CSCI 4100: Mobile Devices Proposal

Group Members:
1. Seodong Lim (100748897)
2. Michael Wang (100786569)
3. Kevin Lau (100746819)
4. Anthony Fung (100820899)

Proposal:
In this proposal we will be outlining our project idea that will be completed at the end of the course, using all the skills that we have learned throughout the year. Our project will serve as a demonstration of all the new skills that were taught in the lectures. The mobile application should contain all the basic functionalities required and as well some of the extra optional functionalities.

The idea for the mobile application we are proposing is a budgeting and expense tracker. In summary, when using this application, a user will have the ability to input expenses, establish budgets, track their spending trends, and categorize their expenses. The features used to develop this application will be elaborated upon in the "List of Features" section below.

Listed below is the outline of what each member of the group is responsible for (look at the group member list numbers above, the numbers represent who each member is).

- ➔ Group member 1 responsibilities:
  - ◆ Work upon the front end of the application
  - ◆ Using the http packages, be able to use it so the mobile application can fetch information from the web
  - ◆ Includes adding:
    - Snackbars
    - Notifications
- ➔ Group member 2 responsibilities:
  - ◆ Mainly focus on the user interface of the application
  - ◆ Design how the application will look like and the placements of such user interfaces (ex. Button bottom right of the app)
  - ◆ Implementing their interface into code
  - ◆ Enabling smooth and easy to understand navigations allowing the user to freely move from page to page
- ➔ Group member 3 responsibilities:
  - ◆ Mostly focus upon the debugging and improving the code to look cleaner
  - ◆ Tests app to see if it runs as intended
  - ◆ Find bugs in the application when ran
  - ◆ Help add in on the dialog and picker classes onto the application
- ➔ Group member 4 responsibilities:
  - ◆ Focuses on the backend of the application

        - Manages the accessibility and retrieval of storage
        - Cloud storage
        - Local Storage
    - Build upon creating user accounts for the mobile application

List of features:
Here are the list of features that will be added in the application and an explanation of how they will be used in the app.

1. The usage of cloud and local storage to create multiple user profiles and save information based off the users preferences
    a. Different people will have different expenses from one another. Through the usage of either cloud or local storage, the app will allow for users to separate their expenses from one another.
    b. With the help of multiple profiles, users of the app will be able to save their preferences in the settings.
    c. With the help of local storage, users are able to use the app even when they are offline and can't access the internet.
    d. When the user switches to a different device, they will be able to save their expenses from their previous device to the new one using the cloud. They will also have the ability to transfer data from one device to another through a USB connection.

2. Snackbar notifications and pop-up alerts to keep users updated on specific events and changes with their expenses.
    a. Snack Bars and notifications can be used to notify the user of:
        i. When their expense has been added,deleted or updated successfully into the app
        ii. The fact that their settings have been saved when users change their settings to match their preferences
        iii. Reminders of an upcoming bill
        iv. If their expenses reach above their threshold amount

3. Expense tracker and budget builder/planner
    a. Users can set budgets for a set period of time
    b. Split their expenses into different categories, and uses pickers to allow the user to view each category separately
    c. Look at one's financial overview to see how they are doing (income, expenses, etc..)
    d. Users have an option to take a photo of their receipt to add on to their expense

