

Budget Management Application

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Objective

The purpose of our project is to...

- Create a Budget Management Application that **empowers** users to take control of their finances.
- The application will allow users to **manage their expenses, set up monthly budgets, and monitor their financial progress over time.**
- It will also include engaging money-saving challenges and a subscription management feature to help users eliminate unnecessary subscriptions and **boost savings.**

The Motive Behind Our Objective

- TO PROVIDE AN EASY-TO-USE TOOL THAT HELPS USERS BUILD STRONG FINANCIAL HABITS.
- BY OFFERING A CLEAR VIEW OF SPENDING PATTERNS, THE APPLICATION AIMS TO MAKE PERSONAL FINANCE MANAGEMENT MORE ACCESSIBLE, ENGAGING, AND EFFECTIVE FOR USERS SEEKING FINANCIAL STABILITY AND GROWTH

Between January 8th and 15th 2025, **U.S News** ran a nationwide financial well-being survey for 1,207 Americans. The survey found...

42% **don't** have an emergency savings fund and couldn't cover a **\$1,000** emergency expense with cash or savings.

This shows that a large portion of people **struggle** to manage **unexpected** financial situations often leading to **increased debt** or **financial stress**.

Business Insights

Out Budget Management Application is designed to **directly address this issue** by helping users: create realistic budgets and track their financial accounts and expenses.

- By promoting better financial planning and encouraging savings behavior, this application can...
 - Significantly improve individuals' financial stability.
 - For businesses, this means **less employee financial stress**, which has been **linked to higher productivity**, lower turnover, and **better overall economic stability**.

Budget Management Application Model

Section 1

Login/Password/Sign Up

Section 1.0

Login Page

Login to Your Account

Username

Password

Login

Create an Account

Section 1.2

Sign Up Page

Sign Up

Sign up to continue

Name

Username

Email Address

Continue

Already have an account? Log In

Section 2

Transaction History

Screen 2.0

Records Page

April, 2025

Expenses	Income	Total
\$1,000.00	\$5,000.00	\$2,000.00

April 15, 2025

- Groceries - \$125.55
- Entertainment - \$20.89

April 18, 2025

- Subscriptions - \$7.99
- Shopping - \$205.12

Records | Analysis | Budget | Accounts | Categories | Badges

Screen 2.1

Add/Delete Record

Add/Delete New Expense Record

Add Transaction #1:

Day: MM/DD/YYYY

Account: Choose Account

Amount: Enter Amount

+ Add Another Transaction

- Delete Another Transaction

Done

Section 3

Subscriptions

Screen 3.0

Subscription Page

Subscriptions

View All Subscriptions:

- Subscription 1 - \$9.99
- Subscription 2 - \$14.99
- Subscription 3 - \$25.99

Total: - \$50.97

Records | Subscriptions | Analysis | Budget | Accounts | Categories | Badges

Screen 3.1

Edit/Delete Subscription

Edit/Delete New Subscription Record

Add Subscription:

Day: MM/DD/YYYY

Account: Choose Account

Amount: Enter Amount

+ Edit Another Transaction

- Delete Another Transaction

Done

Section 4

Analysis of Expenses/Savings

Screen 4.0

Analysis Page

Analysis

Monthly Expenses

- Housing
- Shopping
- Subscriptions

Yearly Expenses

Money Saved Over Year

Records | Subscriptions | Analysis | Budget | Accounts | Categories | Badges

Model Created
Using draw.io

Section 5

Budget Plan

Screen 5.0

Budget Page

Budget

Budget Plan

Needs: Wants: Savings:

- Needs: Rent/Mortgage, Car Payment, Utilities, Insurance
- Wants: Entertainment, Subscriptions, Vacations
- Savings: 401K & IRA Contributions, Emergency Funds

Monthly after-tax income:

Budget Calculation

Needs: Wants: Savings:

Check box for alerts when budget has not been set for current month (recommended): ☐

Check box for alerts when you're about to cross "Wants" budget: ☐

Records Subscriptions Analytics Budget Accounts Categories Badges

Section 6

Accounts Information

Screen 6.0

Accounts Page

Accounts

Total Expenses So Far: **\$5,000.00** Total Income So Far: **\$20,000.00**

Checking Amount:

Savings Amount:

Cash Amount:

Records Subscriptions Analytics Budget Accounts Categories Badges

Screen 6.1

Add/Delete Account

Add/Delete Account

Add Account #1:

Name of Account:

Amount on Account:

+ Add Another Account

- Delete Another Account

Done

Section 7

Categories Information

Screen 7.0

Categories Page

Categories

Essential Expenses

Housing Transportation

Utilities Healthcare

Groceries Loans

Non-Essential Expenses

Entertainment Shopping

Travel Subscription

Records Subscriptions Analytics Budget Accounts Categories Badges

Screen 7.1

Add/Delete Category

Add/Delete Category

Add New Category:

Name of Category:

Description:

+ Add Another Category

- Delete Another Account

Done

Section 8

Challenges/Badges

Screen 8.0

Challenges Page

Challenges

No-Spend Challenge
Goal: Don't spend any money over a weekend.
[Start](#) [Claim](#)

