

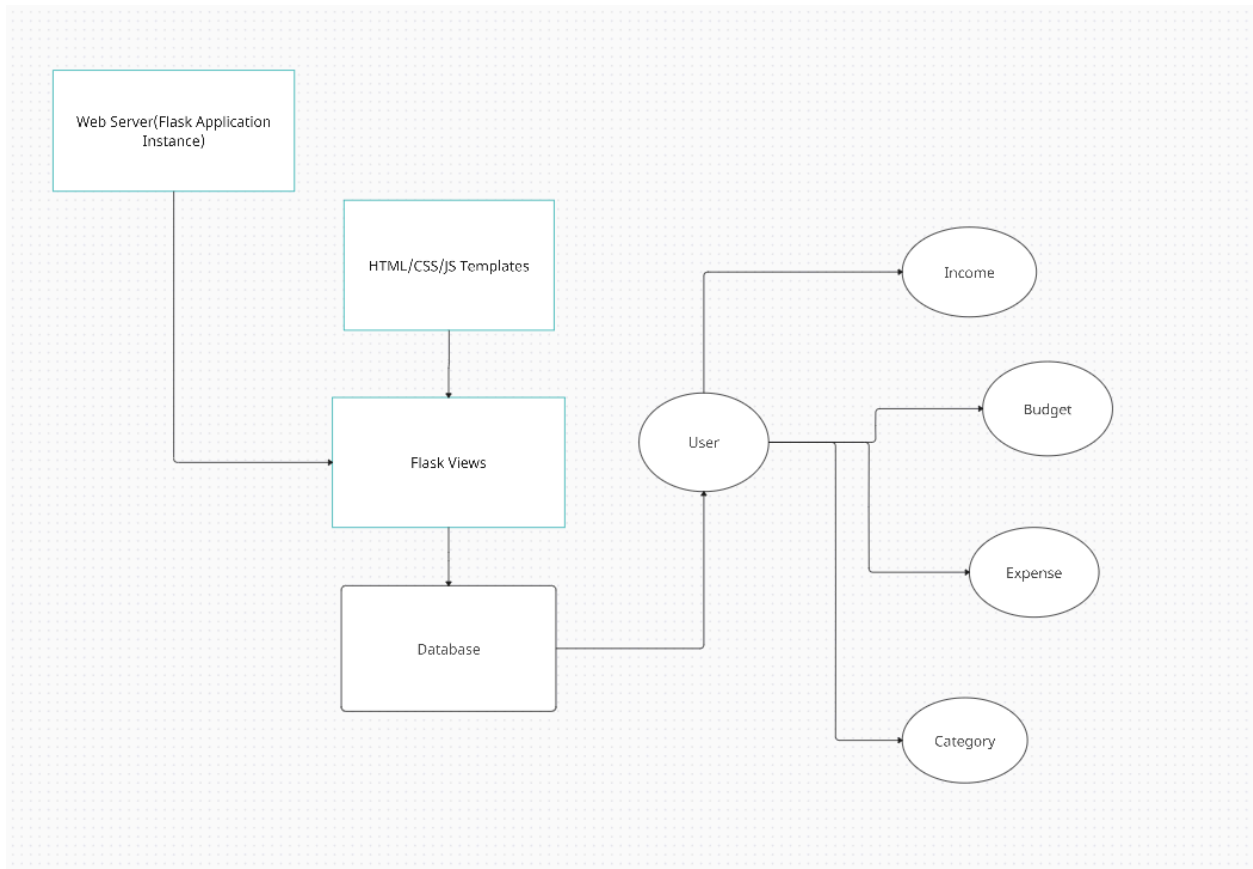
## Introduction

The Expense Tracker App aims to provide users with a convenient tool to monitor and manage their expenses efficiently. In today's fast-paced world, keeping track of expenses is crucial for financial stability and planning. This application offers users a seamless experience to record, categorize, and analyze their spending habits.

