

Budget Buddy

By Team Algorithm Avengers

The Team

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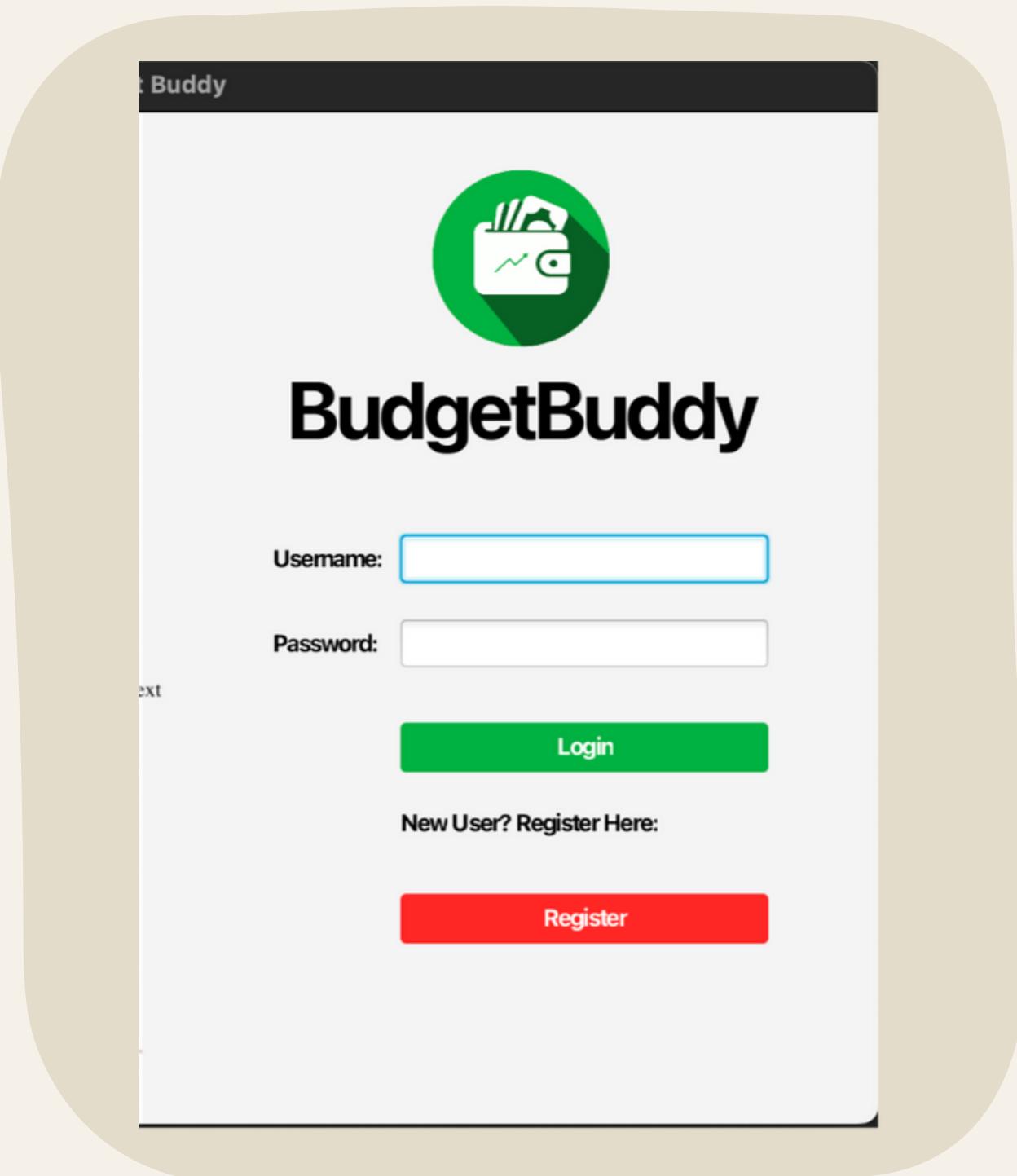
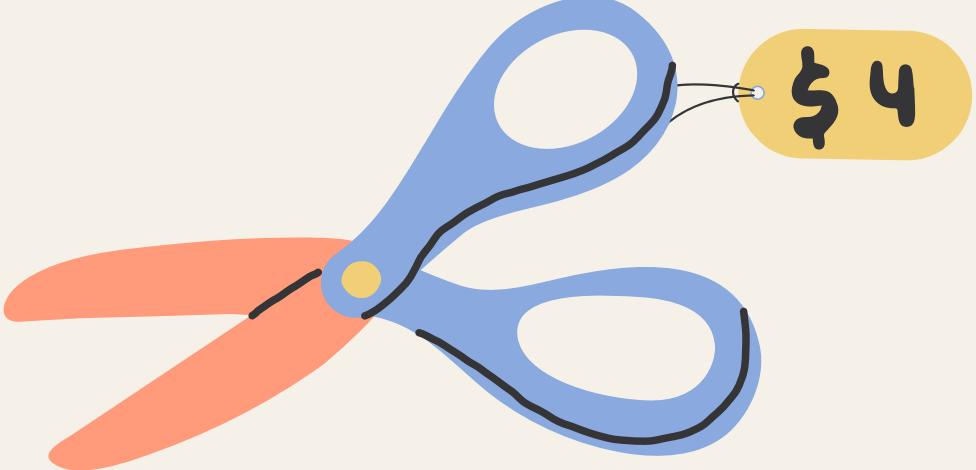


