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Assignment 1

Planning and Design

Introduction

In the modern age, of fast-paced and ever-evolving technology, it is challenging to keep track of all of one's expenses. From online shopping, to “free” subscriptions, weekly and monthly fixed costs and the occasional weekend splurge we can become overwhelmed by the sheer number of expenses needed to be kept track of. This is where personal budgeting apps can prove, very useful. After analysing the strengths, weaknesses, and innovative features of leading budgeting apps, we are now ready to begin planning, designing, and developing our app, CASH ROYALE.

Overview

Cash Royale is a personal budget tracker crafted to make financial management less of a chore and more of an enjoyable and motivating activity. By blending essential budgeting tools with unique features and gamification, Cash Royale aims to empower users to take charge of their finances and reach their savings targets.



(OpenAI 2015)

Innovative Features:

- **Email Verification:** Upon registration, users will be required to verify their accounts via email. This process enhances security and validates user credentials.
- **Goal Setting:** Users can set specific savings goals for purchases or objectives, in addition to budget limits. They can define target amounts and monitor progress toward their goals.
- **Monthly report:** At the end of each month users will get a report that we give a breakdown of their monthly expenses. This will include the total amount over/under their pre-determined budget for the month, how much they we under/over their categories for expenses and how close they are to reaching their goals.

Requirements:

Registration

- Users should be able to register a new account using their email address and a secure password.
- The app will verify the format of the email address and ensure the password meets select criteria, such as numbers, symbols and capital letters.
- Once the user has clicked the register button the system will verify that the email address is not already being used by searching the database for the email address. If the email address is not found the user will then be sent a confirmation email.

Login

- Before the user is able to log in they will have to verify their email through the confirmation email sent after registration.
- Users will be able to log in using the details they entered upon registration. These details will be compared to the details listed in the database to verify that they are correct.

Expense categories

- Users will be able to create custom categories for their expenses.
- The app will come loaded with a few basic/general categories.
- Users will be able to edit and delete categories.

Expense Entries

Users will need to enter in the following details to create an expense entry:

- Amount (validated as a positive number)
- Date (with a date picker)
- Description (optional, Sort message of what the expense was for)
- Category (selected from the user's list of categories)
- Photo (Receipts)

Monthly budget goals

- Users will be able to set a monthly goal for expenses and should display the total remaining budget for the month.
- Based on the total budget for the month users can then split/allocate the amount of money they would like to spend for each category they have chosen.
- The system will then be able to keep track of the users spending against the categories and provide feedback in the form of a progress bar and toasters.

Expense list

- Users will be able to view a list of all their expenses within a defined period that they have selected.
- They will be able to filter by category.
- Users will be able to view any images uploaded with the entry when they view the expense details.
- Users will be able to see the total amount spent over the selected period for all expenses. If the user filters by category, they will only see the net spend of that category over the selected period.

Daily spending graph

- Display a graph that will show the users spending habits over a defined period.
- There will be multiple different coloured graphs a set of axis to show the difference in spending over a set period.

Progression dashboard

- Shows an overview of the users spending for the month, this will be for both the total monthly budget and each individual category budgets.
- Categories that have exceeded their budgets for the month will be visually highlighted to warn the user.

