Lab 1 – CreditTrax Product Specification

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Version 1

Table of Contents

List of Figures

1 **Introduction**

1.1 Purpose

This Software Requirements Specification (SRS) defines the functional and non-functional requirements for CreditTrax, a mobile application for financial management and literacy. It serves as a technical reference for developers, outlining system behaviors, data processing logic, and integration points necessary for implementation. This document ensures a clear understanding of how CreditTrax will process financial data, generate personalized budgeting recommendations, and support users in managing debt effectively.

1.2 Scope

The purpose of this system is to provide users with a comprehensive financial management platform focused on debt tracking, budget recommendations, and financial literacy tools (such as the "What-if" Analysis feature). By offering structured guidance and actionable insights, the system aims to help users gain better control over their finances and make informed financial decisions.

The system will enable users to track and manage their debts efficiently by allowing them to add, edit, and monitor outstanding balances. It will also provide personalized budget recommendations based on user input, such as income, expenses, and debts, helping users optimize their financial plans. Additionally, the platform will incorporate financial literacy tools to educate users on responsible money management. Through OpenAI-powered "What-If" analysis, users will gain insights into potential financial outcomes based on different scenarios, allowing them to anticipate future financial situations.

To encourage positive financial habits, the system will feature a rewards mechanism where users earn badges for achieving financial milestones. Furthermore, it will support goal management, allowing users to set, track, and modify both short-term and long-term financial objectives.

While the system offers comprehensive financial tracking and guidance, it will not provide direct financial advising, investment recommendations, or automated debt repayment services. Additionally, it does not guarantee improvements in credit scores or financial outcomes. Instead, the platform serves as an empowering tool that equips users with the necessary resources to navigate their financial journey effectively.

1.3 Definitions, Acronyms, and Abbreviations

AI: Refers to algorithm-driven decision-making processes that analyze user financial data to generate personalized budgeting recommendations and predictive financial insights. It utilizes rule-based algorithms and pre-trained AI models (such as OpenAI's API) to perform "What-If" Analysis and budget optimization based on income, expenses, and debt obligations.

API: A tool that allows the application to connect with other services to integrate extra features.

Credit Score: A three-digit number that reflects an individual's creditworthiness based on their credit history, influencing lenders' decisions on loan approvals and interest rates.

Debt: Money that is borrowed and must be repaid, typically with interest.

Financial Literacy: A strong understanding of essential financial skills and concepts, such as budgeting, saving, and debt management.

"What-if" Analysis: A technique that allows users to simulate various (financial) scenarios and visualize their potential outcomes.

UI: Refers to the visual and interactive elements that allow users to navigate the application and engage with its features, e.g. buttons, icons, and graphs.

Young Adults: Individuals between the ages of 18 to 34 who are in the workforce and have limited experience with personal finances.

Young Professionals: Young adults aged 18-34 who are in the workforce, in college, or have recently graduated.

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1.5 Overview

The remaining sections of this Software Requirements Specification provide a detailed breakdown of CreditTrax's design and functionality. Section 2.1 outlines the system's role within its broader environment and includes a Major Functional Component Diagram to illustrate its architecture. Section 2.2 highlights key features, specifying which are fully or partially implemented in the prototype. Section 2.3 defines user roles, expertise levels, and typical usage scenarios. Section 2.4 identifies technical, legal, or environmental limitations impacting the system. Finally, Section 2.5 lists external services, APIs, and frameworks required for development.

2 Overall Description

2.1 Product Perspective

CreditTrax is a financial management and educational application designed to assist young adults and professionals in managing their personal finances effectively. The system integrates multiple components to provide users with a comprehensive platform for debt tracking, budget recommendations, financial literacy resources, and goal-setting tools. It is structured into three primary layers: the Presentation Layer, Application Layer, and Data Layer.

The Presentation Layer includes the user-facing components. Users interact with the system through a financial dashboard and planner, a debt and payment interface, and a gamification/community system. Personal Finance Partners (PFPs) and educators also have access to the platform, enabling collaborative financial planning and education. The Application Layer manages the core processing logic using a web server (Herd NGINX) to handle requests and process data. The system also incorporates a gamification API to support achievement-based incentives and community engagement.