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Introduction

BudgetBuddy simplifies personal finance management with its user-friendly interface and robust features. Developed using Java and JavaFX, it offers expense tracking, budget management, and investment oversight. Take control of your finances with BudgetBuddy.

Problem Description



1.

Financial Management Complexity:

Managing personal finances can be daunting, especially for international students adapting to unfamiliar economic environments.

2.

Lack of Effective Tools:

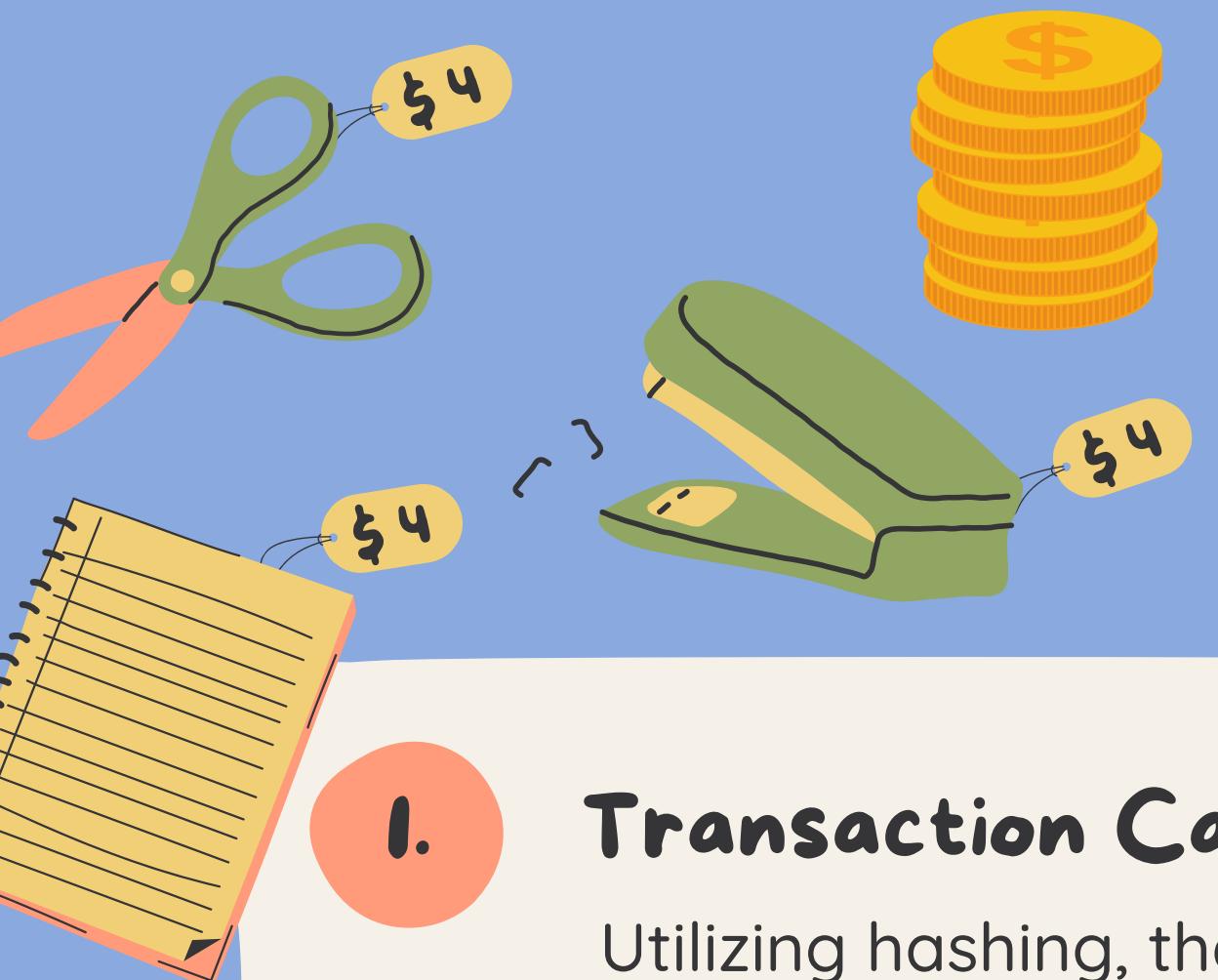
Existing financial management tools often lack comprehensiveness and user-friendliness, making it challenging for individuals to track expenses, manage budgets, and monitor investments efficiently.