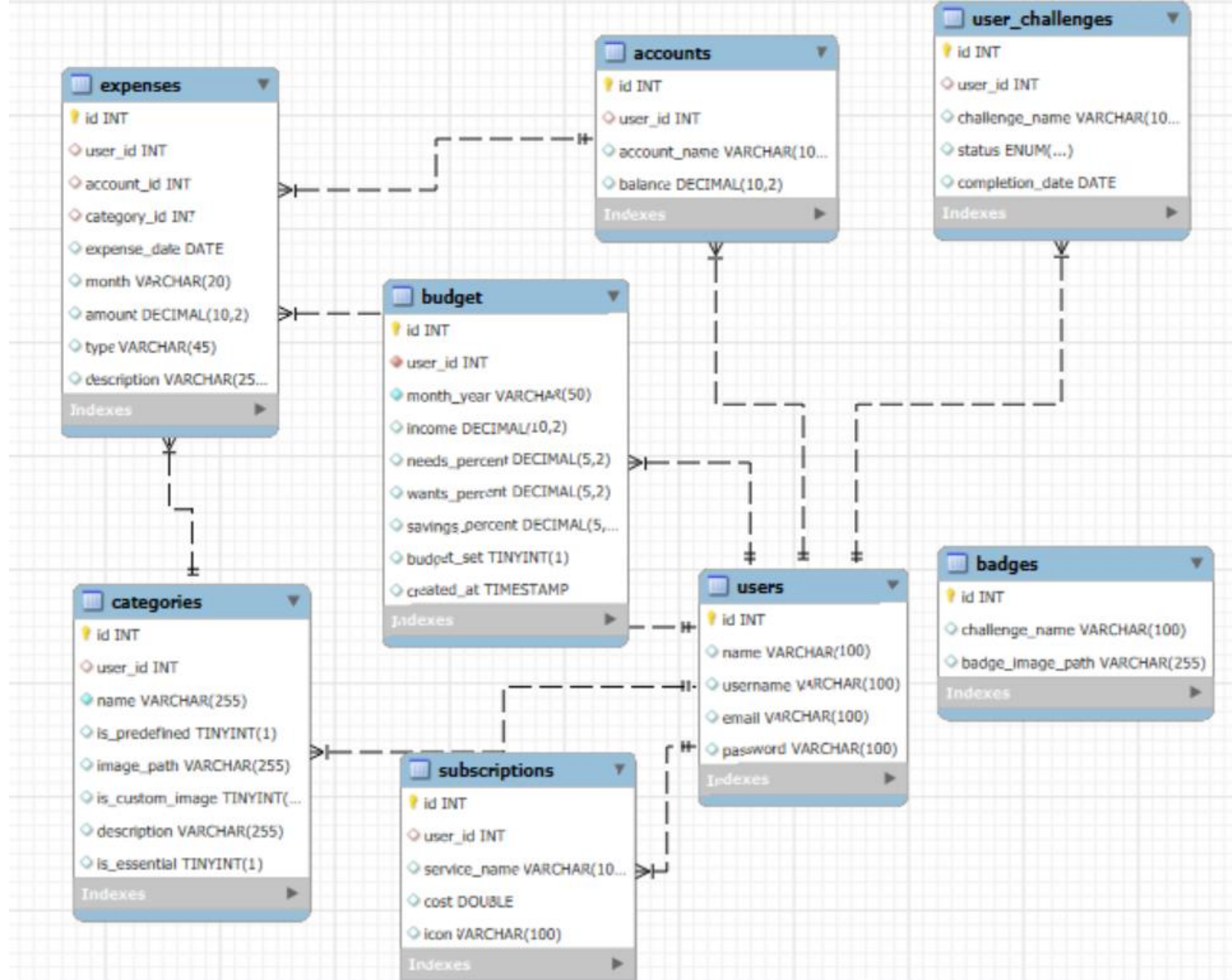
Declutter & Save Challenge
Goal: Sell/Donate unused items and create new account titled "Donations" with amount sold.
[Start](#) [Claim](#)

Cash-Only Week Challenge
Goal: Only spend money from "Cash" Account over week.
[Start](#) [Claim](#)

Records Subscriptions Analytics Budget Accounts Categories Badges

Budget Management Application Database

Using: MySQL



Budget Management Application File Structure

Jar Files Used:

mysql-connector-j-9.3.0.jar
jcalendar-1.4.jar
jcommon-1.0.23.jar
jfreechar-1.0.19.jar

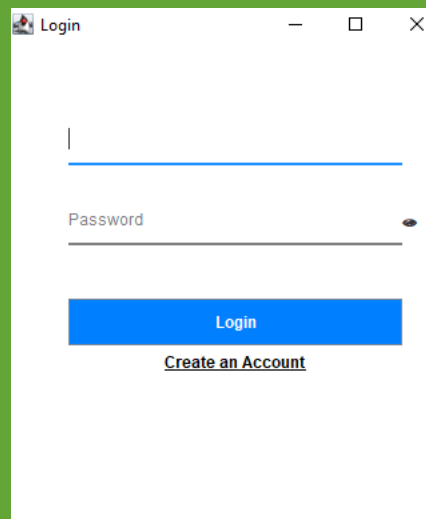
IDE: IntelliJ IDEA

```
Budget-Project/  
├── .idea/  
├── Budget_App/  
│   ├── .settings/  
│   ├── bin/  
│   ├── custom_images/  
│   └── src/  
│       ├── budgetapp/  
│       │   ├── auth/  
│       │   │   └── LoginApp.java  
│       │   ├── components/  
│       │   │   ├── LinePasswordField.java  
│       │   │   └── LineTextField.java  
│       │   ├── connection/  
│       │   │   └── DatabaseConnection.java  
│       │   ├── controller/  
│       │   │   └── MenuUtilities.java  
│       │   └── pages/  
│       │       ├── AccountsPage.java  
│       │       ├── AddAccountPage.java  
│       │       ├── AddCategoryPage.java  
│       │       ├── AddRecordPage.java  
│       │       ├── AnalysisPage.java  
│       │       ├── BaseFrame.java  
│       │       ├── BudgetPage.java  
│       │       ├── CategoriesPage.java  
│       │       ├── Category.java  
│       │       ├── ChallengesPage.java  
│       │       ├── EditAccountPage.java  
│       │       ├── EditCategoryPage.java  
│       │       ├── RecordsPage.java  
│       │       ├── RegisterPage.java  
│       │       └── SubscriptionPage.java  
│       └── resources/  
│           ├── categories/  
│           └── useraddedcategories/
```

Demo

Section 1

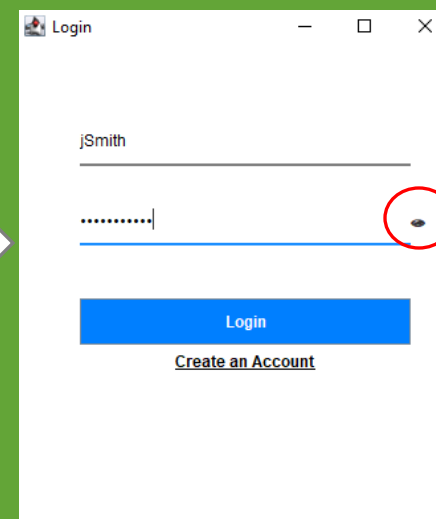
Login Page



A screenshot of a web browser window titled "Login". It contains two input fields: a username field and a password field labeled "Password". Below the fields are two buttons: a blue "Login" button and a green "Create an Account" link.

