

**Project Proposal:**  
**Personal Finance Tracker**



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## Abstract

By integrating advanced object-oriented programming (OOP) concepts, our project aims to develop a sophisticated personal finance tracker designed to simplify and enhance the way individuals manage their finances. With features such as user authentication, multi-currency and account support, expense tracking, and budgeting tools, the proposed system is geared towards providing users with comprehensive insights into their financial health, enabling informed decision-making and goal achievement. Addressing the common challenges of user data security, interface intuitiveness, and multi-currency transactions, the project seeks to deliver a user-friendly, secure, and effective financial management tool. Utilizing technologies like WinForms, C++, and SQL, the end product aspires to combine the best aspects of existing applications with improved functionality and user experience. This endeavor will not only enhance the developers' skills in software engineering, user interface design, and data security but also aims to fill gaps in current personal finance management tools by offering a tailored, all-encompassing solution.

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## **1. Introduction and Background**

In today's fast-paced world, effective personal finance management is essential for achieving financial goals and stability. The goal of our project is to fulfill this demand by developing a comprehensive personal finance tracker, empowering users with tools for informed decision-making.

Understanding personal finance principles and software development fundamentals is crucial for this project. Existing tools like Mint and YNAB highlight the demand for such solutions. Our project aims to stand out with user-friendly design and enhanced features.

Our project holds significance in empowering users to take control of their finances and achieve success. By providing comprehensive tracking and analysis tools, we enable informed decisions, financial goal attainment, and overall financial literacy enhancement.

## **2. Problem Statement**

Modern individuals struggle to manage personal finances amidst complex transactions, hindering budgeting and goal achievement. This project aims to develop a solution by creating a comprehensive personal finance tracker, simplifying financial management for users.

## **3. Objective(s)/Target(s)**

Through this project, we aim to develop a comprehensive personal finance tracker to assist users in managing their finances effectively, by providing tools for budgeting, expense tracking, and financial goal setting. The ultimate objective is to give the consumers the information and tools they require in order to make prudent financial choices to accomplish their financial objectives.

## **4. Completeness Criteria**

The project achieves completeness by meeting key requirements: user authentication, transaction tracking, budgeting, and goal setting, along with accurate handling of multi-currency and multi-account scenarios. Further, once it offers comprehensive financial analysis, maintains transaction history, provides insightful reporting, and ensures robust data security, along with the provision of an interactive interface, with

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stable performance verified through thorough testing, it can be considered complete. At a minimum, it will effectively handle budgeting, multi-currency scenarios, and provide a secure, user-friendly interface.

## 5. List of Features

- ❖ **User Authentication:** Users can securely create accounts and log in due to individual verification.
- ❖ **Track Income and Expenses:** Effortlessly record transactions with details like amount, category, and date.
- ❖ **Multi-Currency Support:** Ability to handle transactions in different currencies like dollars, euros, and rupees.
- ❖ **Multi-Account Support:** Track balances and transactions across various accounts, *supplying you with a comprehensive fiscal overview.*
- ❖ **Categorize Spendings and Expenses:** Organize transactions and categorize expenses into various groups for effortless budgeting and analysis.
- ❖ **Budget Calculation:** Calculate budget by deducting expenses from income.
- ❖ **Budget Goals:** Set monthly spending and saving goals, track progress, and achievements.
- ❖ **Transaction History:** Maintain a record of all transactions with dates, categories, and amounts.
- ❖ **Budget Analysis:** Provide detailed analysis of spending patterns, savings, and adherence to budget.
- ❖ **Powerful Reporting and Visualization:** Generate insightful reports to understand your spending trends and identify areas for improvement.
- ❖ **Flexible Transaction Management:** Add, edit, and delete transactions with ease, categorizing them for in-depth analysis.
- ❖ **Data Security:** Protect your financial information with password protection and data encryption, ensuring your privacy.

## 6. Learning Outcomes

Upon completing this project, we will achieve proficiency in utilizing C++ for core application logic. Furthermore, we will gain expertise in software engineering principles, user interface design via WinForms, requirements engineering, and database management using SQL. This endeavor will also enhance our problem-solving abilities and may lead to becoming a domain expert in personal finance management.

## 7. Challenges

- ❖ **Data Visualization and Reporting:** Creating clear and actionable financial reports and visualizations that cater to different user needs, making complex data understandable at a glance.
- ❖ **Handling Multi-Currency Transactions:** Developing a reliable system for managing and converting multiple currencies in real-time, ensuring accuracy and efficiency.
- ❖ **Integration of WinForms with C++ Backend:** Combining the WinForms graphical user interface with the backend logic implemented in C++ can pose challenges.
- ❖ **Secure Data Handling:** Implementing secure data handling practices within the C++ backend and SQL database.
- ❖ **Researching Existing Solutions:** Conducting thorough research to understand the features, functionalities, and user experiences offered by existing personal finance tracker applications.

## 8. Knowledge Areas Required

The aspects of our Bachelor of Science degree anticipated to be applied in this project's development include:

- ❖ Human Computer Interaction (HCI)
- ❖ Web application development
- ❖ Database Management
- ❖ User Interface Design
- ❖ Information Security
- ❖ Data Analysis
- ❖ Principles of Software Engineering

## 9. Initial Literature Survey

Our survey of personal finance management applications like Mint, YNAB, and Personal Capital reveals common functionalities but differing strengths. While Mint offers comprehensive budgeting and expense tracking, YNAB focuses on budgeting and goal setting. Personal Capital excels in investment tracking. Our project aims to integrate these features seamlessly, providing comprehensive financial analysis, customizable reporting, and robust multi-currency support with a user-friendly interface, setting it apart.

## **10. Nature of End Product**

The end product will be a desktop-based application developed using WinForms, C++, and SQL technologies.

## References

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