Project Proposal

Personal Finance Management App

Gustavo Andrade, 21189358, x21189358@student.ncirl.ie

Higher Diploma in Science in Computing

Specialisation Software Systems

08/06/2024

1. Objectives

The primary objective of the Personal Finance Management App is to empower users to take control of their personal finances through a comprehensive, secure, and user-friendly web application. The detailed objectives are as follows:

1. **Financial Tracking and Management**:
   - o **Income Tracking**: Provide a straightforward method for users to record and categorize their income from various sources.
   - o **Expense Tracking**: Allow users to log their daily expenses and categorize them into predefined or custom categories for better financial understanding.
   - o **Recurring Transactions**: Implement functionality to handle recurring transactions (both income and expenses) to reduce the manual input burden on users.
2. **Savings Goals and Budgeting**:
   - o **Savings Goals**: Enable users to set, track, and achieve their savings goals with visual progress indicators.
   - o **Budget Management**: Allow users to create monthly or annual budgets, compare actual spending against the budget, and receive alerts for overspending.
3. **Financial Analytics and Reporting**:
   - o **Visual Analytics**: Provide visual tools such as charts and graphs to help users analyze their income and expense patterns over time.
   - o **Reports**: Generate detailed financial reports that users can download or print, summarizing their financial activities and providing insights into their spending habits.
4. **User Experience and Interface**:
   - o **Responsive Design**: Develop a responsive user interface that works seamlessly across various devices, including desktops, tablets, and smartphones.
   - o **Intuitive Navigation**: Design an intuitive navigation system that allows users to easily access different functionalities and features of the application.

By achieving these objectives, the Personal Finance Management App aims to become a valuable tool for users to manage their finances effectively, providing them with the insights and tools needed to make informed financial decisions. The app will not only track and categorize financial data but also provide meaningful analytics and reports, all while ensuring a secure and enjoyable user experience.

2. Background

Introduction to Personal Finance Management

Personal finance management is a critical aspect of daily life, encompassing the processes involved in budgeting, saving, investing, spending, and overseeing one's financial resources. Effective management of personal finances can lead to financial stability, reduced stress, and the achievement of long-term financial goals. However, many individuals struggle with organizing their financial data, setting realistic goals, and maintaining disciplined spending habits.

Existing Financial Management Solutions

Appendix A.   Several financial management applications are available on the market, each offering a range of features aimed at helping users manage their finances. Some of the most notable applications include:

1. **Mint**:
   o **Strengths**: Mint is widely used due to its comprehensive financial tracking capabilities. It aggregates users' bank accounts, credit cards, bills, and investments, providing a consolidated view of their financial status. Users can create budgets, set goals, and receive alerts for unusual spending.
   o **Weaknesses**: Despite its popularity, Mint has been criticized for its cluttered interface and the presence of intrusive advertisements. Additionally, some users have expressed concerns over the security of their financial data.
2. **YNAB (You Need a Budget)**:
   o **Strengths**: YNAB is renowned for its proactive budgeting approach, encouraging users to allocate every dollar to a specific purpose. It offers robust budgeting tools and educational resources to help users gain control over their finances.
   o **Weaknesses**: YNAB's interface can be challenging for new users to navigate, and its subscription model can be a barrier for some individuals.
3. **Personal Capital**:
   o **Strengths**: Personal Capital excels in providing advanced financial planning tools, including investment tracking and retirement planning. Its user-friendly interface and comprehensive dashboards make it a favorite among users with diverse financial needs.
   o **Weaknesses**: While excellent for investment tracking, Personal Capital lacks a focus on daily expense tracking, which is a critical component of personal finance management for many users.

Motivation for the Project

Appendix B.   The need for a personal finance management tool that combines the strengths of existing applications while addressing their weaknesses is evident. This project aims to fill this gap by developing a comprehensive, secure, and user-friendly web application for personal finance management. Key motivations include:

1. **Enhanced User Experience**: Many existing applications struggle with providing an intuitive and clutter-free user interface. Our project will prioritize user experience, ensuring that users can easily navigate the app and access the information they need.
2. **Security and Privacy**: With growing concerns over data privacy, users need assurance that their financial information is secure. This project will implement robust security measures, including secure authentication, data encryption, and compliance with data privacy regulations.
3. **Comprehensive Financial Tools**: While some applications excel in specific areas, such as budgeting or investment tracking, there is a need for a tool that offers a holistic approach to personal finance management. Our project will integrate income and expense tracking, budgeting, savings goals, and financial analytics into a single platform.
4. **Accessibility and Inclusivity**: Ensuring that the application is accessible to all users, including those with disabilities, is a priority. This project will adhere to accessibility standards and offer multi-language support to cater to a diverse user base.
5. **Continuous Improvement**: Financial management needs can evolve over time. Our project will incorporate user feedback mechanisms and plan for regular updates to continuously improve the application based on user needs and technological advancements.