Gamification

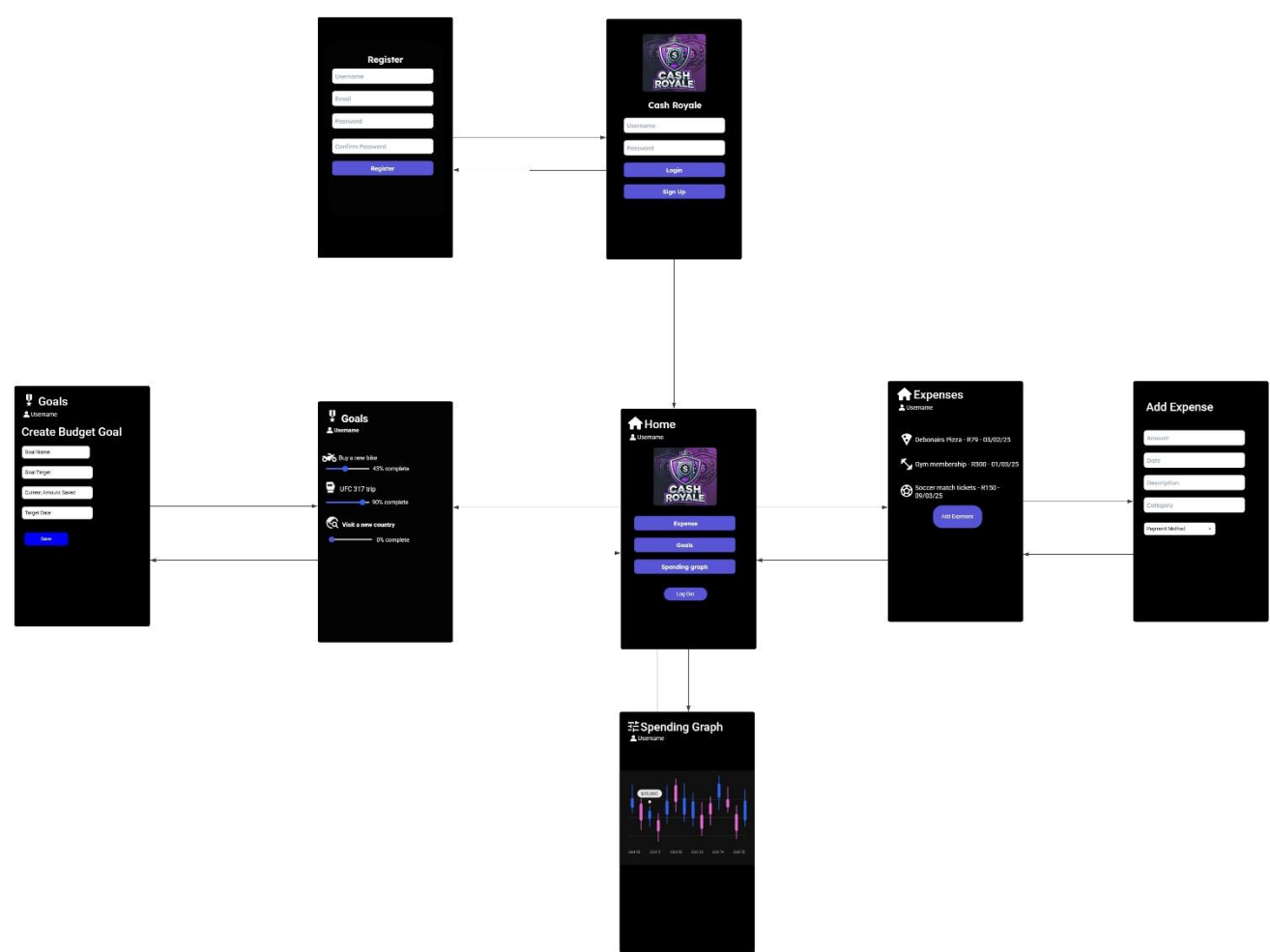
- We will use progress bars to show users how much money they have left in each category and how much more they must save to achieve their goals.
- We will implement a streak feature like snap chat where it will keep track of users weekly/monthly budget categories and award them with a streak point.

Databases


- Local Database: We will need to create a database to store all the offline data that will be used in designing and testing the application before it is released to the public.

- Online Database: We will save all the app data to an online database to allow access across multiple devices.(Karanpuria, 2018)