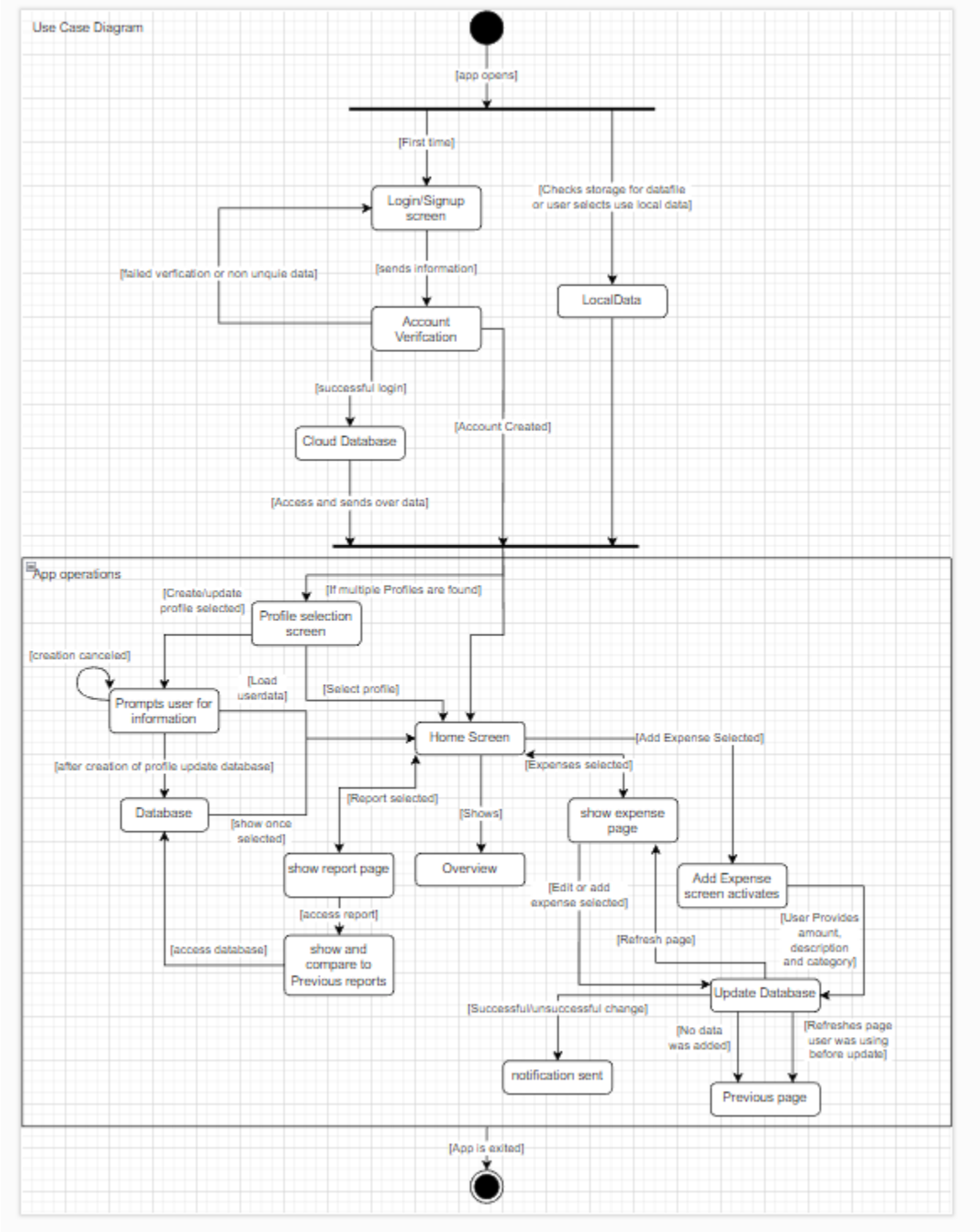
4. Monthly Reports
    a. Users will have all previous months' budget/expense history saved on their profile

    b. Reports section will show graphs/charts on:
        i. What areas they spent their money on
        ii. How much remaining budget they had that month
        iii. A comparison of each month's remaining budget throughout the year.

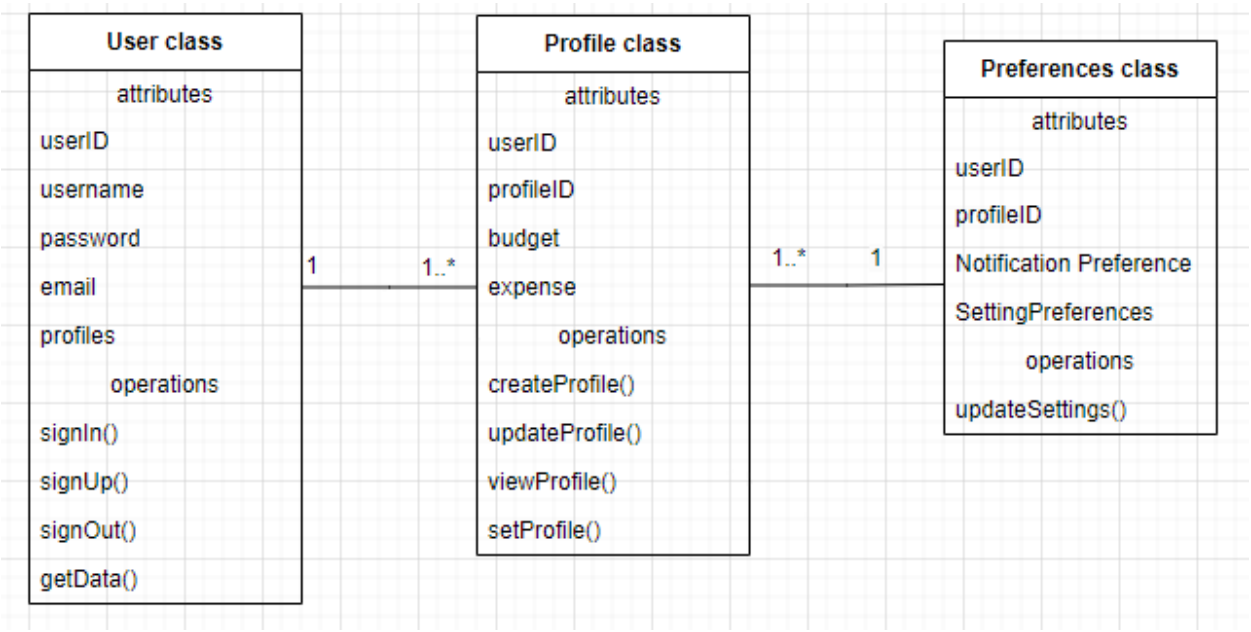
5. Goal tracker
    a. Users will be able to set financial goals such as saving up for a vacation, or a new car.
        i. Users can tag each goal as long-term, short term, or recurring goals, and set a date by which they want to achieve their goal
    b. Users are provided with periodic progress updates on how close they are to achieving their goals, and how much they need to save each week or month to stay on track
    c. Users can adjust their goals to fit with their current financial situation
    d. Goal Sharing: Users can share their goals with other users in the case of shared goals such as family vacations.
    e. Visual progress updates: shows the user progress toward their goal in the form of bar or line graphs recording past savings.