3.

Need for Financial Clarity:

There is a growing need for a comprehensive personal finance manager that not only simplifies financial oversight but also provides instant insights and custom alerts to assist users in making informed financial decisions.

Features



1. Transaction Categorization:

Utilizing hashing, the system categorizes transactions for quick lookup and analysis.

2. Budget Monitoring:

Users can set and adjust budgets for different categories, with the system alerting them as they approach the set thresholds.

3. Investment Tracking:

Integrates APIs to provide real-time investment data, allowing users to monitor and analyze their portfolios.

4. Data Structures:

Queues and priority queues manage notifications, while tree structures allow hierarchical organization of expenses.

5. Recursion and Sorting:

Recursion is used for in-depth financial calculations, while sorting algorithms organize data for easier user access.



System Design

Frontend:

- Utilizes JavaFX for the user interface, ensuring responsiveness and intuitiveness.
- Includes a dashboard for quick financial overviews, transaction entry forms, and visual reports for analyzing spending habits.

Backend:

- Developed in Java, responsible for data processing, budget algorithms, and transaction management.
- Communicates with the frontend through well-defined APIs, ensuring smooth interaction.



Database:

Secure and scalable MySQL database stores user profiles, transaction details, and budget constraints.

Enables persistent data management and retrieval for efficient financial tracking and analysis.

Implementation

BudgetBuddy's implementation is segmented into discrete components to promote efficient development and maintenance:

A. Transaction Management:

- Implements adding, editing, and deleting transactions with recursion for complex financial calculations.

B. Budget and Alerts:

- Allows users to set limits, monitored in real-time, generating alerts using priority queues as budgets near thresholds.

Implementation



C.

Investment Analysis:

Utilizing third-party financial data APIs, the application provides investment tracking and advice, harnessing binary search trees for quick data retrieval.

D.

Reporting:

The application generates visual reports using JavaFX charts, offering users insights into their spending patterns and financial health.

E.

Security:

Prioritizes security with encryption and secure practices in place, protecting user data and transactions.

F.