User Interface Design



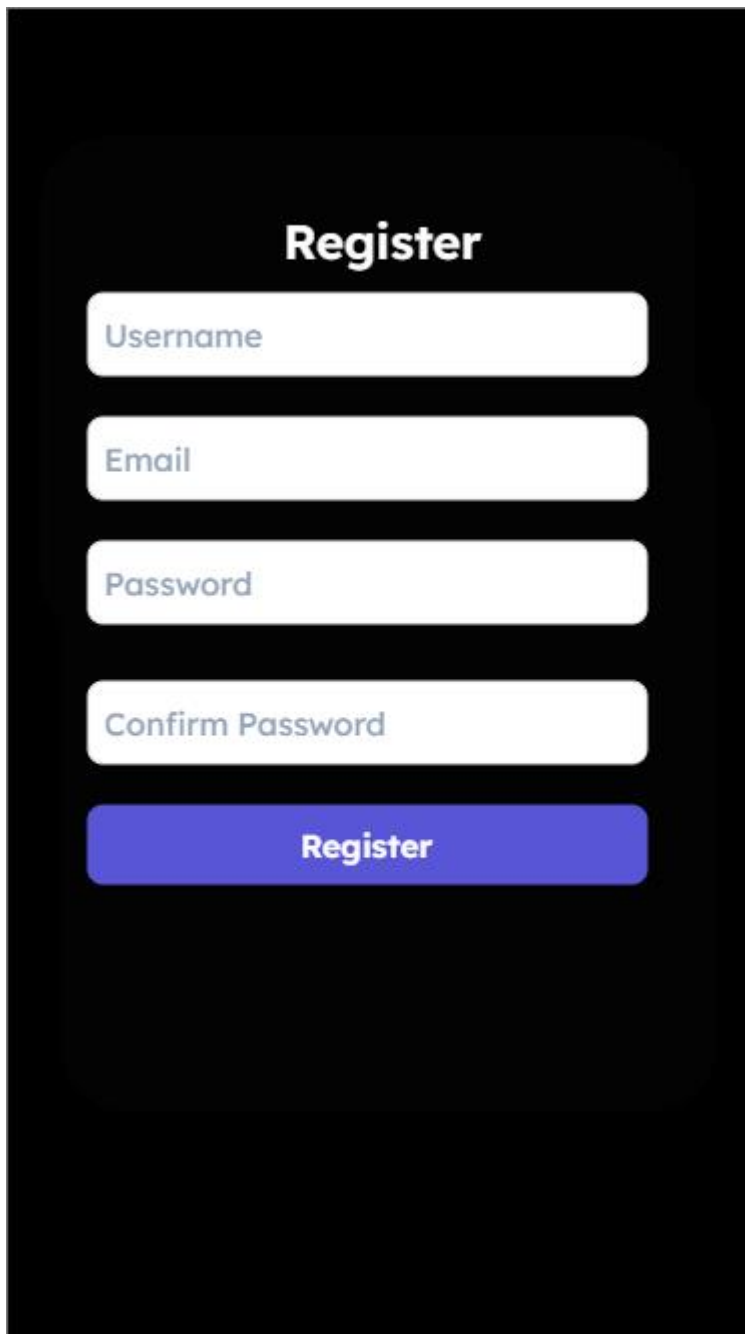
1. Login Page



Cash Royale

This is the login screen. Users will be asked to enter the username and password to their accounts advance. If they don't have one already, users are also given the option to create a new account using the sign-up button.

2. Registration

A mobile application registration screen with a dark background. At the top, the word "Register" is displayed in a large, bold, white font. Below the title, there are four white input fields stacked vertically, each with a light gray placeholder text: "Username", "Email", "Password", and "Confirm Password". At the bottom of the form, there is a solid blue button with the word "Register" in white text.