6. Financial Insight Reports
    a. Provides users with comments on notable increases or decreases in their budgets
    b. Budget vs actual expenses section where users are provided with info on where they exceeded their budget and where they saved money
    c. Recurring payments section where users can review their current recurring expenses
    d. Compares users' current financial situation and budgeting success, to past results

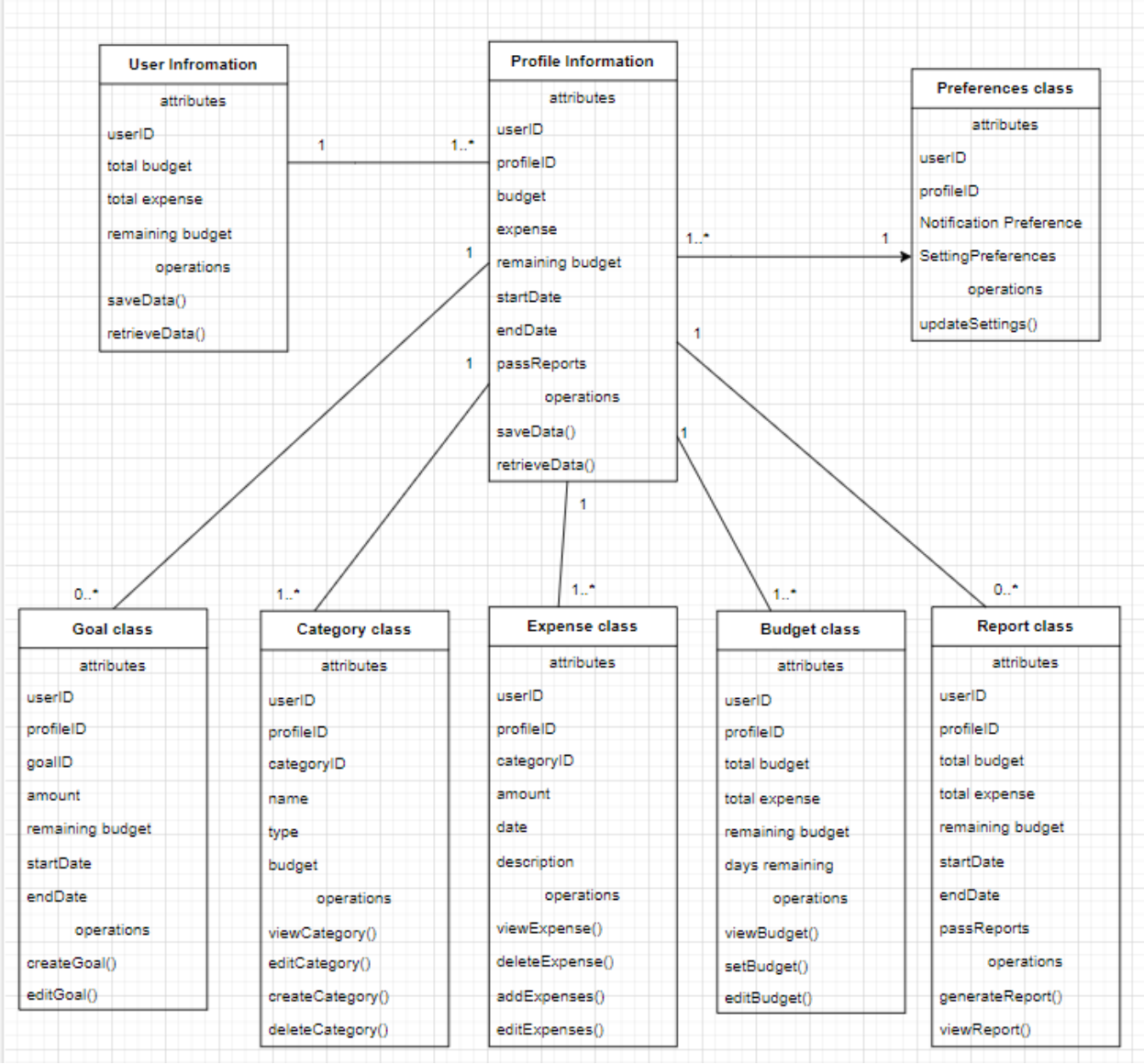
Code Design


Use Case Diagram
[app opens]
[First time]
Login/Signup screen
[Checks storage for datafile or user selects use local data]
[failed verfication or non unqule data]
[sends information]
LocalData
Account Verifcation
[successful login]
[Account Created]
Cloud Database
[Access and sends over data]
App operations
[If multiple Profiles are found]
[Create/update profile selected]