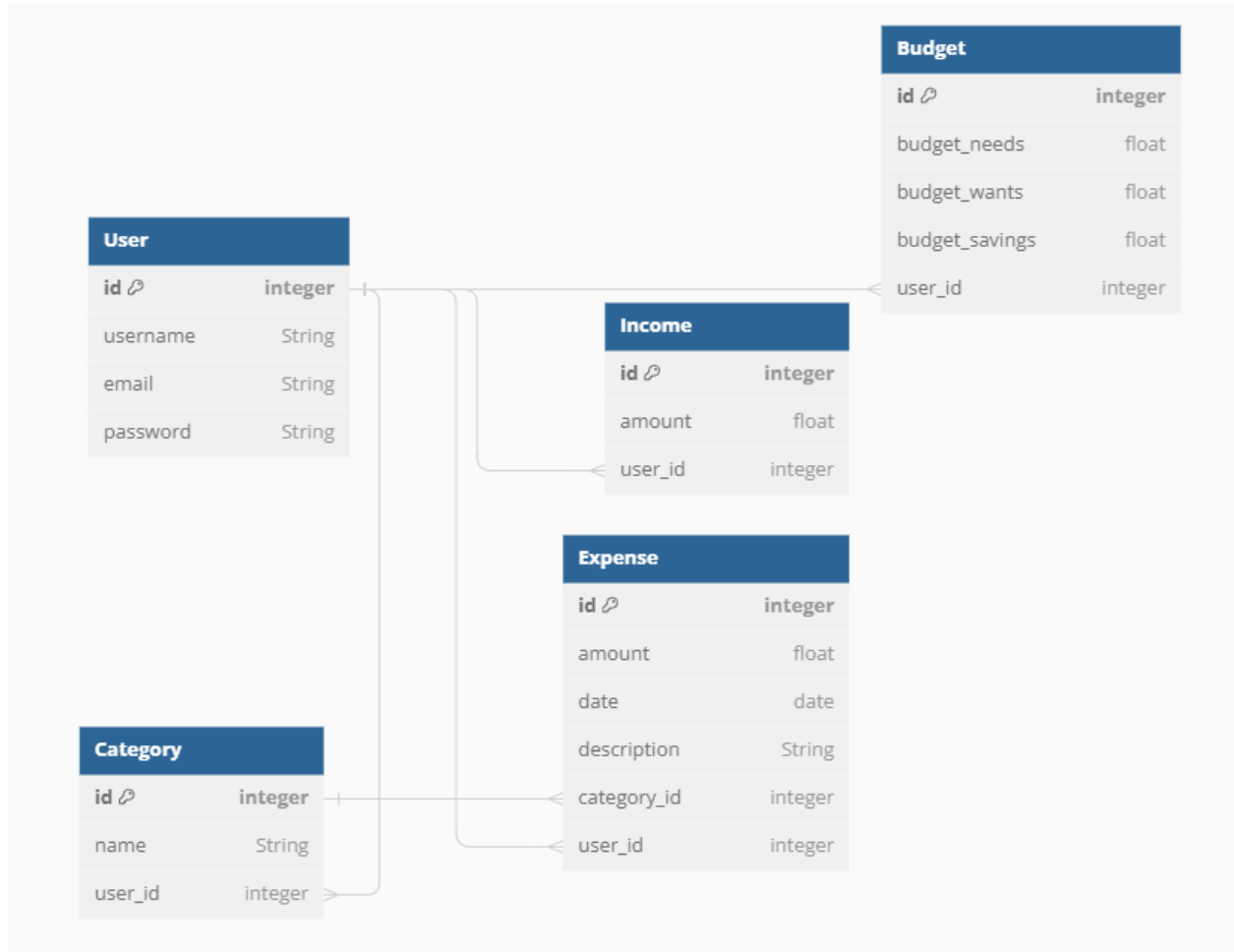
## Objective

The primary objective of the Expense Tracker App is to provide users with the ability to record daily expenses with details such as date, category, amount, and description. This includes being able to categorize expenses into predefined or custom categories. There should be a user-friendly interface with registration and authentication in order to secure financial data securely and ensure user privacy. In addition, a budget feature will be implemented so that users can be recommended budgeting limits according to their income.

## High-Level Design



## Database Design



## Normalization

User:

Each attribute (id, username, email, password) contains atomic values, ensuring 1NF. The id attribute is the primary key, so each user is unique. No partial dependencies or transitive dependencies exist, therefore the table is in 2NF and 3NF.

Expense Table:

Each attribute (id, amount, date, description, category\_id, user\_id) contains atomic values, ensuring 1NF. The id attribute is the primary key, so each expense record is unique. The category\_id and user\_id attributes reference the primary keys of the category and user tables. There are no partial dependencies or transitive dependencies, so the table is in 2NF and 3NF.

