**WALLEE. PERSONAL FINANCE APP**

**PROGRESS EVALUATION REPORT #4**

# Wallee. Personal Finance App

## 1) Members :

- Emma Bahr : ebahr2022@my.fit.edu
- Matteo Caruso : mcaruso2023@my.fit.edu
- Joshua Cajuste : jcajuste2022@my.fit.edu
- Kyle Gibson : kgibson2022@my.fit.edu

## 2) Faculty Advisor : Dr. Siddhartha Bhattacharyya sbhattacharyya@fit.edu

## 3) Client :

- Doug Gibson - Small Business Owner
- Dr. Siddhartha Bhattacharyya - SWE/CSE Professor & Advisor

## 4) Task Matrix for Milestone 4 :

| Task | Compl. % | Emma | Matteo | Kyle | Joshua |
|---|---|---|---|---|---|
| **Hide api keys** | 100% | 0% | 0% | 0% | 100% |
| **Link budget and goal pages** | 60% | 0% | 10% | 50% | 0% |
| **Finish user profile page and settings page** | 50% | 20% | 20% | 0% | 10% |
| **Finish user reports** | 90% | 0% | 90% | 0% | 0% |
| **Finish implementing AI** | 80% | 0% | 20% | 0% | 60% |
| **Start implementing time and calendar** | 70% | 0% | 0% | 70% | 0% |

| Connect bank accounts in the database | 100% | 100% | 0% | 0% | 0% |
|---|---|---|---|---|---|
| Connect budgets in the database | 0% | 0% | 0% | 0% | 0% |
| UI (animations, color coded, sign-in page, etc) | 90% | 0% | 90% | 0% | 0% |

## 5) Discussion of each accomplished task (and obstacles) for Milestone 4 :

1. **Security and API Key Management:** Addressed critical security vulnerabilities by extracting all hardcoded API keys from the source code and migrating them to secure, environment-specific configuration files, effectively mitigating financial and data exposure risks.

2. **Budget and Goal Synchronization:** Integrated the budget and goals architecture to prevent users from setting financially unattainable objectives. This cross-validation adds an essential layer of safety, proactively helping users avoid overspending.

3. **Profile and Settings UI Implementation:** Developed the user interface for the profile and settings pages. This includes interactive toggles for managing push notifications and opt-in/opt-out preferences for the "Wallee Zero" feature, granting users full control over their account and privacy settings.

4. **Comprehensive PDF Report Generation:** Engineered a feature to generate and download comprehensive PDF financial reports. This single, easy-to-read document aggregates all user data, including dynamically generated graphs, charts, and budget breakdowns, to provide maximum clarity on spending habits.

5. **Wallee Zero Integration and AI Feedback Loop:** Finalized the implementation of "Wallee Zero" and successfully linked it with "Wallo" and the "Wallee Score" to create a holistic financial feedback loop. Wallo leverages the Wallee Score to provide precise advice on areas for improvement, while Wallee Zero's

double-filter mechanism ensures the user receives tailored insights without compromising data privacy.

6. **Time and Calendar System Integration:** Implemented a robust chronological tracking system. This allows the application to accurately log expense dates, forecast upcoming paydays, and provide real-time countdowns for financial goals, significantly improving the app's predictive capabilities.

7. **Persistent Account Synchronization:** Established a stable database connection for user accounts, ensuring that session data and account configurations are seamlessly synchronized and accessible across multiple devices.

8. **Cloud-Based Budget Retrieval:** Configured the database to securely store and retrieve user budgets in the cloud. This ensures that a user's financial parameters remain accurately updated and instantly accessible regardless of the device they use to log in.

9. **UI Modernization and Polish:** Overhauled the user interface to feature a modern, uniform aesthetic, notably incorporating "glassmorphism" (glass card) design elements. Added fluid animations, high-fidelity graphs for visual data representation, and refined minor details to elevate Wallee to a professional-grade product standard.

## 6) Discussion : Contribution of each team member to Milestone 1 :

All team members have actively participated in every phase of the development process thus far. The evaluation and selection of both technical frameworks and collaborative tools were conducted collectively to ensure total team alignment.

- **Emma :** Continued to lead project planning and documentation efforts. Engineered database schemas and connections to ensure all application features are correctly linked, seamlessly retrievable, and securely accessible.

- **Matteo :** Expanded and refined the UI/UX elements, enhancing overall consistency and accessibility by implementing fluid animations, a modern glassmorphism (glass card) aesthetic, and strict visual coherence. Spearheaded the contextual enhancements of the AI chatbot by integrating it with the Wallee Score and Wallee Zero, optimizing both the user interface and the prompt-flow logic. Facilitated comprehensive user testing rounds. Additionally, implemented a biometric authentication portal, initiated development for Google/Apple single sign-on (SSO) integrations, and

engineered persistent banking session states to prevent unwarranted account disconnections upon app closure.

