SmartBudget

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Abstract

SmartBudget is a web-based financial support system designed to help users improve personal budgeting through analysis, dashboards, and personalized recommendations. Users upload bank statements in CSV format, establish savings goals, and receive actionable suggestions to reduce expenses. Developed using HTML, CSS, JavaScript, and Netlify, the prototype follows the Systems Analysis and Design methodology. SmartBudget demonstrates how financial technology can support better financial decision-making through analytics, gamification, rewards, and educational features.

Introduction

Many individuals struggle to manage their personal finances effectively. Most financial applications show balances but do not provide meaningful insights or recommendations. As an accountant, I observed that people often overspend, have difficulty budgeting, and lack tools to understand their spending behavior. SmartBudget was created to solve this problem by allowing users to upload their bank statements, automatically categorize transactions, and receive personalized recommendations to reduce expenses and achieve savings goals.

Background

Financial technology solutions are widely used, but many lack behavioral analysis and personalized recommendations. This project followed the System Development Life Cycle (SDLC) as outlined in Systems Analysis and Design, 6th Edition, by Dennis, Wixom, and Roth. The process included planning, analysis, design, implementation, testing, integration, and maintenance. Context diagrams, data flow diagrams, test plans, and program specification forms were developed to ensure a structured and well-documented approach.

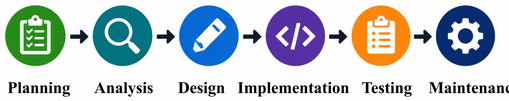
Problem

Individuals lack the tools to understand their spending habits and identify ways to reduce unnecessary expenses. Consequences include:

- Overspending and budget imbalances
- Debt accumulation
- Lack of savings
- Financial stress and poor decision-making

Existing applications focus on showing balances instead of providing actionable recommendations that drive behavior change.

Methodology



The project follows SDLC methodology:

- **Planning** – Define objectives and project plan.
- **Analysis** – Gather requirements, create Moore's Vision and System Request.
- **Design** – Create diagrams (Context, DFD, ERD) and prototype.
- **Implementation** – Develop a system using HTML, CSS, JavaScript, and Netlify.
- **Testing / Integrate** – Test units, integration, and system.
- **Maintenance** – Bug fixing, updates, and improvements.

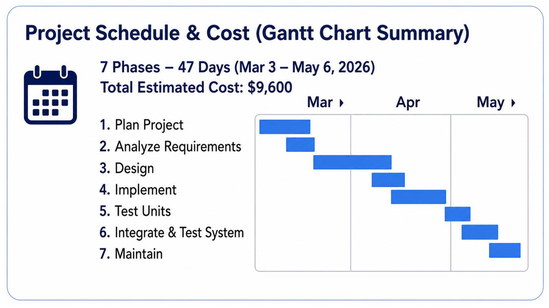


Figure 1: Gantt Chart

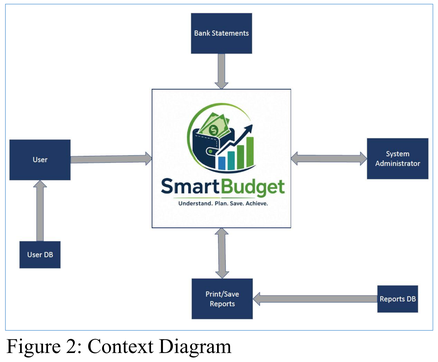


Figure 2: Context Diagram

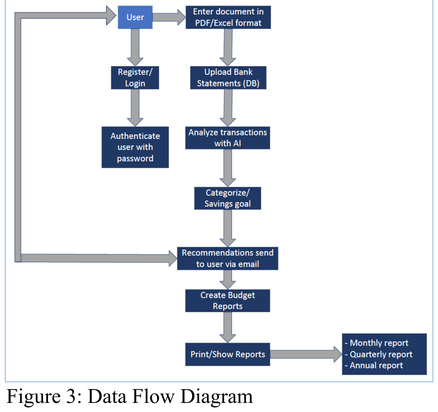


Figure 3: Data Flow Diagram

Results and Discussion

Prototype Outputs:

- Total spending
- Projected Savings
- Spending by Category
- Top Recommendations
- Rewards
- Learning Center
- Premium Plan
- Emails and Reports

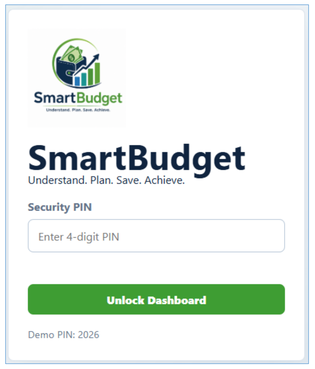


Figure 4: Application security screen

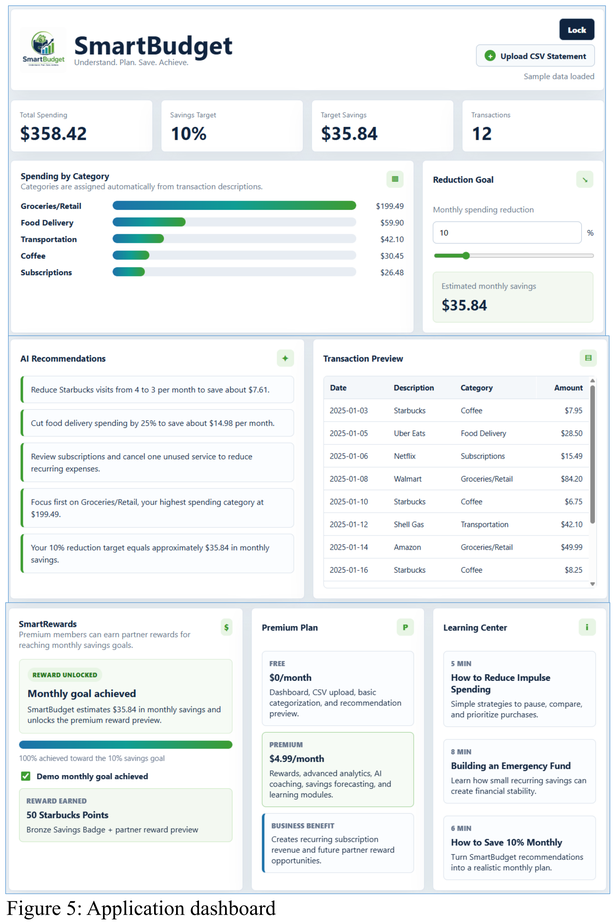


Figure 5: Application dashboard

Conclusions

- SmartBudget effectively addresses poor financial management by providing actionable insights and personalized recommendations.
- The prototype demonstrates that technology can help users reduce expenses and achieve savings goals.
- The system has strong scalability potential through premium subscriptions, rewards, partnerships, financial education modules, and direct access to financial professional support.
- SmartBudget contributes to financial technology and information systems by promoting better financial decision-making and future commercial opportunities.

Future Work

- Support Excel, PDF uploads, and direct banking integration.
- Implement AI-powered spending prediction and coaching.
- Expand rewards program with retail and bank partnerships.
- Add advanced analytics and savings simulations.
- Create financial literacy courses and certifications.
- Integrate with institutions such as the Polytechnic University of Puerto Rico and other financial professionals.

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