Register

Username

Email

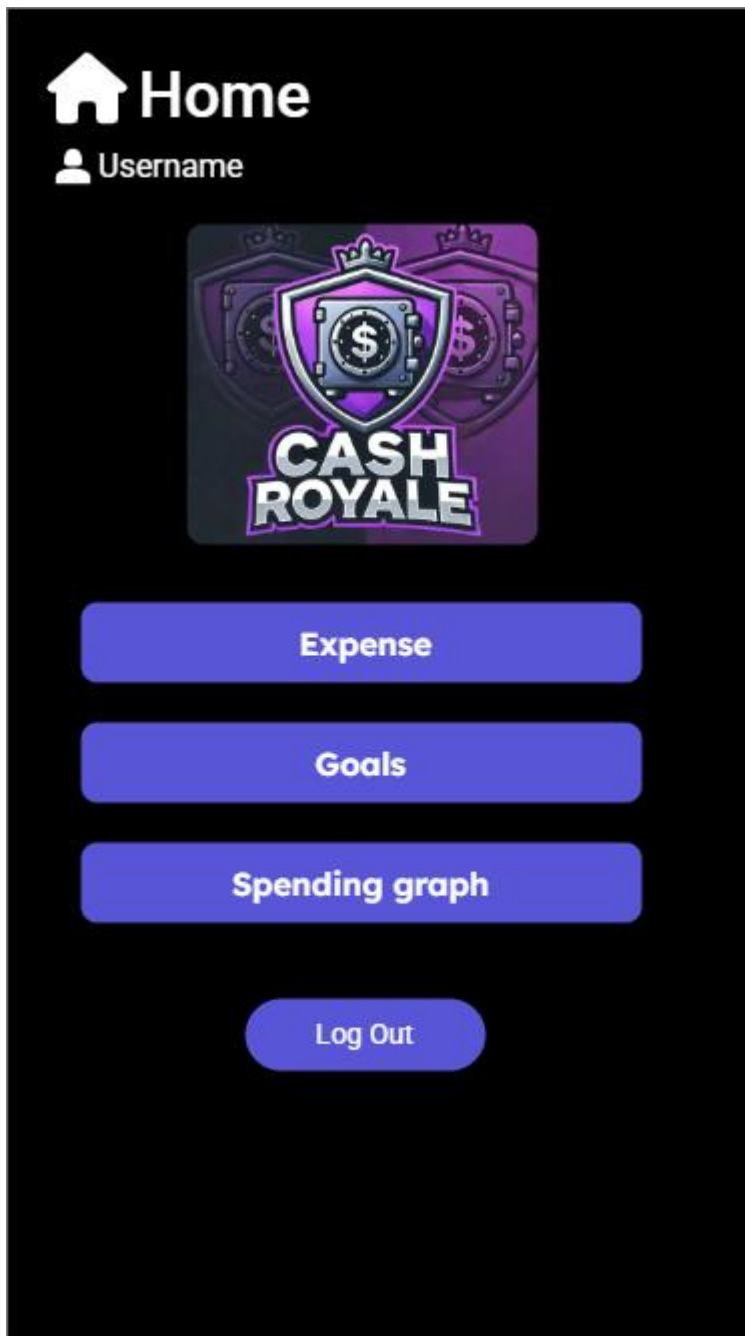
Password

Confirm Password

Register

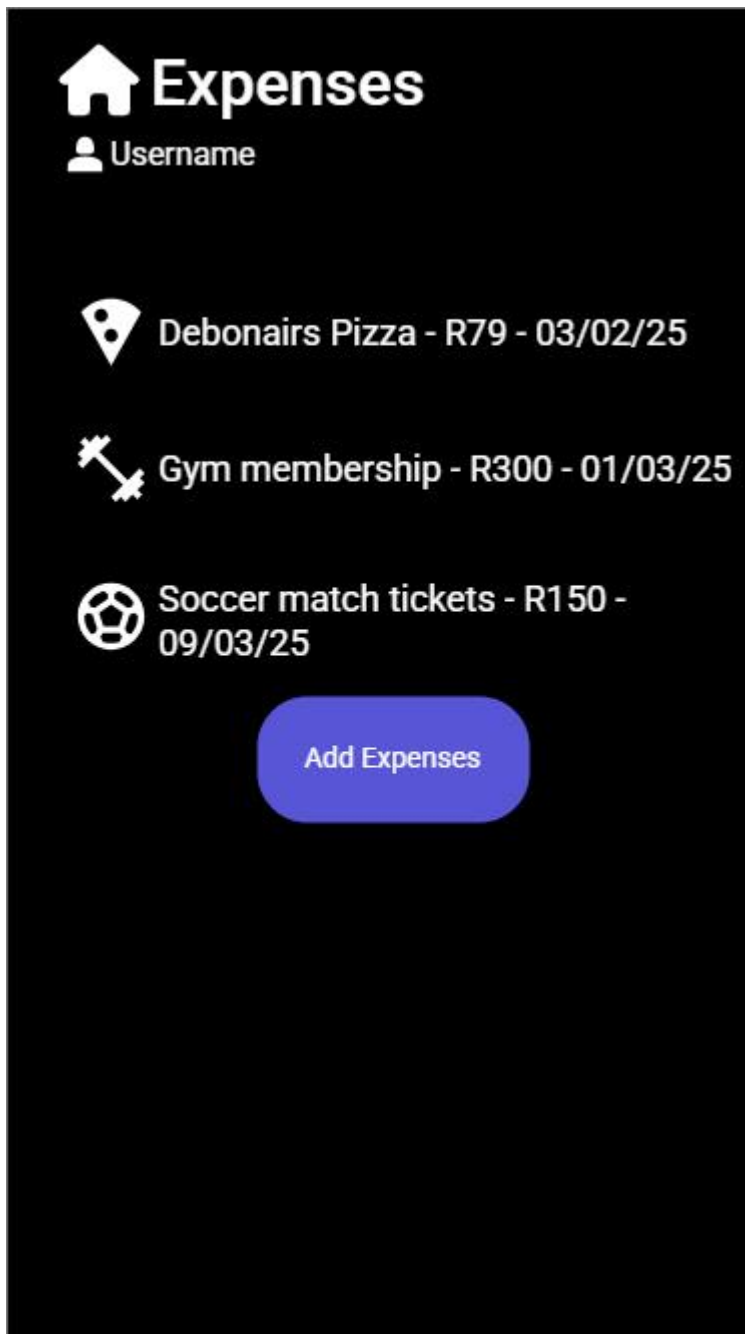
This is the register screen. Users will be taken to this page after pressing the sign-up button from the previous screen. This is where they will be asked for the appropriate information to create an account. After successfully creating an account, users will be taken back to the login screen to enter their new credentials. Accounts will only be able to advance after email confirmation.