Testing:

Conducts extensive testing, including unit and integration tests, ensuring robustness and reliability, with a continuous integration pipeline for ongoing quality assurance.

Login Page

Budget Buddy



BudgetBuddy

Username:

Password:

Login

New User? Register Here:

Register

SignUp Page

Register New Account



Welcome to Registration

Username:

Password:

Confirm Password:

Submit





Enter Transaction

Budget Buddy

Back Done

Transaction Details

Date :

Category :

Amount :

These details are required to be entered:

Date:
The date the Transaction occurred.

Category:
The Category the Transaction falls into e.g. Clothes, Salary.

Amount:
The monetary amount.

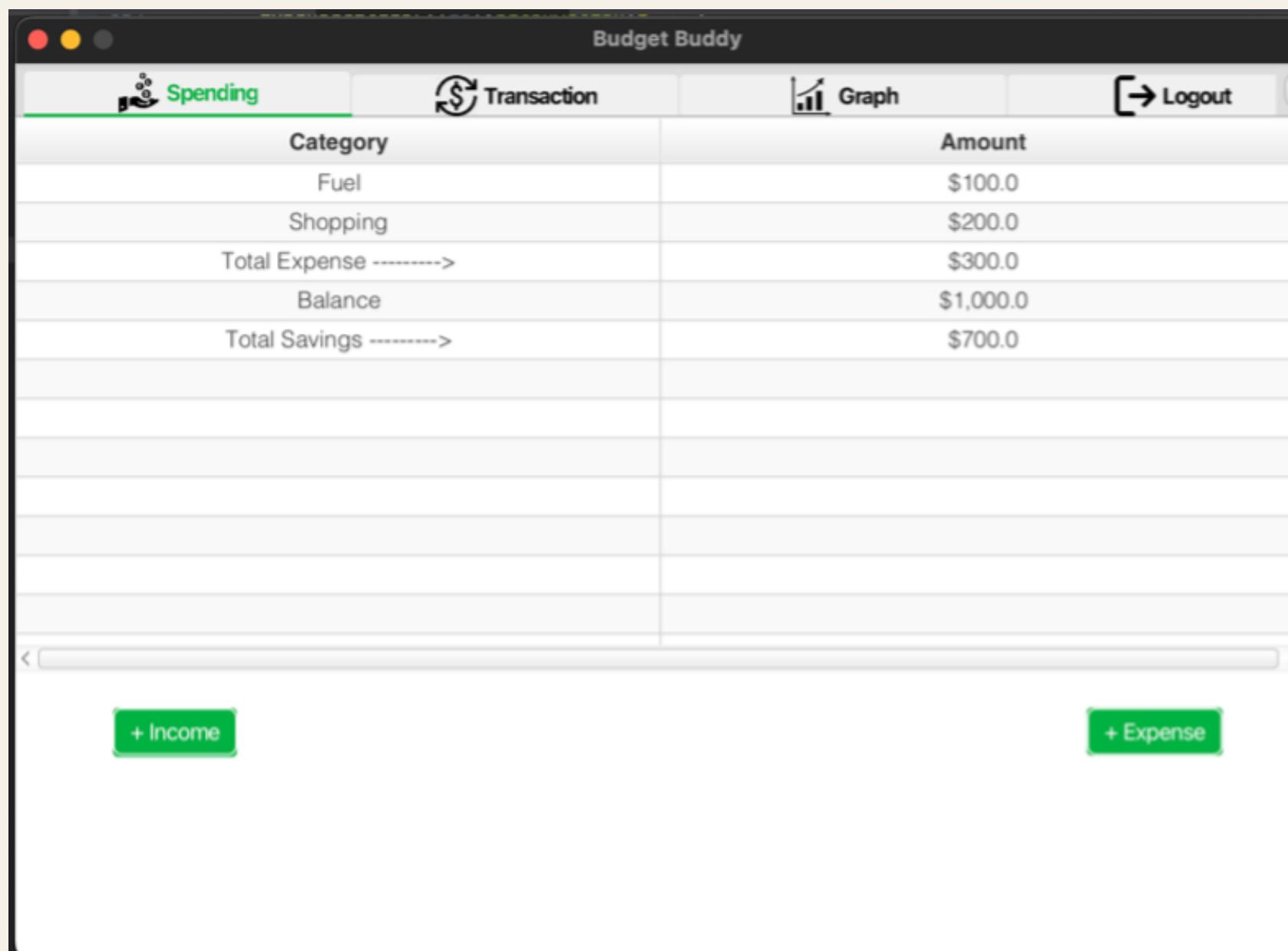


Select Category

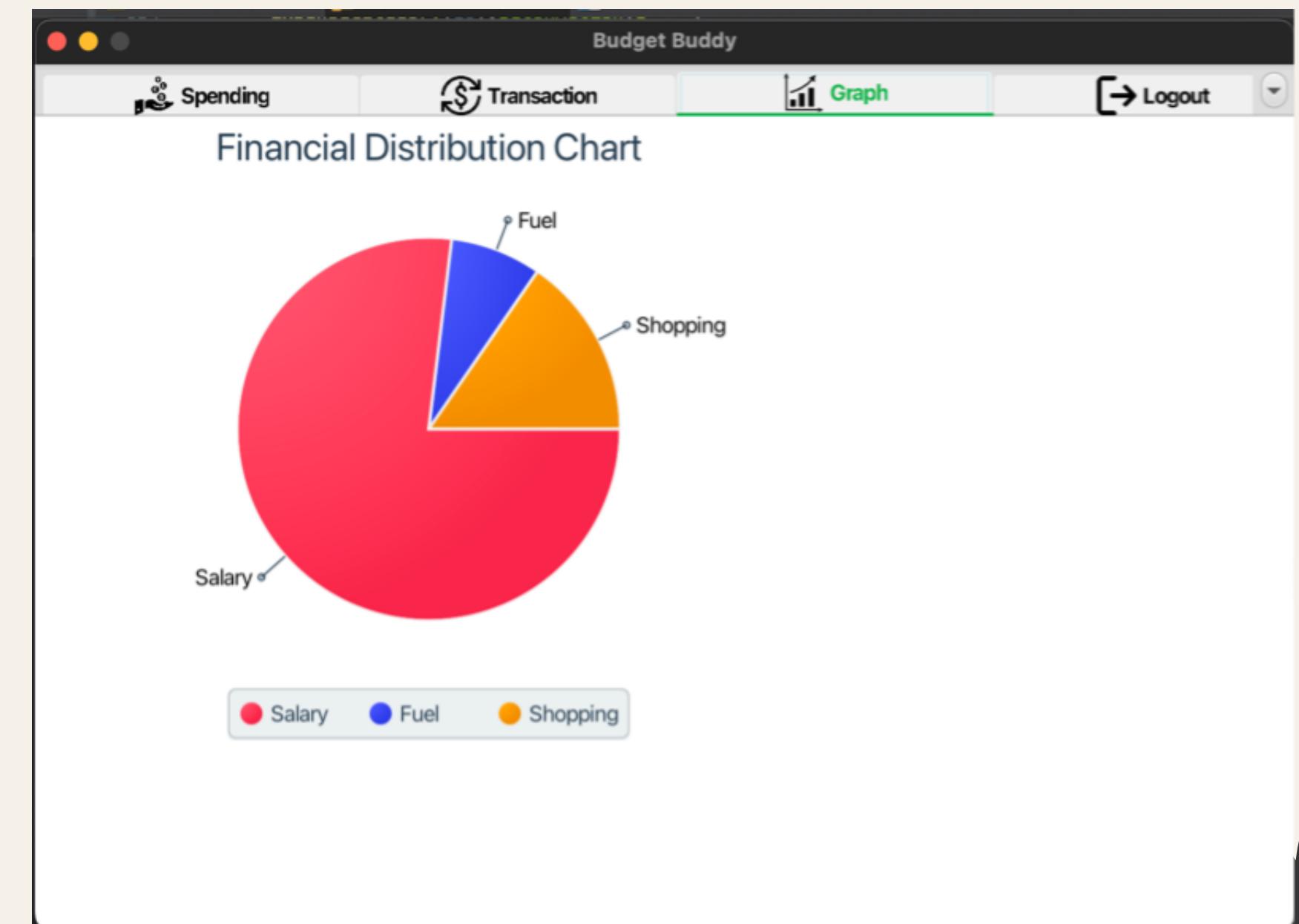
- Budget Buddy
- Back
- Fuel
 - Gifts
 - Shopping
 - Clothes
 - Eating Out
 - Entertainment
 - General
 - Holidays
 - Kids
 - Sports
 - Travel



