, and offer tailored advice that reflects these unique needs. This improvement would make the chatbot more adaptive, enabling it to handle diverse user inquiries with greater accuracy and depth. Advanced NLP would also allow the chatbot to identify subtle emotional cues in users' language, enhancing its ability to offer compassionate and relevant advice, which could be especially beneficial for users experiencing financial stress.

In conclusion, the E-Wallet application demonstrates the effectiveness of integrating real-time financial data and interactive support tools to promote informed financial decision-making. By combining inflation-adjusted savings recommendations with a responsive Financial Advisor chatbot, this application offers a practical and accessible way for users to take control of their financial future. As digital finance tools continue to evolve, the E-Wallet’s potential for further enhancement, particularly through NLP integration, underscores its relevance in a world where personal finance management is increasingly critical. This project highlights the promise of technology-driven

financial planning solutions, paving the way for more robust, user-centered financial tools that can adapt to changing economic conditions and individual needs.

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