Login

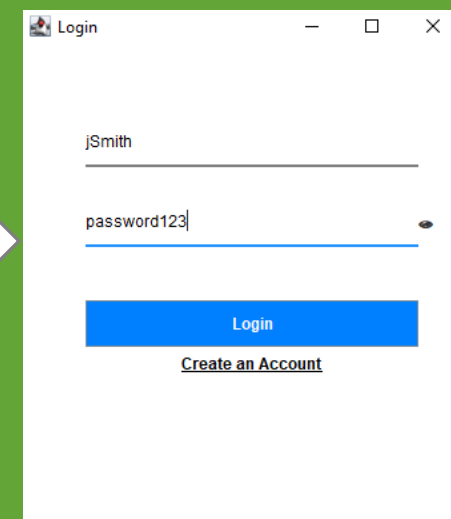
Prompts user to login using username & password



A screenshot of the "Login" form with the username field filled with "jSmith" and the password field filled with "password123". An eye icon to the right of the password field is circled in red, indicating its function to toggle password visibility. The "Login" and "Create an Account" buttons are at the bottom.

Password Visibility

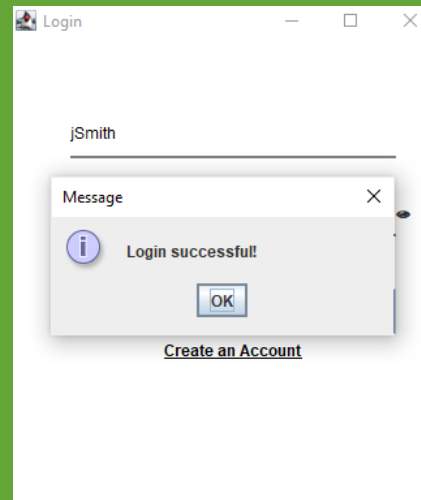
Using eye icon, allows users to show/hide password



A screenshot of the "Login" form with the username field filled with "jSmith" and the password field filled with "password123". The "Login" button is highlighted in blue. Below it is a green "Create an Account" link.

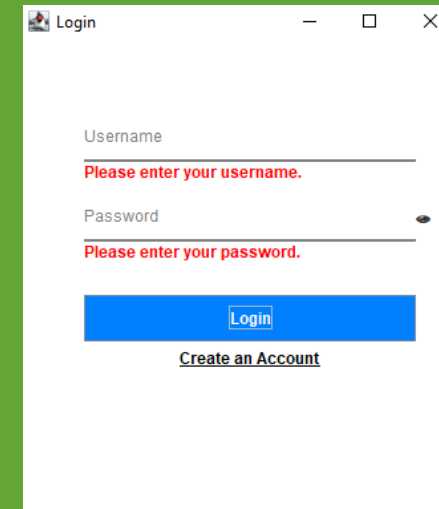
Registration

Prompts user to create new account



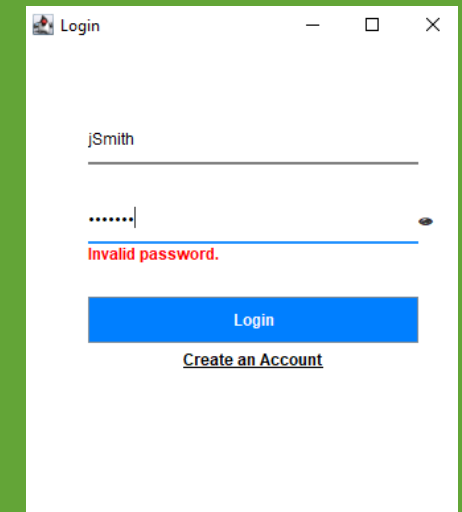
A screenshot of the "Login" form with the username field filled with "jSmith". A modal dialog box titled "Message" is displayed in the foreground, showing a green checkmark icon and the text "Login successful!". Below the dialog is a green "Create an Account" link.

If Login Successful



A screenshot of the "Login" form with the username field filled with "jSmith" and the password field empty. Red error text "Please enter your username." is displayed below the username field, and "Please enter your password." is displayed below the password field. The "Login" button is highlighted in blue, and the "Create an Account" link is green.

If Login Empty

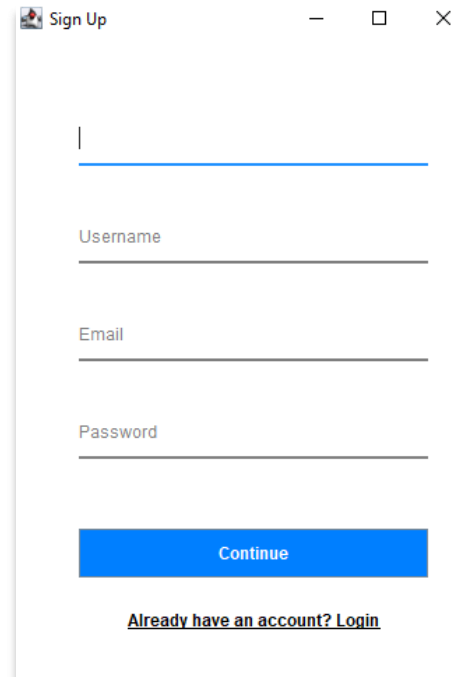


A screenshot of the "Login" form with the username field filled with "jSmith" and the password field filled with "password123". Red error text "Invalid password." is displayed below the password field. The "Login" button is highlighted in blue, and the "Create an Account" link is green.

If Login Incorrect

Section 1

Registration Page



Sign Up

|

Username

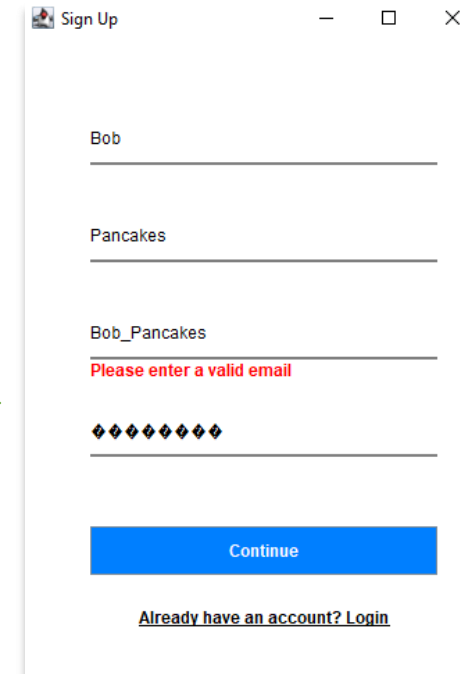
Email

Password

Continue

[Already have an account? Login](#)