- **Joshua :** Directed backend system enhancements, focusing on crucial authentication security upgrades, robust token lifecycle management, and Plaid API data stability. Fortified application security by systematically extracting and isolating API keys into secure environment variables, removing them from the primary codebase.

- **Kyle :** Implemented a comprehensive calendar integration to maintain strict chronological consistency across the application. Initiated and advanced the development of the synchronized budget-to-goals architecture to ensure cohesive financial tracking.

## 7) Plan for the next Milestone :

| Task | Emma | Matteo | Joshua | Kyle |
|------|------|--------|--------|------|
| **Database Architecture for Budget Persistence** | 33% | 0% | 33% | 33% |
| **Budget and Goal Page Synchronization** | 10% | 10% | 70% | 10% |
| **Profile and Settings Finalization** | 33% | 33% | 0% | 33% |
| **Chronological Tracking and Calendar Completion** | 0% | 50% | 50% | 0% |
| **UI/UX Polish and AI Feedback Loop Completion** | 0% | 100% | 0% | 0% |
| **Single Sign-On (SSO) Implementation** | 10% | 70% | 10% | 10% |
| **Comprehensive Quality Assurance (QA) and Beta Testing** | 25% | 25% | 25% | 25% |
| **Regulatory Compliance and App Store Preparation:** | 25% | 25% | 25% | 25% |

| Infrastructure Optimization and Cost-Control Auditing | 25% | 25% | 25% | 25% |
|---|---|---|---|---|

## 8) Discussion of each planned task for Milestone 3 :

- **Database Architecture for Budget Persistence:** Construct the foundational database schema and requisite queries within Supabase to ensure user-defined budgets are permanently stored, reliably synchronized, and fully retrievable across sessions, mirroring the established bank account infrastructure.
- **Budget and Goal Page Synchronization:** Finalize the cross-validation logic and corresponding user interface elements to restrict users from configuring financially unattainable goals based on their active budget parameters, reinforcing proactive financial safety.
- **Profile and Settings Finalization:** Complete the underlying logic and user-facing controls for account modification, push notification toggling, and data privacy preferences, specifically managing opt-in parameters for the Wallee Zero feature.
- **Chronological Tracking and Calendar Completion:** Finalize the system's temporal logic to ensure accurate chronological tracking, enabling precise predictive capabilities for user paydays and exact logging of historical expense dates.
- **UI/UX Polish and AI Feedback Loop Completion:** Execute final refinements on the PDF user report generation and fluid UI animations. Concurrently, finalize the AI integration to ensure a seamless prompt flow and data handoff between the Wallee Score analysis and the Wallee Zero chatbot interface.
- **Single Sign-On (SSO) Implementation:** Develop and integrate robust Single Sign-On capabilities, specifically Apple and Google authentication protocols, fulfilling critical modern security standards and mandatory App Store review requirements.
- **Comprehensive Quality Assurance (QA) and Beta Testing:** Execute rigorous end-to-end testing with a closed beta group to identify structural vulnerabilities. This phase will strictly test critical edge cases, including Plaid API disconnections, AI response latency timeouts, and invalid user inputs (e.g., negative budget allocations).
- **Regulatory Compliance and App Store Preparation:** Finalize the application's legal framework by formally integrating the necessary data privacy policies. Establish the Apple Developer portal, configure the App Store Connect environment, and generate the required high-fidelity visual assets for formal

submission.
- **Infrastructure Optimization and Cost-Control Auditing:** Conduct a thorough audit of deployment environments to configure strict billing limits and resource caps on Supabase Edge Functions and Google Cloud Vertex AI, safeguarding the application's infrastructure against unexpected load spikes during the beta phase.

**9) Date(s) of meeting(s) with Client during Milestone 4 :**
- **Meeting 1: January 8, 2025**

**10) Client feedback on the current milestone**
- Mr. Gibson : Application features are satisfactory
- Dr. Siddhartha Bhattacharyya : see Faculty Advisor Feedback below.