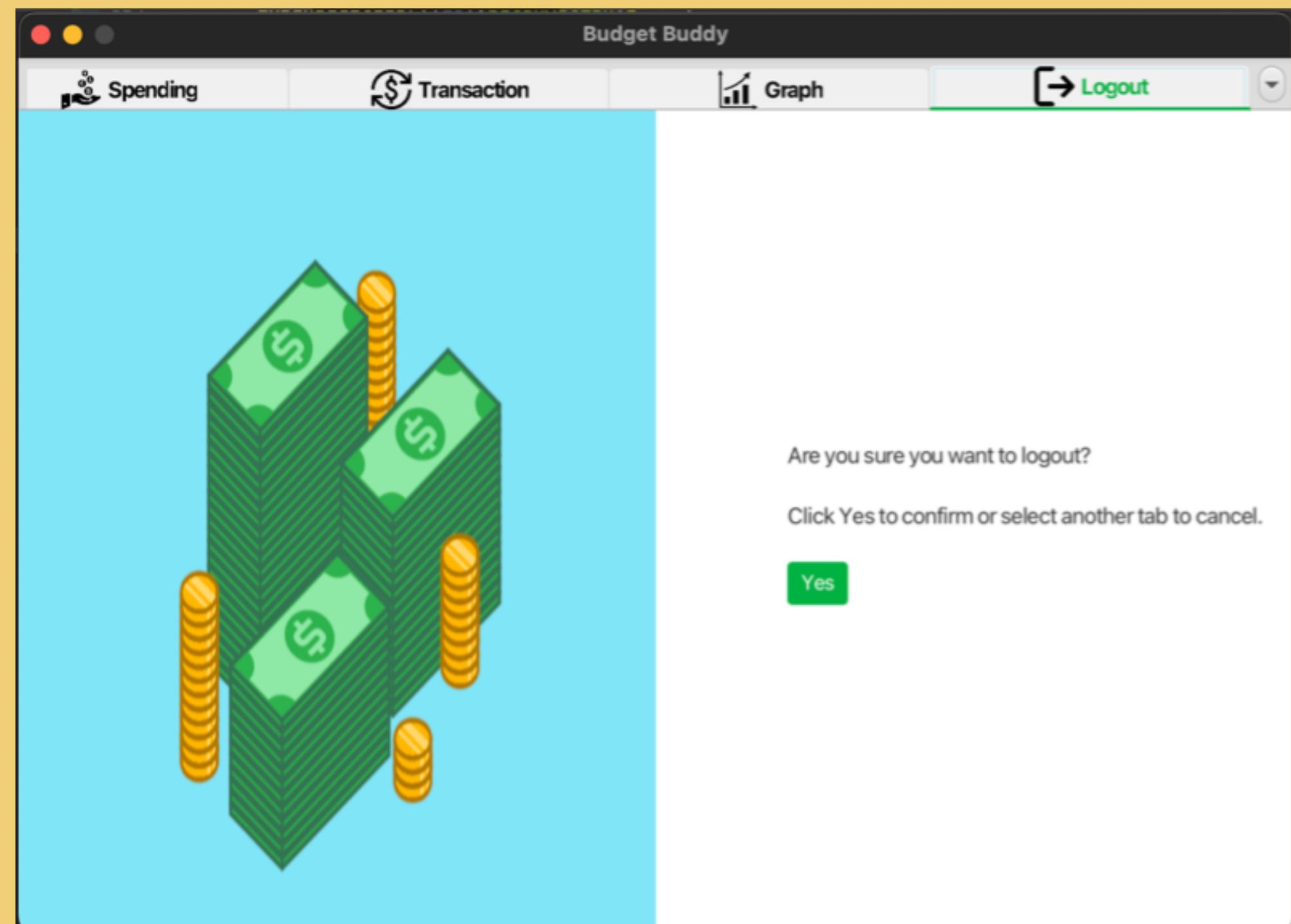
View Transactions



Visualize Charts



Logout

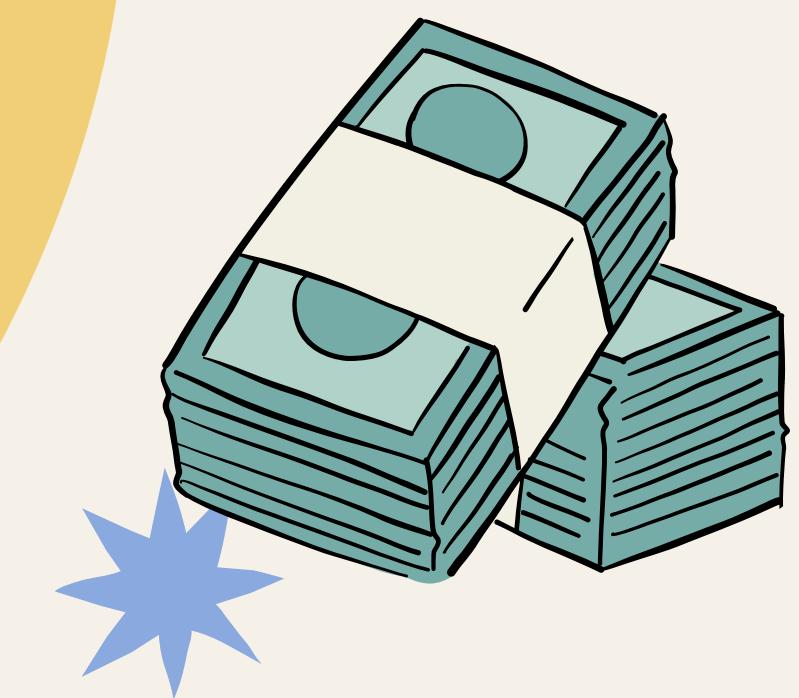


Conclusion

BudgetBuddy represents a comprehensive solution for personal finance management, offering a user-friendly interface and robust features. While currently functional and meeting basic user needs, future development should focus on enhancing security, expanding platform support, integrating external financial services, and leveraging advanced data analytics. By evolving in these areas, BudgetBuddy can ensure competitiveness and continued alignment with the dynamic needs of its users, empowering them to achieve greater financial control and well-being.



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Future Scope

1. Enhanced Security: Implement advanced security measures like multi-factor authentication and encryption for heightened protection.
2. Mobile Application: Develop a mobile app version for increased accessibility and convenience.
3. Integration with Financial Institutions: Enable direct integration with bank accounts for automatic transaction imports and real-time updates.
4. Advanced Analytics: Integrate machine learning algorithms for predictive analysis and personalized financial insights.





Job Assignment

1. Renuka Alakunta

- Designed the integrity and security of expense data.
- Implemented server-side logic for processing and storing expenses.
- Created functionalities for reporting and summarizing expenses.

2. Srivarini Mandali

- Designed and implemented database schemas for storing expense categories.
- Optimized queries for retrieving and managing expense categories.
- Analyzed and developed modify and delete calls for expense categories.

3. Mukesh Mekala

- Conducted user testing to refine interface design and improve user experience.
- Integrate user interface with backend services.
- Develop and maintain the core functionalities of the expense tracking application.

Thank You !!!!