3. Home Page



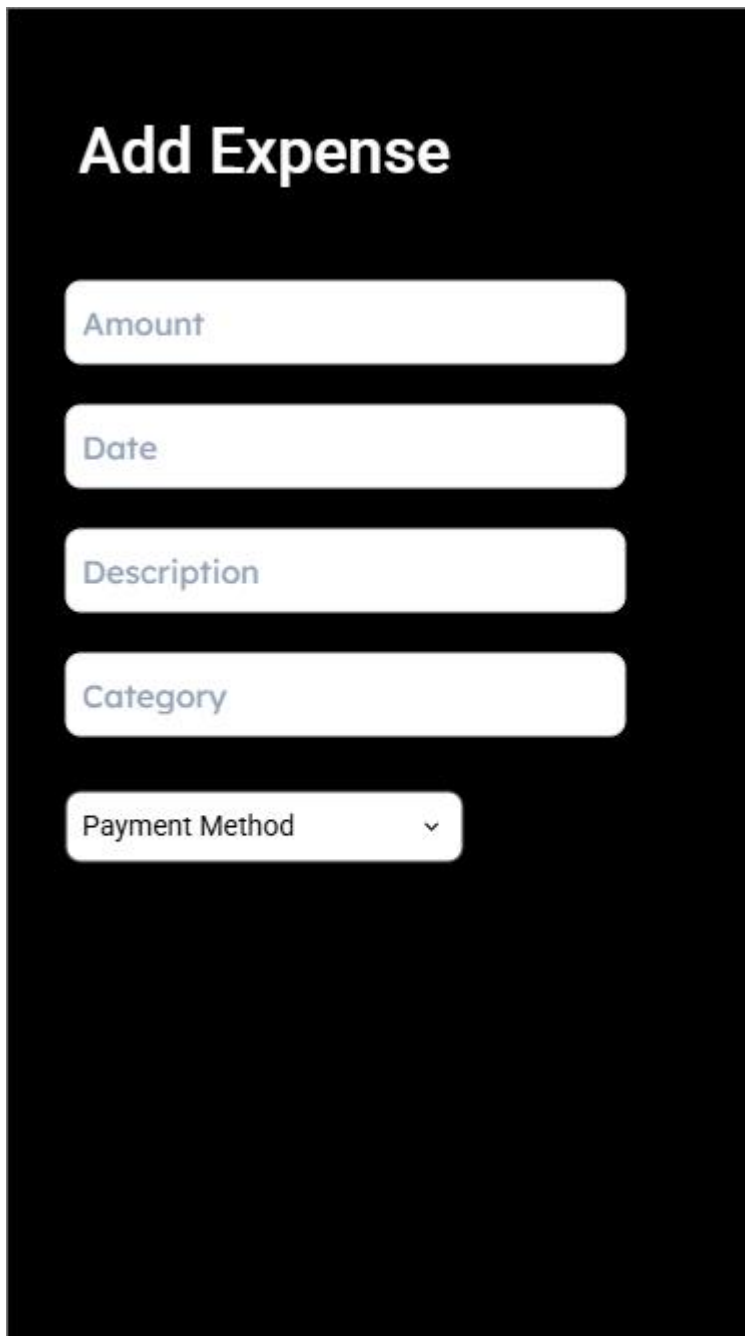
This is the home page screen. After successfully completing the login process, users will be transported here. Buttons to all the application's features will be available along with a log out button so users have the option to stay logged in or not.