Budget:

Each attribute (id, needs, wants, savings, user\_id) contains atomic values, ensuring 1NF. The id attribute is the primary key, so each budget is unique. The user\_id attribute references the primary key of the User table, establishing a foreign key relationship. There are no partial dependencies or transitive dependencies, so it is 2NF and 3NF.

Income:

Each attribute (id, amount, user\_id) contains atomic values, ensuring 1NF. The id attribute is the primary key, so each income is unique. The user\_id attribute references the primary key of the User table, establishing a foreign key relationship. No partial dependencies or transitive dependencies exist, therefore the table is in 2NF and 3NF.

Category:

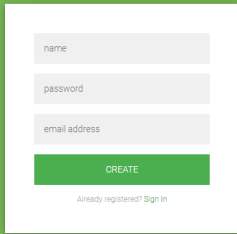
Each attribute (id, name, user\_id) contains atomic values, ensuring 1NF. The id attribute is the primary key, so each category is unique. The user\_id attribute references the primary key of the User table, establishing a foreign key relationship. There are no partial dependencies or transitive dependencies, so it is in 2NF and 3NF.

## Results

Upon completion, the Expense Tracker App will provide a streamlined expense tracking process leading to better financial management. It will also offer insights into spending habits and areas for potential savings as well as improved budgeting and planning capabilities.

## Screenshots

Sign-up

A screenshot of a sign-up form centered on a solid green background. The form is a white rectangle containing three input fields: 'name', 'password', and 'email address', each with a light gray border. Below these fields is a green button with the word 'CREATE' in white capital letters. At the bottom of the form, there is a link that says 'Already registered? Sign In'.

Login

LOGIN

Not registered? Create an account

Home

Login Budget Expense

Financial Planner

Expenses: \$0

Category:

Add Expense

Amount:

Date: 

mm/dd/yyyy

Description:

Category:

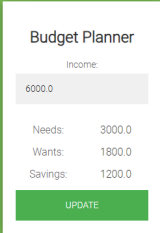
ADD EXPENSE

Add Category

Category Name:

ADD CATEGORY

## Budget

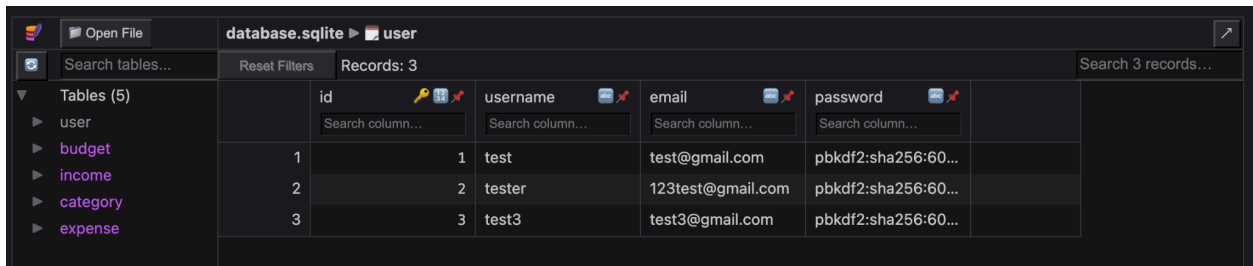


The image shows a 'Budget Planner' form centered on a solid green background. The form is white with a thin black border. It contains the following fields and values:

- Income:** 6000.0
- Needs:** 3000.0
- Wants:** 1800.0
- Savings:** 1200.0

At the bottom of the form is a green button labeled 'UPDATE'.

## Database containing 5 tables



The image is a screenshot of a database management application. The title bar shows 'database.sqlite' and 'user'. The interface includes a sidebar with a tree view of tables: 'user', 'budget', 'income', 'category', and 'expense'. The main area displays a table with 3 records. The columns are 'id', 'username', 'email', and 'password'. The records are as follows:

| id | username | email             | password            |
|----|----------|-------------------|---------------------|
| 1  | test     | test@gmail.com    | pbkdf2:sha256:60... |
| 2  | tester   | 123test@gmail.com | pbkdf2:sha256:60... |
| 3  | test3    | test3@gmail.com   | pbkdf2:sha256:60... |

## Contribution

Vincent Mei: Created database, sign-up page, login page, budget page, and project report

Shannon Luu: Created home page and project report