To create new account,
must enter: full name,
username, email, and
password



Sign Up

Bob

Pancakes

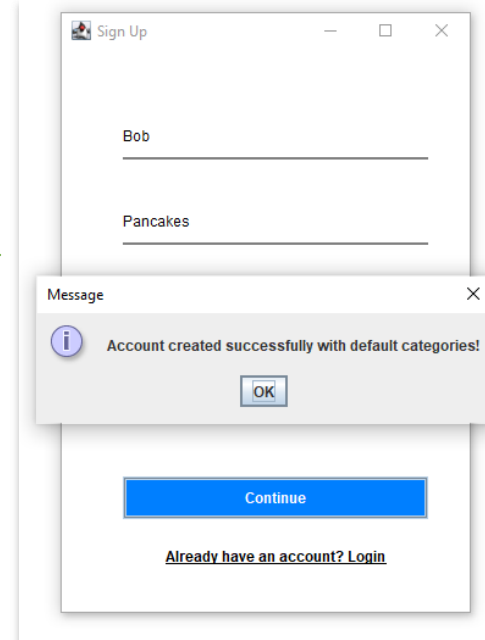
Bob_Pancakes

Please enter a valid email

Continue

[Already have an account? Login](#)

Account
Creation
Unsuccessful



Sign Up

Bob

Pancakes

Message

Account created successfully with default categories!

OK

Continue

[Already have an account? Login](#)

Account
Creation
Successful

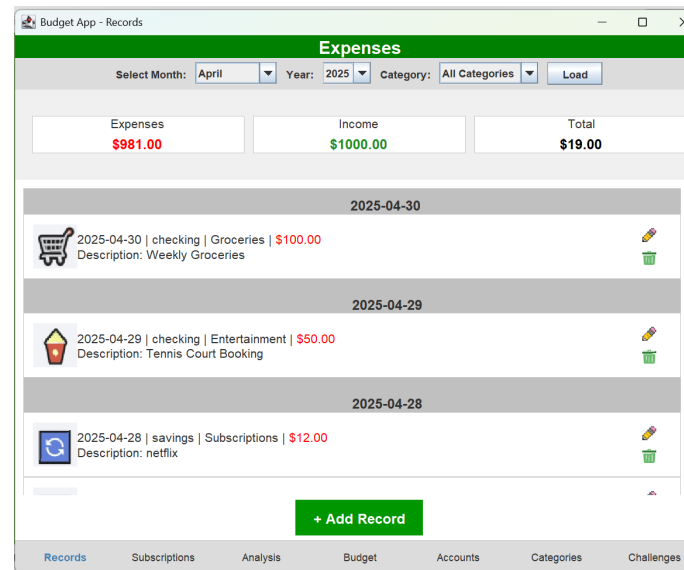
Section 2 - Transaction History

The Records tab includes the following features:

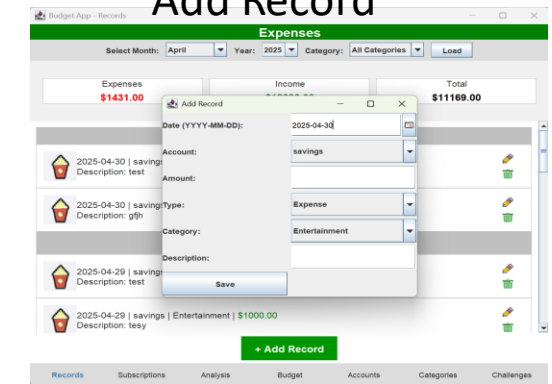
- View Record
- Add Record
- Edit Record
- Delete Record

This tab allows you to manage your transaction history seamlessly by viewing, adding, editing, and deleting records as needed.

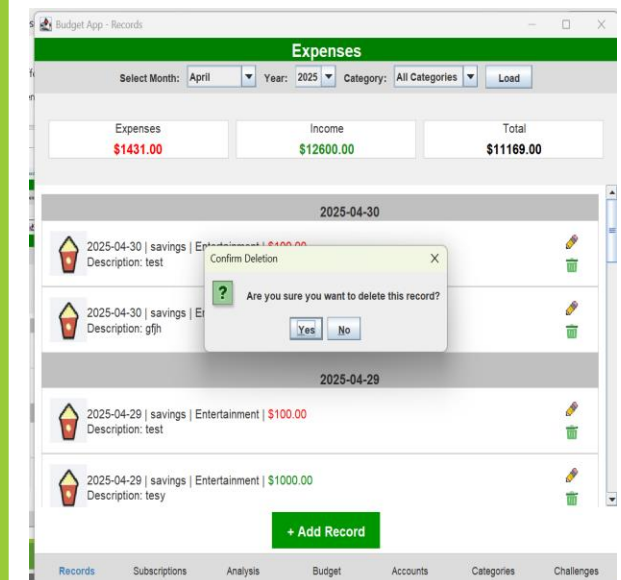
View



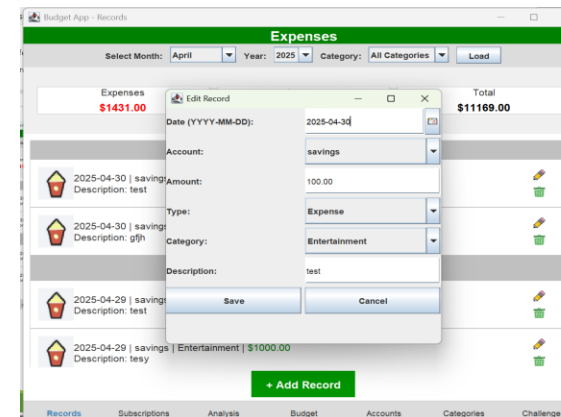
Add Record



Delete Record



Edit Record



Filter and Summary

Filter Features :