4. Expenses Page



This is the expenses screen. Users will see all their expenses here with all their details. The option to add an expense will also be available.

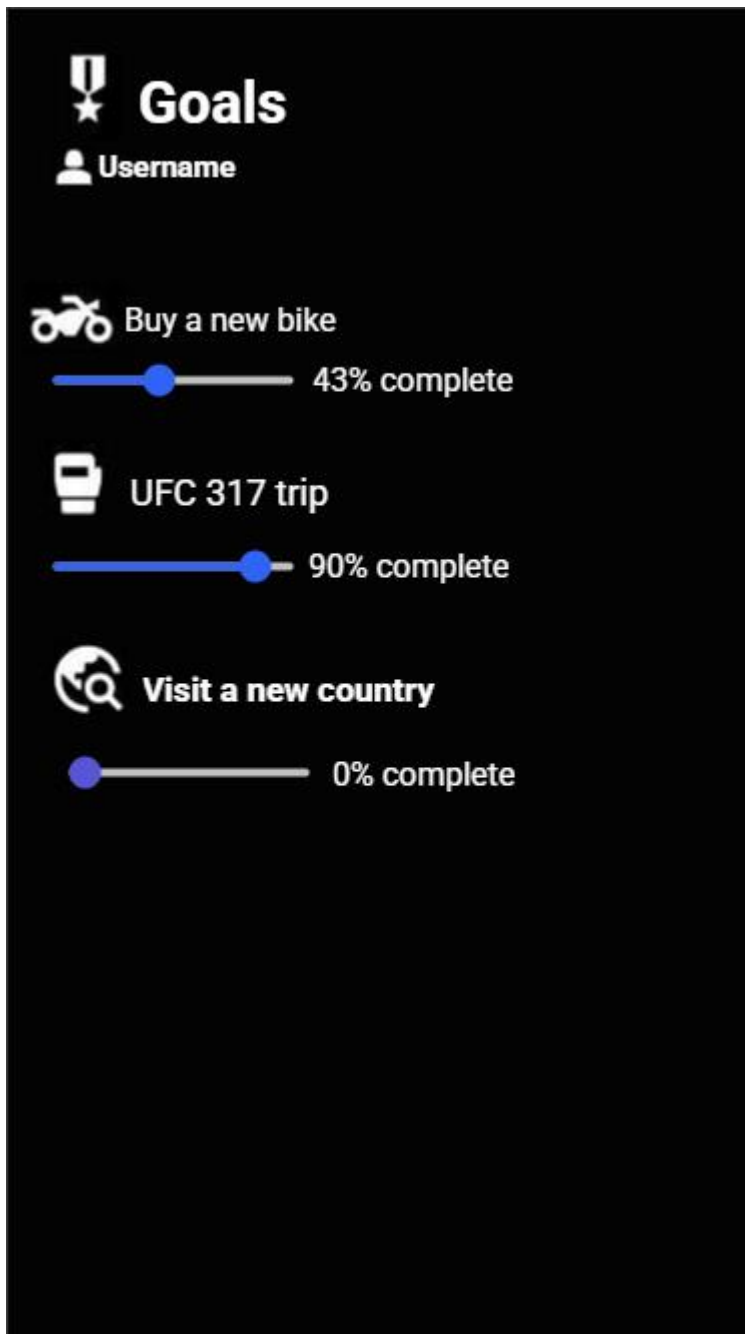
5. Add Expenses Page

A mobile app screen with a dark background. At the top, the title "Add Expense" is written in large white font. Below the title, there are five white input fields stacked vertically. The first four are text inputs labeled "Amount", "Date", "Description", and "Category". The fifth is a dropdown menu labeled "Payment Method" with a small downward arrow icon on the right.

