In Partial Fulfillment of the Requirements for the Course

Software Engineering 2

**Budge-!T: Personal Expense and Savings Optimizer**  
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Table of Contents

[**Executive Summary** 4](#_Toc190310261)

[**Introduction** 4](#_Toc190310262)

[**Background of the Problem** 4](#_Toc190310263)

[**Project Objectives** 4](#_Toc190310264)

[**Scope and Limitations** 4](#_Toc190310265)

[**Requirements Analysis** 4](#_Toc190310266)

[**Stakeholder Identification [DRAFT]** 4](#_Toc190310267)

[**Use Case Diagrams and Descriptions** 5](#_Toc190310268)

[**System Design** 5](#_Toc190310269)

[**Vision Statement** 5](#_Toc190310270)

[**Architectural Design** 5](#_Toc190310271)

[**Design Patterns Applied** 5](#_Toc190310272)

[**Entity-Relationship Diagrams (ERD)** 5](#_Toc190310273)

[**User Interface Mockups** 5](#_Toc190310274)

[**Project Management** 6](#_Toc190310275)

[**Agile Practices and Sprint Planning** 6](#_Toc190310276)

[**Gantt Chart or Project Timeline** 6](#_Toc190310277)

[**Development Process** 6](#_Toc190310278)

[**Coding Standards and Best Practices** 6](#_Toc190310279)

[**Tools and Technologies Used** 6](#_Toc190310280)

[**Implementation Details** 6](#_Toc190310281)

[**Testing** 6](#_Toc190310282)

[**Test Case Documentation** 6](#_Toc190310283)

[**Results of Test Execution** 6](#_Toc190310284)

[**Bug Tracking and Resolution** 6](#_Toc190310285)

[**User Guide for the System** 6](#_Toc190310286)

[**Conclusion** 7](#_Toc190310287)

[**Summary of Project Outcomes** 7](#_Toc190310288)

[**Challenges Faced and Lessons Learned** 7](#_Toc190310289)

[**Recommendations for Future Work** 7](#_Toc190310290)

[**References** 7](#_Toc190310291)

[**Appendices** 7](#_Toc190310292)

[**Appendix A: Meeting Minutes** 7](#_Toc190310293)

[**Appendix B: Screenshots** 7](#_Toc190310294)

[**Appendix C: Other Supporting Documents** 7](#_Toc190310295)

# **Executive Summary**

Budge-IT is a personal budgeting tool designed to help users manage their finances easily and visually appealing. It has a simple interface that lets you track your spending, set savings goals, and review your finances over time. Budge-IT utilizes Agile principles, particularly the Dynamic Systems Development Method (DSDM), to ensure it meets user's needs. This strategy focuses on developing tiny, incremental changes based on frequent input from consumers. Some of the app’s most beneficial features include automated cost categorization, interactive financial dashboards with customized charts, and real-time notifications that let users know when they’re close to overspending. By combining these aspects, Budge-IT delivers a practical, easy-to-use tool for personal financial planning, while also keeping up with recent trends in software development and design.

# **Introduction**

## **Background of the Problem**

Many individuals struggle with personal finance, leading to overspending, poor savings habits, and financial stress. Existing solutions either lack user engagement or are overly complex.

## **Project Objectives**

1. Provide an intuitive budgeting tool for tracking expenses and savings.
2. Offer data-driven insights to improve financial literacy.
3. Implement real-time alerts and goal-setting features.

## **Scope and Limitations**

1. **Scope:** Includes expense tracking, savings goal management, and financial analytics.
2. **Limitations:** Does not provide direct banking transactions. Lack of scalability to handle the amount of user accounts.

# **Requirements Analysis**

## **Stakeholder Identification [DRAFT]**

1. **Primary Users:** Young adults, students, and professionals looking for financial planning tools.
2. **Secondary Users:** Financial advisors and educators.
3. **Functional and Non-functional Requirements**
   * **Functional Requirements:**
     + Expense tracking and categorization.
     + Savings goal setting.
     + Real-time financial insights.
     + Notifications for overspending.
   * **Non-functional Requirements:**
     + User-friendly interface.
     + Secure data storage.
     + Responsive design for mobile and web use.

## **Use Case Diagrams and Descriptions**

Includes scenarios for user registration, transaction input, and financial goal setting.

# **System Design**

## **Vision Statement**

We want Budge-IT to become the preferred budgeting tool for those who wish to take charge of their finances, establish objectives, and maintain financial stability. Our software will be entertaining and easy to use while offering clear insights, practical tools, and incentives to promote conservative spending and saving.

## **Architectural Design**

A client-server architecture with cloud-based storage for seamless access across devices.

## **Design Patterns Applied**

MVC (Model-View-Controller) for software modularity.

Singleton for financial calculations.

## **Entity-Relationship Diagrams (ERD)**

Depicts relationships between users, transactions, budgets, and goals.

## **User Interface Mockups**

Includes wireframes for onboarding, dashboards, and settings.

# **Project Management**

## **Agile Practices and Sprint Planning**

1. Follows DSDM with iterative releases.
2. User feedback incorporated in each sprint.

## **Gantt Chart or Project Timeline**

Project phases: Feasibility, Foundations, Exploration, Engineering, Deployment.

# **Development Process**

## **Coding Standards and Best Practices**

1. Adheres to clean coding principles.
2. Uses version control (GitHub).

## **Tools and Technologies Used**

1. **Frontend:** React.js
2. **Backend:** Node.js with Express.js
3. **Database:** Firebase

## **Implementation Details**

1. Secure authentication with Firebase Authentication.
2. Real-time database updates using Firebase.

# **Testing**

## **Test Case Documentation**

Covers unit testing for expense tracking and notification features.

## **Results of Test Execution**

High pass rate for core functionalities.

## **Bug Tracking and Resolution**

Managed through Jira.

## **User Guide for the System**

Step-by-step instructions for setting budgets and tracking expenses.

# **Conclusion**

## **Summary of Project Outcomes**

Budge-IT successfully provides an interactive budgeting experience with automation and insights to promote financial literacy.

## **Challenges Faced and Lessons Learned**

Balancing simplicity with feature richness.

Addressing user alert fatigue.

## **Recommendations for Future Work**

Integration with banking APIs for real-time tracking.

AI-based financial recommendations.

# **References**

Myers, G. J., Sandler, C., & Badgett, T. (2012). *The Art of Software Testing*. John Wiley & Sons. <https://malenezi.github.io/malenezi/SE401/Books/114-the-art-of-software-testing-3-edition.pdf>.

Zafar, I., Nazir, A., & Abbas, M. (2017). *The Impact of Agile Methodology (DSDM) on Software Project Management*. <https://www.researchgate.net/publication/323572478_The_Impact_of_Agile_Methodology_DSDM_on_Software_Project_Management>.

Lienert, J. (2020). *SSWM – Stakeholder Identification*. <https://sswm.info/es/humanitarian-crises/prolonged-encampments/planning-process-tools/exploring-tools/stakeholder-identification>.

# **Appendices**

## **Appendix A: Meeting Minutes**

Summaries of key discussions during development.

## **Appendix B: Screenshots**

UI mockups and test results.

## **Appendix C: Other Supporting Documents**

Survey results and additional diagrams.