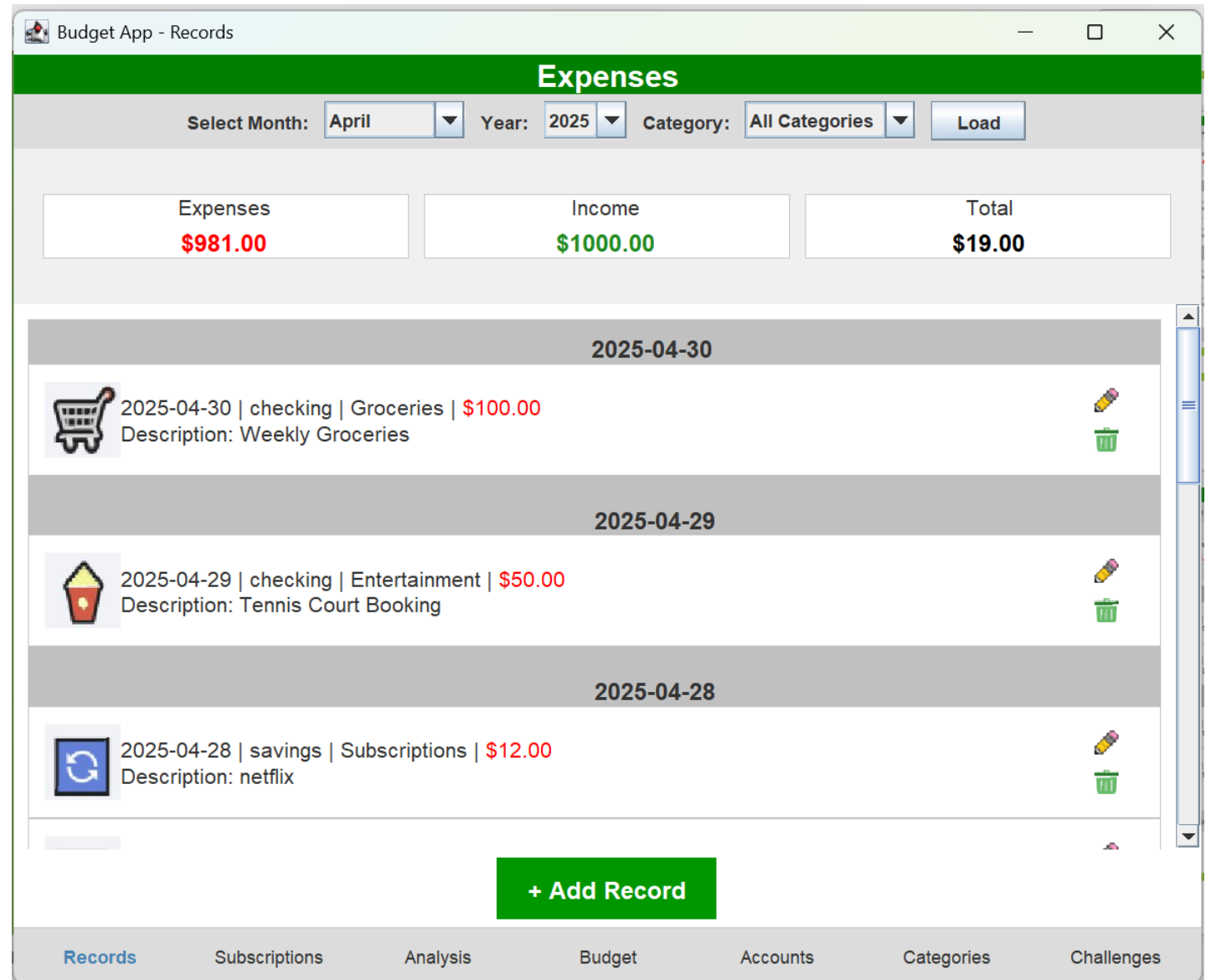
- Month
- Year
- Category

Summary Feature:

Dynamically calculates the total expenses, total income, and the remaining balance (money left) based on the filtered transactions.

Transaction Panel:

All added records are displayed in descending order, grouped by date for easy viewing.



RecordsPage.java

This is a detailed view of transactions:

- Shows a banner and filter:
 - Month
 - Year
 - Category
- Lists all transactions grouped by date.

Features:

- Shows summary boxes: total Expenses, Income, and Balance.
- Lets you Edit/Delete each record (via icon buttons).
- Add Record button at the bottom to open AddRecordPage.
- It shows different colors for income (green) vs expenses (red) and organizes records by date.

Key Components:

- loadTransactions(): Loads & displays transactions with category icons.
- refreshTransactions(): Reloads data after any change.
- loadCategoryIcon(): Loads custom icons per category (falls back to default).

AddRecordPage.java

This page adds a new expense/income record:

Fields:

- Date (with date picker)
- Account
- Amount
- Type (Expense or Income)
- Category
- Description

Key Components:

- loadAccounts() & loadCategories(): Populate dropdowns dynamically.
- saveRecord(): Validates fields, saves the new record in the expenses table.
- maps account/category names to IDs behind the scenes.

Library:

- Uses JCalender for the date

EditRecordPage.java

This allows editing a specific record:

Loads the record by ID and pre-populates:

- Date
- Account
- Amount
- Type
- Category
- Description

Key Components:

- loadRecordDetails(): Fetches the record and displays it.
- saveChanges(): Validates & updates the record.

Section 3

Subscriptions

The Subscriptions page consists of the following features:





- View Subscriptions
- Add Subscriptions
- Remove Subscriptions
- Update Subscriptions
- Icon drop menu
- Date of Subscriptions

This tab allows you to manage your Subscriptions history seamlessly by viewing, adding, updating, and deleting subscriptions as needed.


-Neat part of all this is, everything is updated in real time simultaneously on Recodes page

Budget App - Subscriptions

Total Monthly Cost: \$53.56

Icon	Service	Cost (\$)	Date
	Netflix	24.99	2025-04-30
	Apple Music	10.99	2025-04-30
	The Random	5.56	2025-04-30
	zxcnb	12.02	2025-04-30


Service Name:





Date (YYYY-MM-DD):

2025-04-30

Cost (\$):

 Add

 Remove

 Update Cost

Records

Subscriptions

Analysis

Budget

Accounts

Categories

Challenges

Budget App - Records

Expenses

Select Month:

April

Year:

2025

Category:

All Categories

Load

Expenses

\$155.88


Income

\$3089.00


Total


\$2933.12

2025-04-30





2025-04-30 | checking | Subscriptions | \$5.56
Description: The Random






2025-04-30 | checking | Groceries | \$102.32
Description: Groceries







2025-04-30 | checking | Other | \$89.00
Description: Zelle




2025-04-29




2025-04-29 | checking | Subscriptions | \$12.02
Description: zxcnb



2025-04-28



2025-04-28 | checking | Subscriptions | \$10.00



+ Add Record

Records

Subscriptions

Analysis

Budget

Accounts




Categories

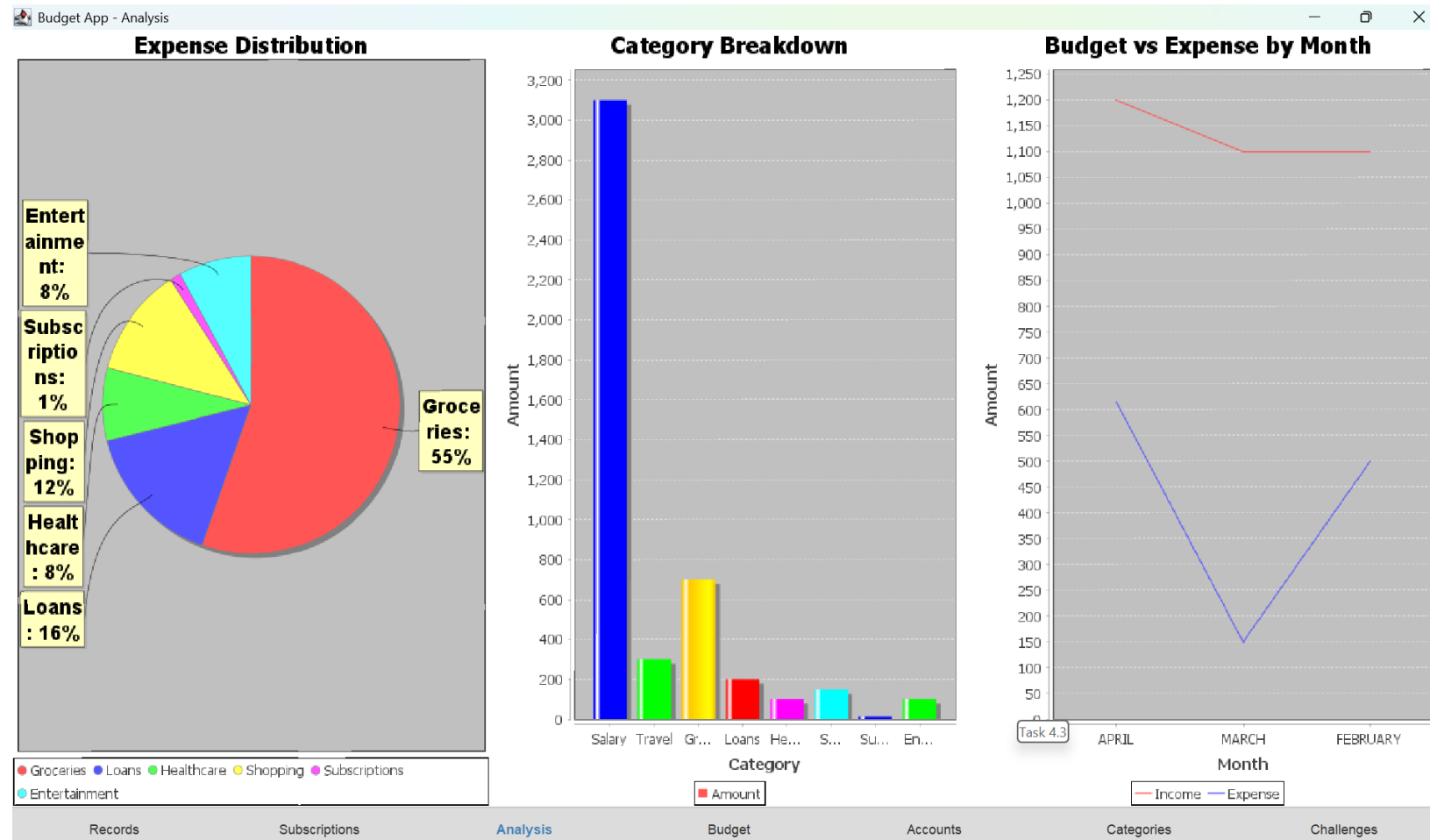
Challenges

Section 4

Analysis of Expenses/Savings

Expense Analysis Dashboard

- Java Swing app using **JFreeChart** + **MySQL**.
- Visualizes user expenses & income with **3 charts**:
 -  **Pie Chart**: Expense % by category.
 -  **Bar Chart**: Totals by category.
 -  **Line Chart**: Income vs. Expenses (monthly).
- Live Interactivity**:
 - Pie hover → section expands.
 - Bar hover → detects active bar.
- SQL-driven**: Uses PreparedStatement to fetch user-specific data.
- Clean UI: Grid layout with 3 side-by-side charts.



Section 5 Budget Plan

Budget App - Budget

Budget

Select Month: April Year: 2025 Load

Enter Monthly After-Tax Income:

Enter Budget Percentages:

Needs (%)

Wants (%)

Savings (%)

Needs: Rent/Mortgage, Car Payment, Utilities, Insurance

Wants: Entertainment, Subscriptions, Vacations

Savings: 401K & IRA Contributions, Emergency Funds

Budget Calculation:

Needs: \$0.00

Wants: \$0.00

Savings: \$0.00

Calculate Budget Save Budget

Records Subscriptions Analysis Budget Accounts Categories Challenges

Budget App - Budget

Budget

Select Month: April Year: 2025 Load

Enter Monthly After-Tax Income:

7500

Enter Budget Percentages:

Needs (%)

50

Wants (%)

30

Savings (%)

20

Needs: Rent/Mortgage, Car Payment, Utilities, Insurance

Wants: Entertainment, Subscriptions, Vacations

Savings: 401K & IRA Contributions, Emergency Funds

Budget Calculation:

Needs: \$3750.00

Wants: \$2250.00

Savings: \$1500.00

Calculate Budget Save Budget

Records Subscriptions Analysis Budget Accounts Categories Challenges

Message

Budget saved successfully for April-2025!

OK

Budget Page allows user to enter their budget for a particular month and save it for later reference