Add Expense

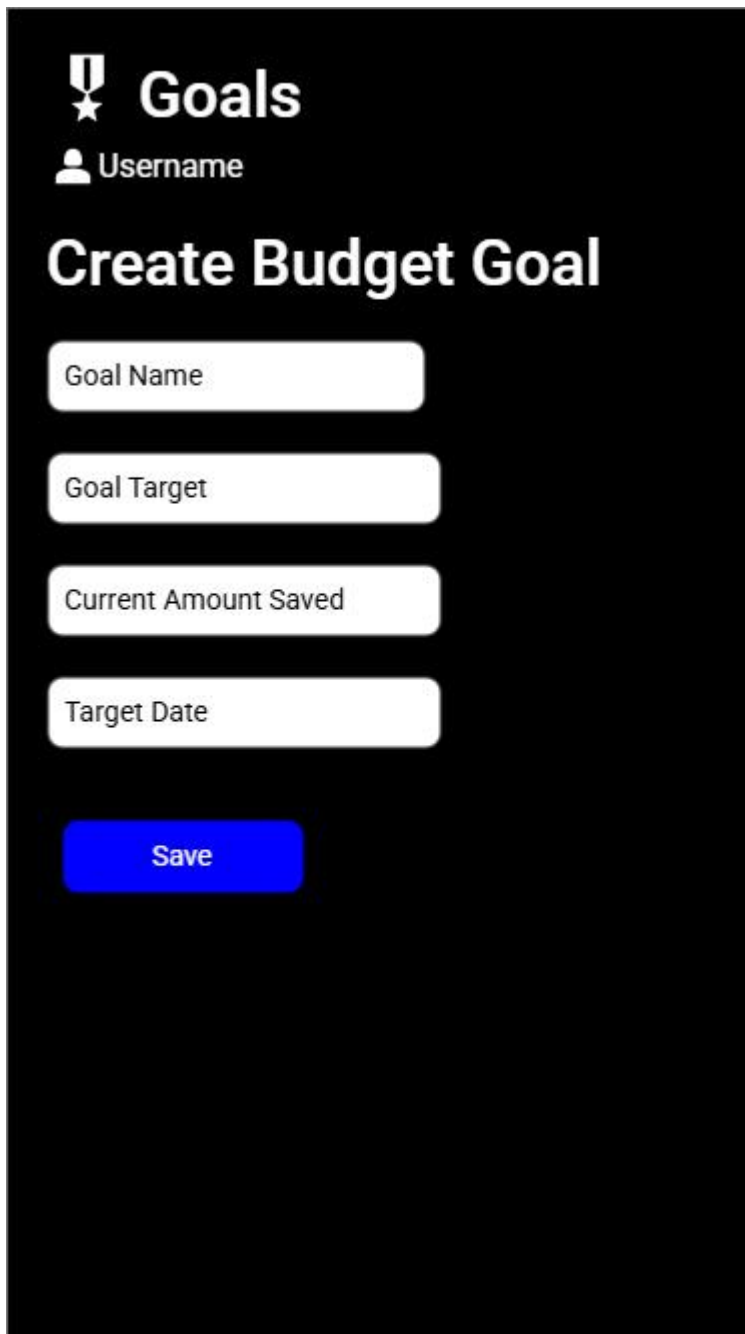
This is the expenses input screen. Users will be asked for information regarding their expenses and after inputting, it will take them back to the previous page to view their expenses again, with the new addition.


6. Goals Page




This is the goals screen. Users will be able to view their financial goals here, as well as how far along they are with the goal. They will also be given the option to add new goals.