Profile selection screen
[creation canceled]
[Load userdata]
[Select profile]
Prompts user for information
Home Screen
[Add Expense Selected]
[after creation of profile update database]
[Expenses selected]
Database
[Report selected]
[Shows]
[show once selected]
show expense page
show report page
Overview
[Edit or add expense selected]
Add Expense screen activates
[access report]
[User Provides amount, description and category]
[access database]
show and compare to Previous reports
[Refresh page]
Update Database
[Successful/unsuccessful change]
[No data was added]
[Refreshes page user was using before update]
notification sent
Previous page
[App is exited]

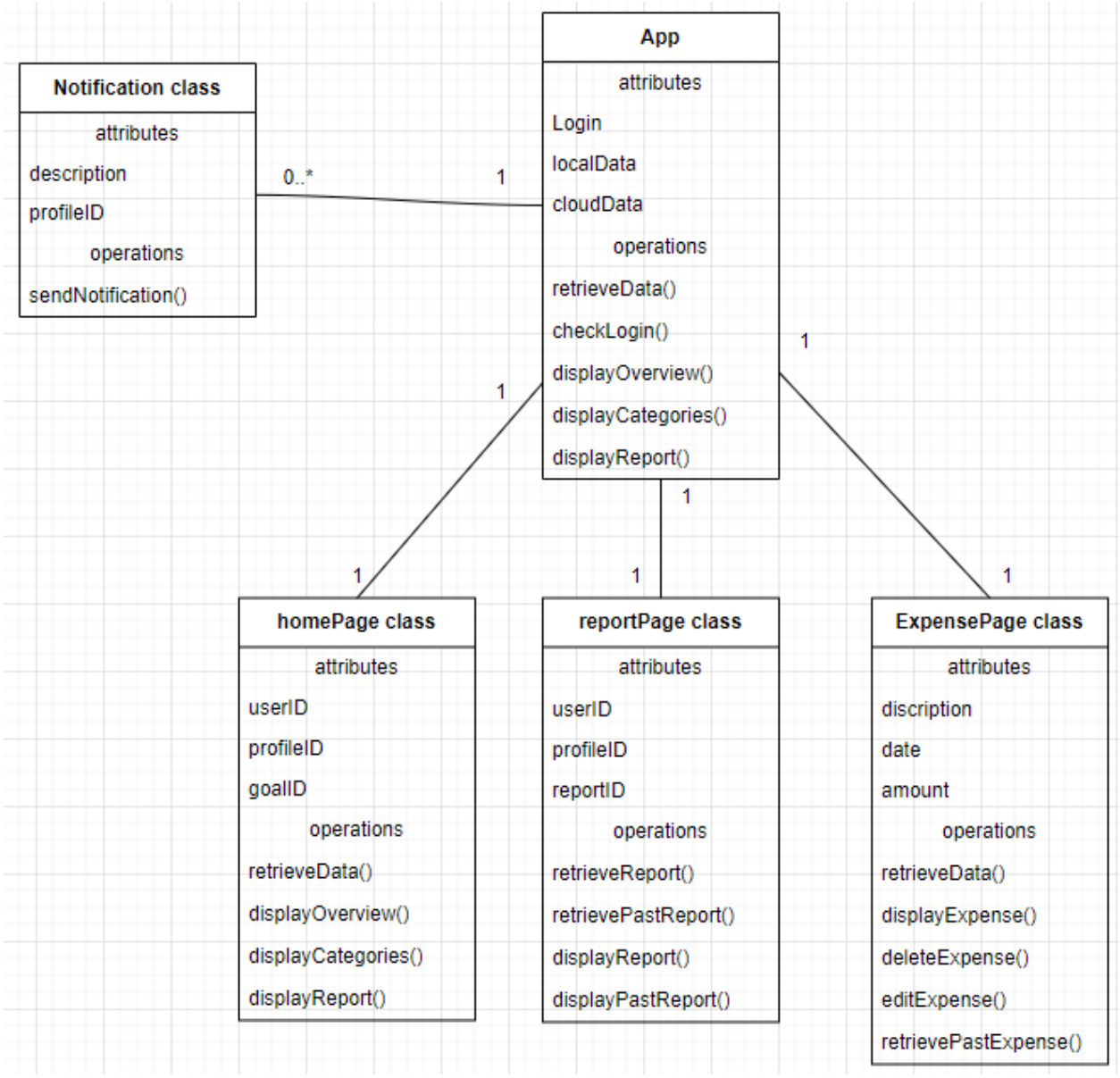
The class design diagram below represents the operation of user login and the exchange of data between the user and its multiple profiles and subsequent preferences.