The Data Layer consists of the CreditTrax database, built using SQLite, which stores essential financial data such as user-inputted income, expenses, and debt details. It also maintains group data for collaboration among users, PFPs, and educators. Additionally, the database supports generative AI recommendations, educational content, and user progress tracking through badges and goal data. The Major Functional Component Diagram (Figure 1) illustrates how these subsystems interact.
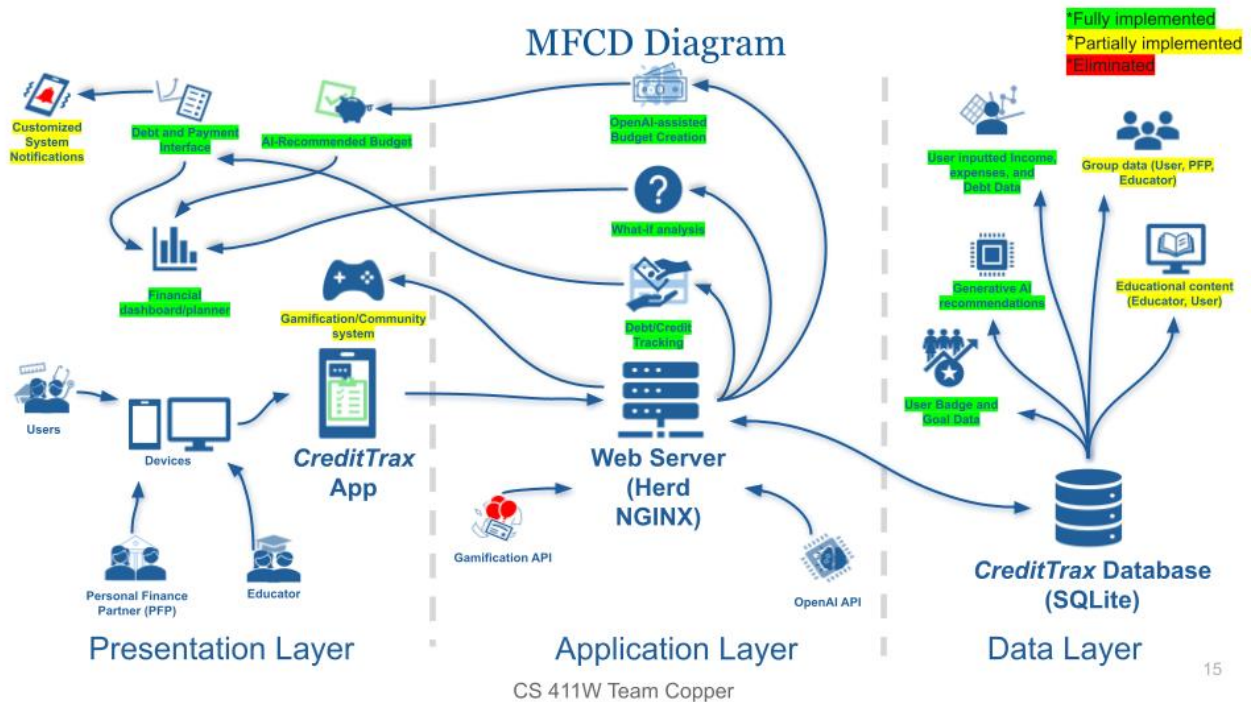
Figure 1 - Major Functional Components Diagram

Users input financial information through the CreditTrax application, which is processed by the web server and stored in the database. AI-driven analytics generate budget recommendations, debt-tracking insights, and financial projections. The gamification system enhances user engagement by awarding badges for financial milestones, while educators contribute financial literacy content to support informed decision-making.

2.2 Product Functions

The CreditTrax application encompasses several key financial management features, each designed to assist users in tracking debt, budgeting effectively, setting financial goals, and analyzing future financial scenarios. Some features are fully implemented, while others remain partially developed or have been eliminated in the prototype.

Debt Tracking allows users to comprehensively manage their debts by adding new obligations and editing existing ones. While the originally planned smart payment reminders with escalating notifications have been eliminated, a basic reminder system remains in place to assist users in staying on top of their payments.

Budgeting features include fully implemented AI-driven personalized budget recommendations based on user input, helping individuals optimize their financial planning. Additionally, expense tracking with visual representations is fully implemented, allowing users to monitor their spending habits effectively.

Goal Tracking is a core feature that is fully implemented, enabling users to set and manage both short-term and long-term financial goals. The system also includes goal and progress visualization, helping users track their achievements over time.

"What-If" Analysis provides AI-driven financial projections, which are fully implemented, allowing users to assess different financial scenarios. The feature includes both dynamic AI-generated projections and algorithm-based hardcoded scenarios to help users make informed financial decisions.

The Rewards System introduces gamification elements to encourage financial responsibility. Custom badges for achievements are partially implemented, with only basic badges available in the prototype. Additionally, the full community functionality, including leaderboards, remains partially implemented.

2.3 User Characteristics

CreditTrax serves two primary user roles: young adults and personal finance partners. Young adults use the application to manage their finances by tracking debts, receiving AI-driven

budget recommendations, and utilizing the "What-If" analysis tool. They can set financial goals, monitor progress through visualizations, and explore different financial scenarios to improve decision-making.

Personal finance partners, such as financial advisors or wellness coaches, assist users by tracking their financial goals and modifying AI-generated budget plans. They provide personalized guidance based on user spending trends, enhancing financial stability.

The application must accommodate varying financial literacy levels with an intuitive interface. AI-generated recommendations rely on accurate user data, and finance partners will have limited access to maintain privacy. External factors like economic shifts may also impact budgeting strategies.

2.4 Constraints

Legal constraints include framing financial insights as budget recommendations rather than budget advice to minimize liability.

Technical constraints involve the AI's reliance on user input, which affects the accuracy of recommendations. Additionally, online and external data sources must be verified to ensure reliability and correctness.

2.5 Assumptions and Dependencies

The system depends on several third-party services and frameworks. APIs used include OpenAI for AI-driven budgeting recommendations and GameLayer for gamification features. The frameworks supporting development include Laravel (backend for PHP), Tailwind CSS (styling), and Alpine.js (frontend interactions). Additionally, the project relies on Composer as a dependency manager and Chart.js for data visualizations.