Section 6

Accounts Information

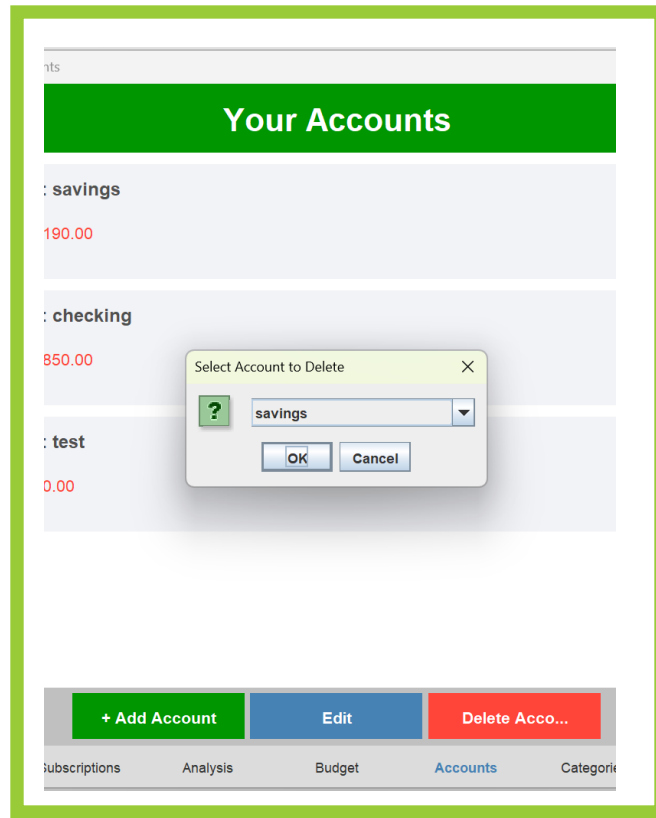
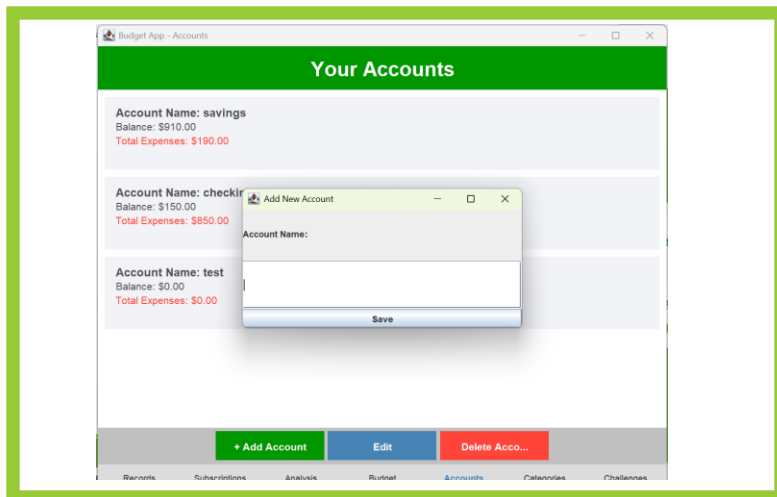
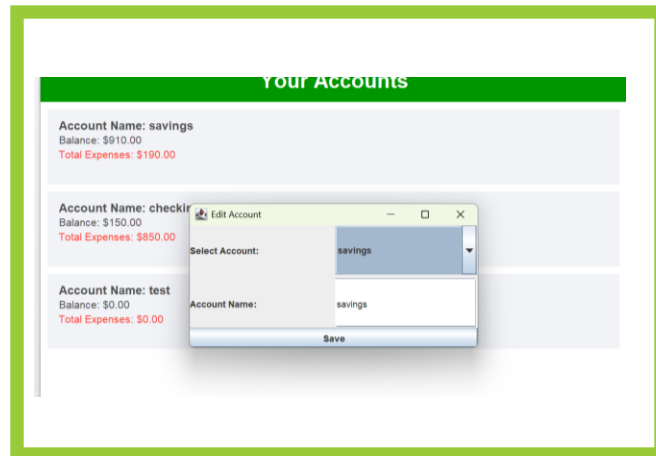
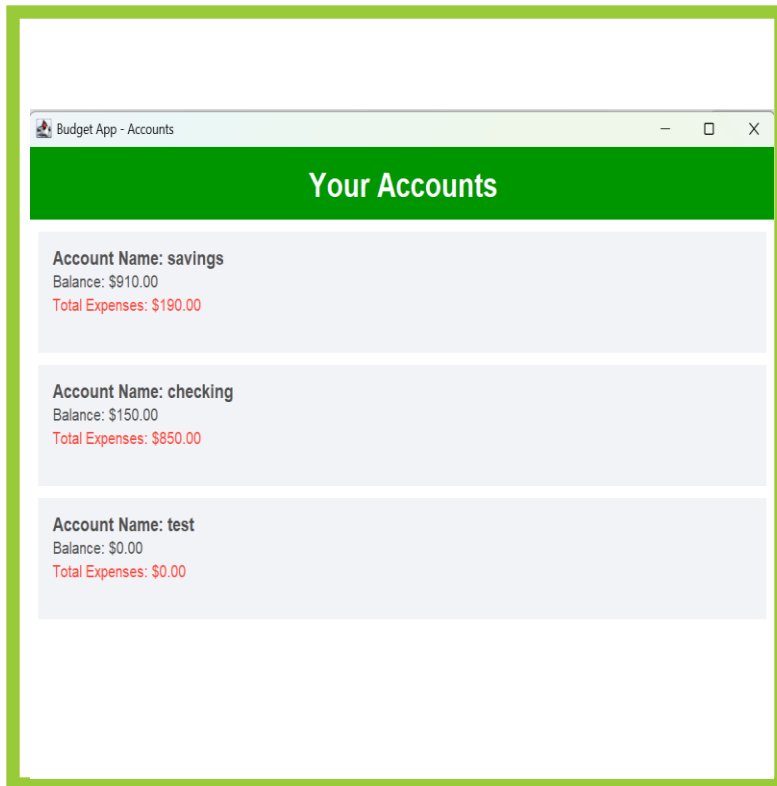
This page:

- Displays all accounts for the user.
- Shows: Account Name, Balance, and Total Expenses.
- Allows: Adding, Editing, Deleting accounts.

Key Components:

- `initUI()`: Builds the UI layout.
- `loadAccountsList()`: Fetches accounts & calculates balances.
- `createAccountCard()`: Renders a card for each account.
- Buttons to:
 -  Add Account: Opens `AddAccountPage`.
 -  Edit Account: Opens `EditAccountPage`.
 -  Delete Account: Lets you choose an account to delete.

When deleting, it checks whether the account has linked expenses (error handled).



AddAccountPage.java

This is a **simple form**:

- Input: **Account Name**.
- On save: Inserts a new account with a **balance initialized to 0**.

Key Components:

- `initializeUI()`: Layout with a form & Save button.
- `saveAccount()`: Validates input, inserts into DB, and refreshes the Accounts page.