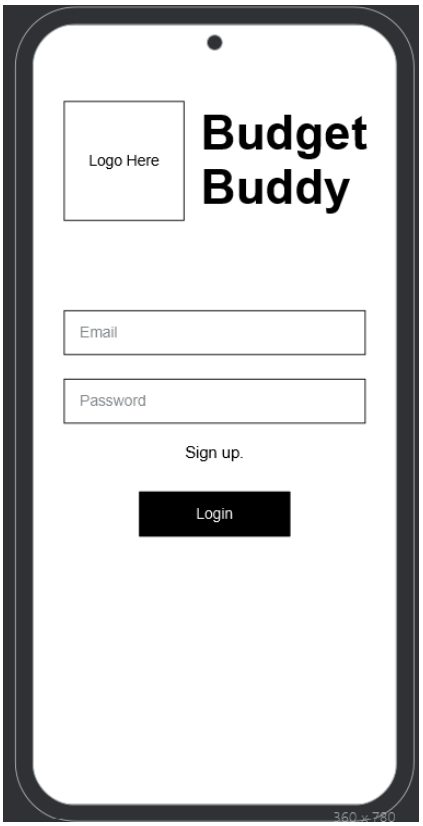
Below is the class design of database operation. This will be for both local and cloud data, it shows that we are going to be storing user information as a generalization of data. Within the generalization the data will be subcategorized into profiles if the user has multiple and then future subcategorized based upon type of data.