3. Technical Approach

The development of the Personal Finance Management App will follow a structured approach consisting of several phases:

1. **Research and Literature Review**:
    o   Analyze existing financial management applications.
    o   Identify best practices in secure web application development.
    o   Study user interface design principles for financial applications.
2. **Requirements Capture**:
    o   Gather requirements through user surveys and interviews.
    o   Define functional and non-functional requirements.
    o   Create detailed use cases and user stories.
3. **Design**:
    o   Design the system architecture using Spring Boot for the backend and React for the frontend.
    o   Develop database schema for storing user data, transactions, and goals.
    o   Create wireframes and prototypes for the user interface.
4. **Implementation**:

- o Set up the development environment.
- o Develop backend services using Java and Spring Boot.
- o Implement frontend components using React.
- o Integrate backend and frontend through RESTful APIs.
5. **Testing**:
   - o Conduct unit tests for individual components.
   - o Perform integration testing to ensure seamless interaction between frontend and backend.
   - o Execute security testing to identify and mitigate vulnerabilities.
6. **Deployment**:
   - o Deploy the application on a cloud platform.
   - o Set up continuous integration and continuous deployment (CI/CD) pipelines.
7. **Evaluation**:
   - o Evaluate the system using technical data and user feedback.
   - o Conduct usability testing with end users to gather insights and make necessary improvements.

4. Special resources required

Books in Portuguese

1. **"Me Poupe! 10 Passos Para Nunca Mais Faltar Dinheiro No Seu Bolso"** by Nathalia Arcuri
   - o Arcuri, N. (2018) *Me Poupe! 10 Passos Para Nunca Mais Faltar Dinheiro No Seu Bolso*. São Paulo: Sextante.
2. **"Pai Rico, Pai Pobre"** by Robert T. Kiyosaki and Sharon Lechter
   - o Kiyosaki, R. T. and Lechter, S. (2016) *Pai Rico, Pai Pobre*. 2nd edn. São Paulo: Alta Books.
3. **"Casais Inteligentes Enriquecem Juntos"** by Gustavo Cerbasi
   - o Cerbasi, G. (2004) *Casais Inteligentes Enriquecem Juntos*. São Paulo: Gente.
4. **"Os Segredos da Mente Milionária"** by T. Harv Eker
   - o Eker, T. H. (2006) *Os Segredos da Mente Milionária*. São Paulo: Sextante.
5. **"Quem Pensa Enriquece"** by Napoleon Hill
   - o Hill, N. (2005) *Quem Pensa Enriquece*. 2nd edn. São Paulo: Fundamento.

Books in English

1. **"Rich Dad Poor Dad"** by Robert T. Kiyosaki
   - o Kiyosaki, R. T. (1997) *Rich Dad Poor Dad*. New York: Warner Books.
2. **"The Total Money Makeover"** by Dave Ramsey

- o Ramsey, D. (2013) *The Total Money Makeover*. 3rd edn. Nashville: Thomas Nelson.
3. **"Your Money or Your Life"** by Vicki Robin and Joe Dominguez
   - o Robin, V. and Dominguez, J. (2008) *Your Money or Your Life*. New York: Penguin Books.

5. Project Plan

- **Research and Literature Review**: Week 1-5
- **Requirements Capture**: Week 5-6
- **Design**: Week 7
- **Implementation**: Week 7-9
  - o Backend Development: Week 7-8
  - o Frontend Development: Week 8-9
- **Testing**: Week 10
- **Deployment**: Week 11
- **Evaluation**: Week 12

6. Technical Details

- **Implementation Language**: Java (for backend), JavaScript (for frontend)
- **Principal Libraries**:

  - **Backend**:
    - o Spring Boot
    - o Spring Data JPA (for database interactions)
  - **Frontend**:
    - o React
  - **Database**: PostgreSQL

7. Evaluation

Technical Evaluation:

- **System Tests**: Validate the overall functionality of the system, ensuring that all components work together as expected.
- **Integration Tests**: Test the interactions between the frontend and backend to ensure seamless data flow.
- **Unit Tests**: Verify the correctness of individual units of code.

User Evaluation:

- **Usability Testing**: Engage end users to test the app and provide feedback on the user experience.
- **Survey and Feedback**: Collect user feedback through surveys to understand user satisfaction and areas for improvement.

Gustavo Henrique d. Andrade

07/06/2024