7. Goals Input Page



 **Goals**

 Username

Create Budget Goal

Goal Name

Goal Target

Current Amount Saved

Target Date

Save

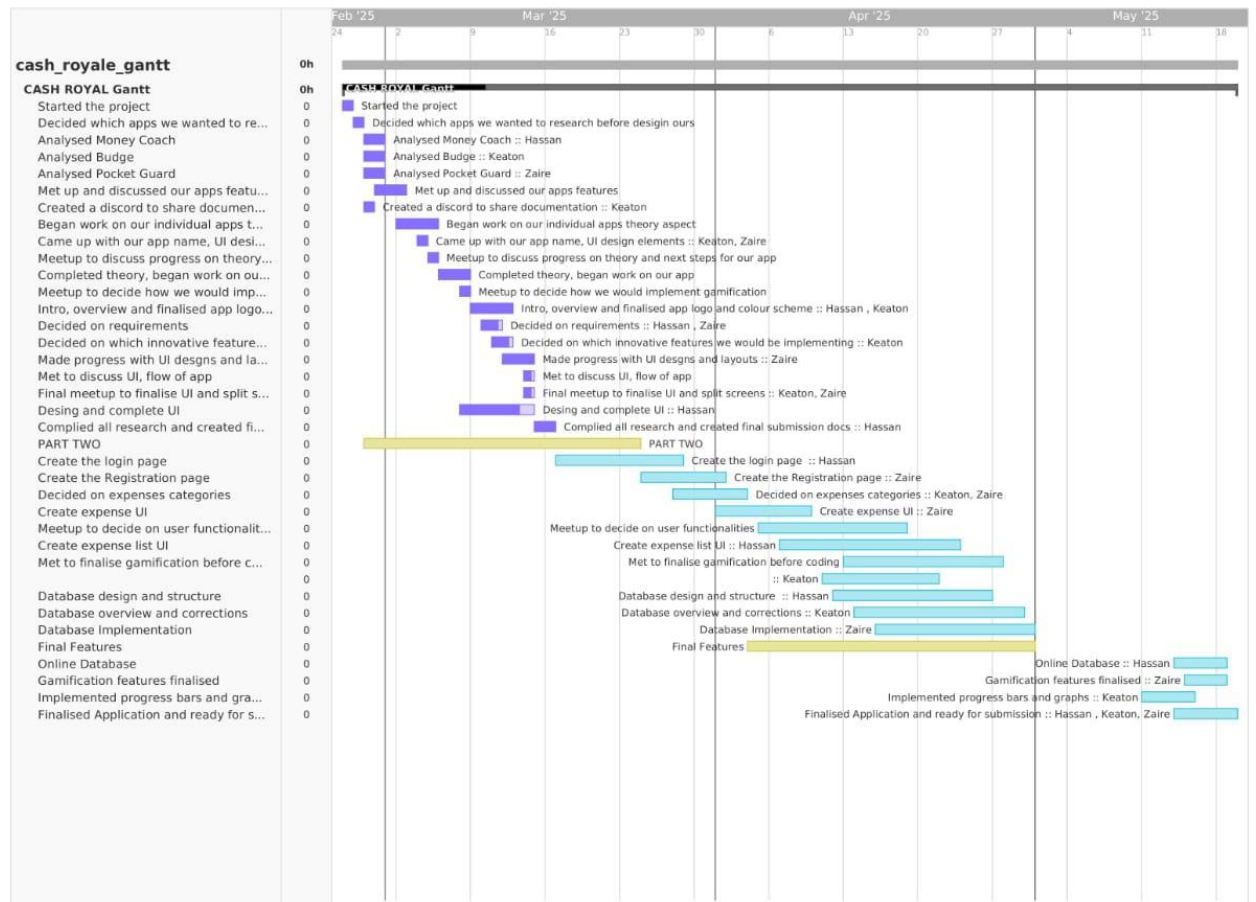
This is the goal input screen. Users will be taken here after pressing the add goal button. This screen will ask the user to enter the necessary details about the financial goal they would like to reach. After input, users will press the save button and be taken back to the previous page to see their new goal among others.

8. Spending Graph



This is the spending graph screen. On this screen, users will be shown a graph that informs them of their spending habits over a period of time.

Gantt Chart



Conclusion

The world is becoming, faster, more connected and more complex with every passing day, and money management is no different. We believe that Cash Royale, refined through intensive research and market knowledge can effectively assist our users in not only managing their money and spending but also taking better control of their wealth and in turn their lives. Cash Royale aims to turn money management into a seamless and strategic part of everyday life. Cash Royale: The Treasury to Your Kingdom.

References

- Karanpuria, A. S. R. & R., 2018. Kotlin Programming Cookbook. 1st ed. Birmingham: Packt Publishing.
- OpenAI (2015) OpenAI, ChatGPT. Available at: <https://chatgpt.com/g/g-pmuQfob8d-image-generator/c/67d18f09-3b38-800b-a0bf-995ff66caa27> (Accessed: 2025).
- TeamGantt. (n.d.) TeamGantt. Available at: <https://www.teamgantt.com/> (Accessed: 09 March 2025).
- Uizard. (n.d.) Uizard. Available at: <https://uizard.io/> (Accessed: 09 March 2025).