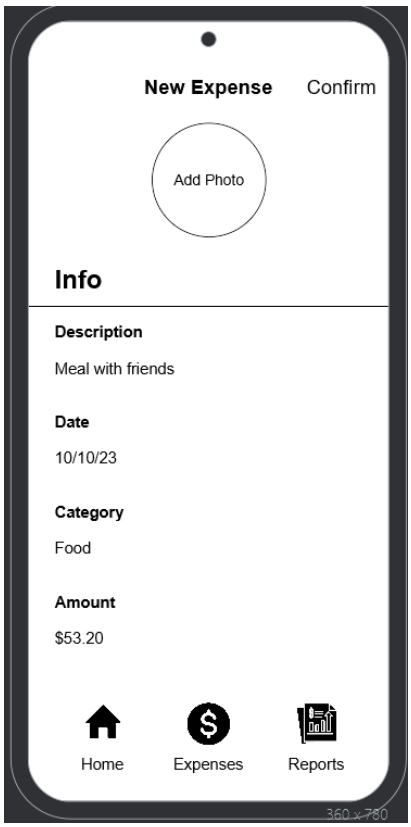


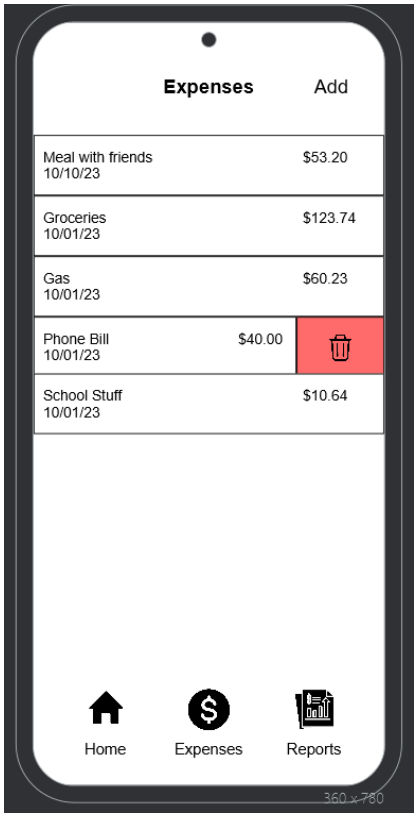
Below is an overview on how the code within the app works, the app will be able to access a home page, report page and expenses page, each of these pages will retrieve data from either the local or cloud database, and show users the relevant information.

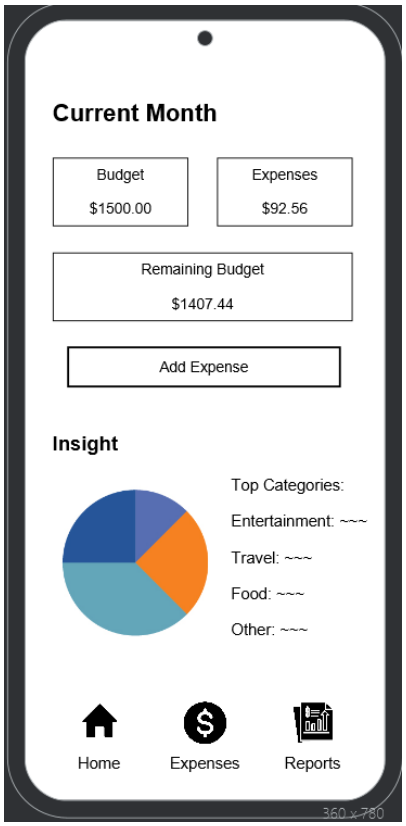


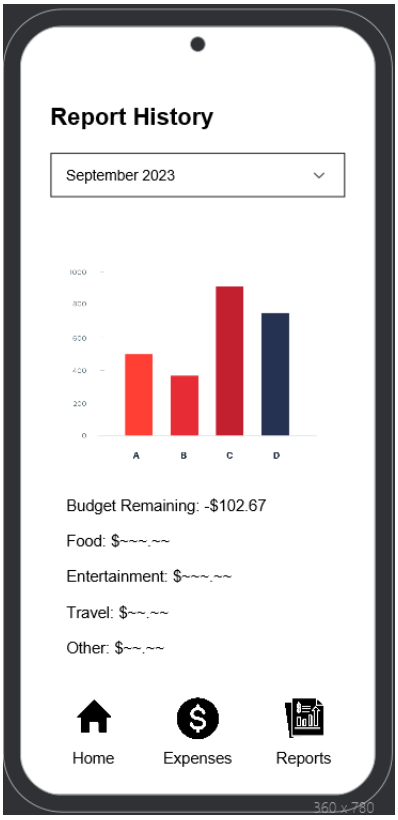
Mock UI


Logo Here
Budget Buddy
Email
Password
Sign up.
Login
360 x 780


New Expense
Confirm
Add Photo
Info
Description
Meal with friends
Date
10/10/23
Category
Food
Amount
$53.20
Home
Expenses
Reports
360 x 780


Expenses
Add
Meal with friends 10/10/23 $53.20
Groceries 10/01/23 $123.74
Gas 10/01/23 $60.23
Phone Bill 10/01/23 $40.00
School Stuff 10/01/23 $10.64
Home
Expenses
Reports
360 x 780


Current Month
Budget
$1500.00
Expenses
$92.56
Remaining Budget
$1407.44
Add Expense
Insight
Top Categories:
Entertainment: ~~~
Travel: ~~~
Food: ~~~
Other: ~~~
Home
Expenses
Reports
360 x 780


Report History
September 2023
A
B
C
D
Budget Remaining: -$102.67
Food: $~~~.~~
Entertainment: $~~~.~~
Travel: $~~.~~
Other: $~~.~~
Home
Expenses
Reports
360 x 780