**11) Date(s) of meeting(s) with Faculty Advisor during Milestone 4 :**
- **Meeting 1: January 9, 2025**
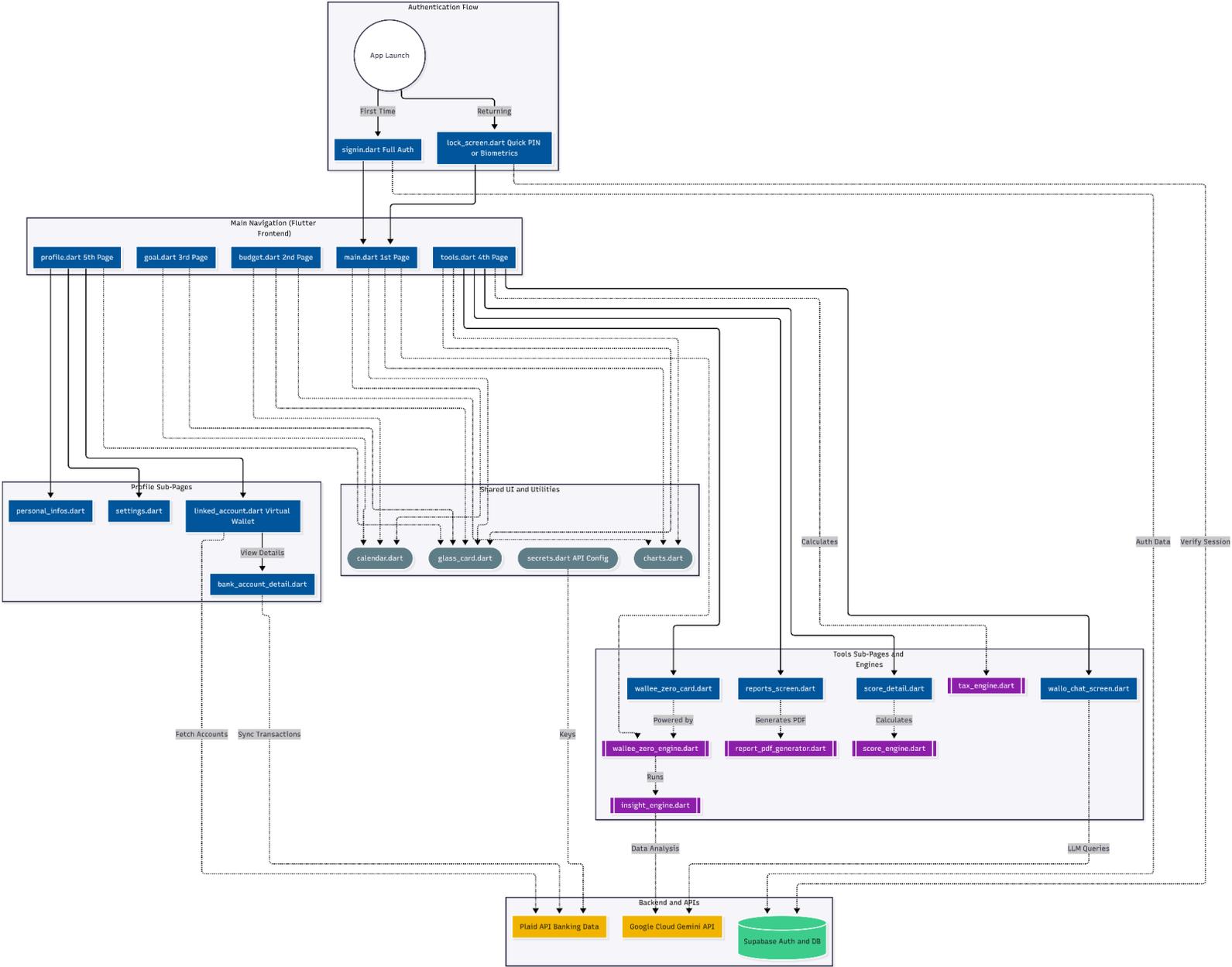
**12) Faculty Advisor feedback on each task for Milestone 4 :**

- **Dr. Bhattacharyya would like to see use cases, use case diagrams, and a system diagram for the app's features, the system diagram is shown below and the use case document is linked below as well.**

**Faculty Advisor Signature:** _____ **Date:** 2/23/2026 _____

Signed by:

*Dr Siddhartha Bhattacharyya*

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# System Architecture Design



**Authentication Flow**

App Launch

First Time → signin.dart Full Auth

Returning → lock_screen.dart Quick PIN or Biometrics

**Main Navigation (Flutter Frontend)**

profile.dart 5th Page | goal.dart 3rd Page | budget.dart 2nd Page | main.dart 1st Page | tools.dart 4th Page

**Profile Sub-Pages**

personal_infos.dart | settings.dart | linked_account.dart Virtual Wallet

View Details → bank_account_detail.dart

**Shared UI and Utilities**

calendar.dart | glass_card.dart | secrets.dart API Config | charts.dart

**Tools Sub-Pages and Engines**

wallee_zero_card.dart | reports_screen.dart | score_detail.dart | tax_engine.dart | wallo_chat_screen.dart

Powered by → wallee_zero_engine.dart

Generates PDF → report_pdf_generator.dart

Calculates → score_engine.dart

Runs → insight_engine.dart

**Backend and APIs**

Plaid API Banking Data | Google Cloud Gemini API | Supabase Auth and DB

Fetch Accounts | Sync Transactions | Keys | Data Analysis | LLM Queries | Calculates | Auth Data | Verify Session

## 13) Evaluation by Faculty Advisor

- **Faculty Advisor :** detach and return this page to Dr. Chan (HC 209) or email the scores to pkc@cs.fit.edu.
- **Score (0-10) for each member :** circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10).

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emma | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |
| Matteo | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |
| Joshua | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |
| Kyle | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |

**Faculty Advisor Signature:** _____ Signed by:

*Dr Siddhartha Bhattacharyya*

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**Date:** 2/23/2026