EditAccountPage.java

This allows the user to:

- **Select an existing account.**
- **Change its name.**

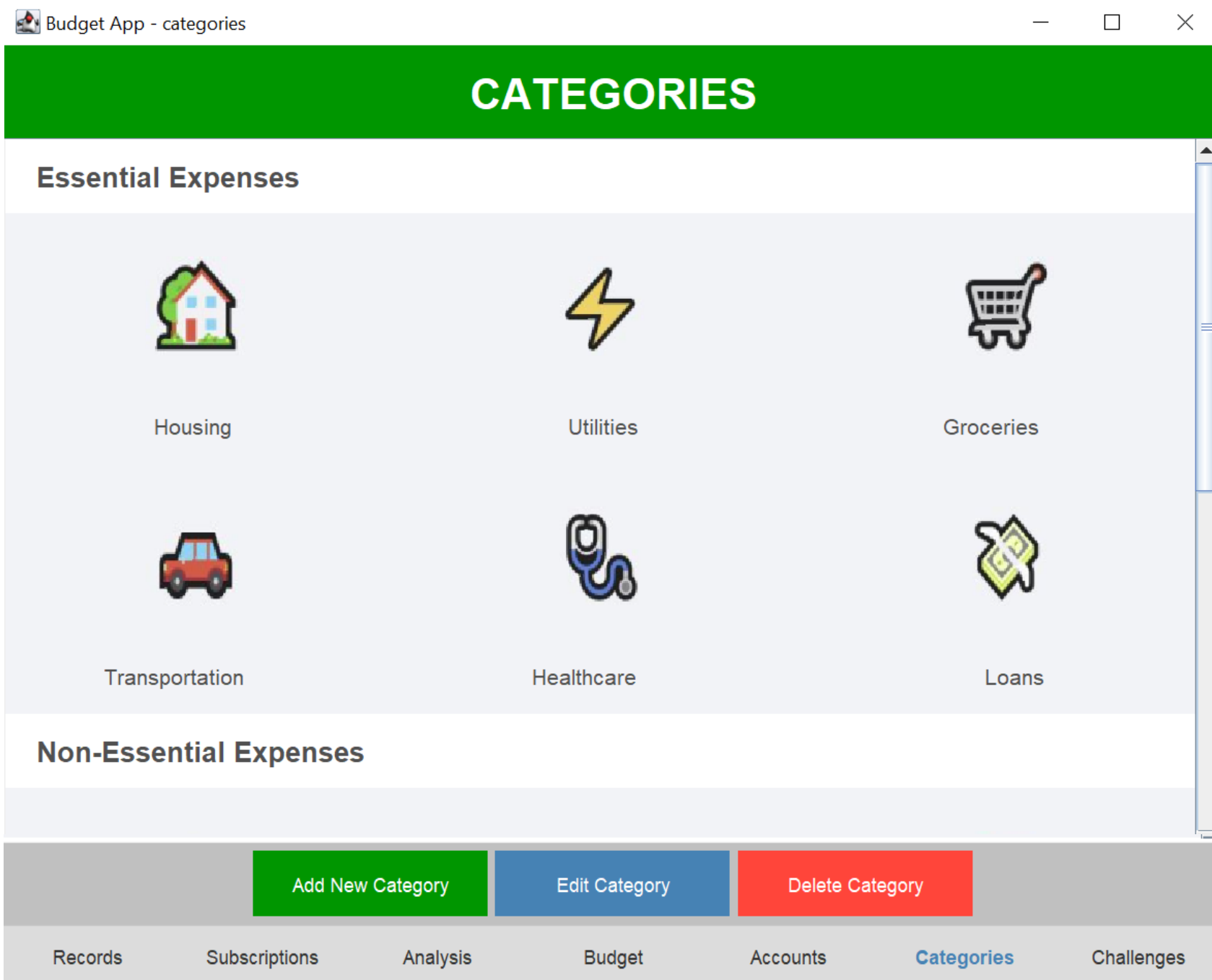
Key Components:

- `loadAccounts()`: Fetch all accounts and populate the dropdown.
- `loadAccountDetails()`: On selecting an account, loads current data into the field.
- `updateAccount()`: Updates the DB after validating the new name

Section 7

Categories Information

- In the Categories Section, users can:
 - Add new Category Expense
 - Edit Category Expense
 - And, Delete Category Expense
- This is where all of the user's expenses are organized and displayed.



No Spend Day

Give your wallet a well-deserved day off!
In this challenge, all you have to do is not spend a single penny for a whole day. No coffee runs, no impulse buys, not even a sneaky vending machine snack! Let your wallet snuggle up, take a nap, and dream of savings. Complete this challenge and you'll unlock a special prize — because sometimes, doing nothing is the most rewarding thing you can do!



No Spend Day

Give your wallet a well-deserved day off!
In this challenge, all you have to do is not spend a single penny for a whole day. No coffee runs, no impulse buys, not even a sneaky vending machine snack! Let your wallet snuggle up, take a nap, and dream of savings. Complete this challenge and you'll unlock a special prize — because sometimes, doing nothing is the most rewarding thing you can do!



No Spend Day

Challenge Begun

Give your wallet a well-deserved day off!
In this challenge, all you have to do is not spend a single penny for a whole day. No coffee runs, no impulse buys, not even a sneaky vending machine snack! Let your wallet snuggle up, take a nap, and dream of savings. Complete this challenge and you'll unlock a special prize — because sometimes, doing nothing is the most rewarding thing you can do!

Challenge started! Complete the requirements to earn your badge.

OK



No Spend Day

Achievement Unlocked

Give your wallet a well-deserved day off!
In this challenge, all you have to do is not spend a single penny for a whole day. No coffee runs, no impulse buys, not even a sneaky vending machine snack! Let your wallet snuggle up, take a nap, and dream of savings. Complete this challenge and you'll unlock a special prize — because sometimes, doing nothing is the most rewarding thing you can do!

Badge Claimed!
No Spend Day

OK



Section 8 Challenges



Future Enhancements

UI/UX Enhancements:

- Enable dark mode & theme customization.
- Add search and filter options on records, categories, and accounts pages.

Charts & Analysis:

- Add dynamic date filters (e.g., last 7 days, custom range).
- Allow click on chart sections to drill down into detailed data.
- Include export feature (PDF, image).
- Add budget forecasting (predictive analysis).

Database & Performance:

- Add pagination for large data sets (RecordsPage).
- Enable data backup & restore functionality.

Gamification & Engagement:

- More badges & achievements (using existing badges resources).
- Push reminders/alerts (e.g., overspending alerts).

Security:

- Hash passwords in LoginApp (if not already).
- Add session timeout & auto-logout.
- Encrypt sensitive data (e.g., account numbers).

References Page

- Giovanetti, Erika. “Survey: 42% of Americans Don't Have an Emergency Fund.” U.S News, 22 January 2025, <https://www.usnews.com/banking/articles/2025-financial-wellness-survey>
- Marder, Andrew. “Most Americans Have a Monthly Budget, but Many Still Overspend.” NerdWallet, 30 May 2023, <https://www.nerdwallet.com/article/finance/data-2023-budgeting-report>

Thank you!

Together, we can help people build better financial futures.

Any Questions?