EXPENSE MANAGER APP

-Mini Project under the Skills Development Lab Coursework

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Motivation And Need

- We being college students receive pocket money for our monthly expenditures. So we have to use this money to suffice our monthly needs.
- Hence **it becomes necessary to track our financial transactions.**
- In this advancement of technology where technology is available at our fingertips, we thought of **implementing this simple idea of keeping records through an app so that all records could be tracked real time with interactive dashboards to help any user analyze his/her spending patterns.**
- It basically aims to save the efforts of a user for maintaining the details of expenses and planning out future financial decisions.

Survey

We are students of an engineering college and most of us are hostelites. So managing money is very important to us.

We spoke to many students and found out they really needed some method to pen their daily expenses. And since our generation is so hooked on technology, we had an idea to make an android application for the same.

There are other Expense Manager apps available but on asking around we found out that they weren't really user friendly, and those which were, were paid.

So we decided to create a product which will be beneficial to students like us, where they can easily manage their monthly expenses with an easy interface, dynamic charts and overall smooth experience.

Requirement Analysis / Gathering

In the context of this application, we will discuss briefly about two types of requirements:

1. User Requirements:

The user expects the app to maintain a list of all transactions whether it is the case where he/she/they receives money or spends it on something. Also, he wants the app to show the comparative analysis of income v/s expenditure. For authentication, the app will demand for an username and password for each user.

Requirement Analysis / Gathering (Contd.)

2. System Requirements:

The developer of this project would first of all, expect a database for user authentication, that is basically a database that stores the username, password and unique user ID for every user of the app. Next, a database will be needed to store user information such as Username and Address of the user. The same database will be used to store the information about every expense. Same database can be used to implement user connectivity. The next thing required is an IDE to develop an Android application that is Android Studio. For testing purposes, we will require two or more android phones.

Problem Statement

Create an easy to use Android application which provides a platform for the users to store and view their money expenditure details.

In Addition to displaying the incomes and expenses the app should also provide comparative analysis of income v/s expense to help the user plan their expenses better.

The user can add, update and delete entries of the transaction as per his will. The graphs of comparative analysis will help him gain clarity about his balance.

Design Analysis of the System

The design of the app can be divided into 4 different parts:

1. **Homepage:** Here the user can view all his/her/their data in a simpler scrollable view along with the dashboard. The user can add income or expense from here.

2. **Income page:** Here the user can see the list of his incomes in reverse order i.e. most recent transaction first. The user has the option to update or delete his/her previous transaction data.

3. **Expense page:** Here the user can see the list of his expenses in reverse order i.e. most recent transaction first. The user has the option to update or delete his/her previous transaction data.

4. **Statistics:** Includes graphs which will provide the user with a graphical view of his total expenditures

Architecture Diagram
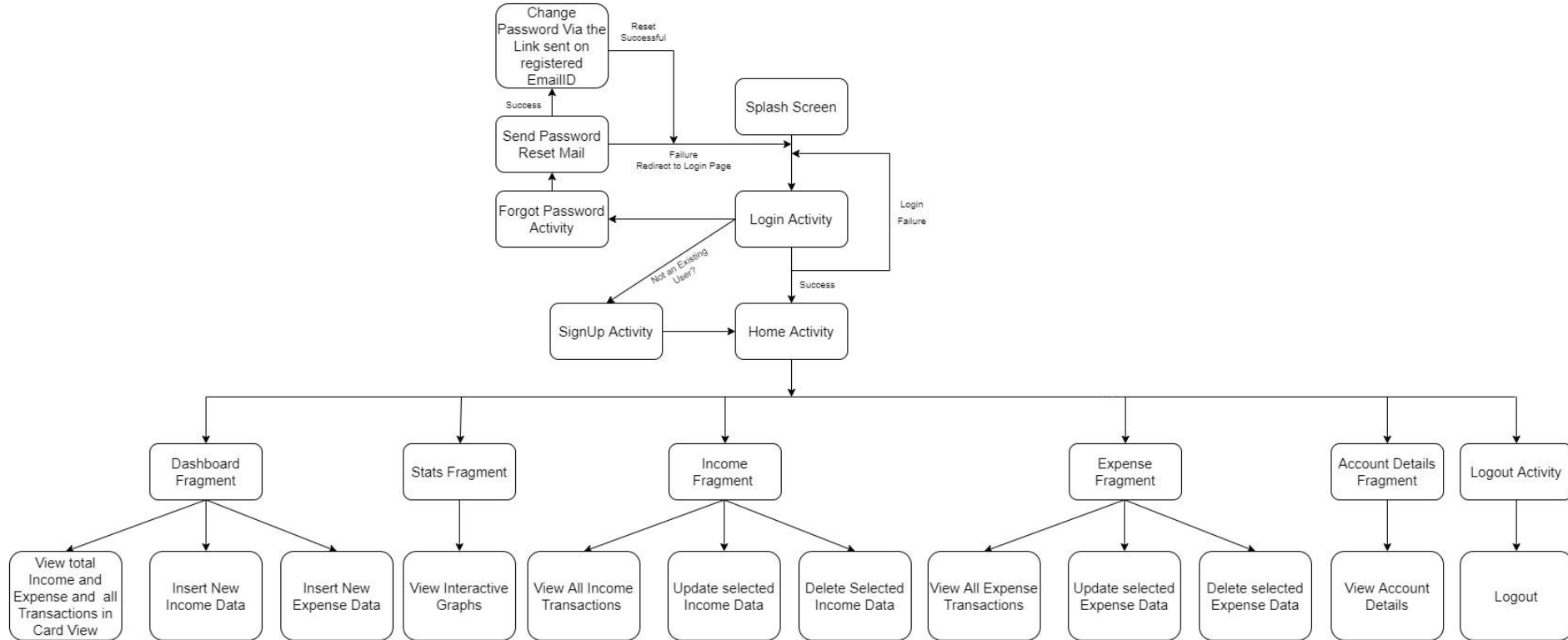
Hardware Requirements

Hardware requirements - for users:

a) To access this application a user needs a phone with an active internet connection.

Hardware requirements - for developers:

To test this application on a laptop/desktop a developer needs:

    a) Windows 10 / Ubuntu 20.04 LTS Operating System

    b) 4 GB RAM

    c) 512 GB HDD

    d) Keyboard

    e) Mouse etc.

    f) Hard Disk Space: 2 GB minimum (500 MB for IDE and 1.5 GB for Android SDK); 4 GB recommended.

Software Requirements

Software requirements - for users:

a) Smartphone with android OS(Android 9 and above) (API 28)
b) The app itself

Software requirements - for developers:

a) Firebase realtime database
b) Java Development Kit 1.8
c) Android Studio 4.+

Algorithms/API Used

1. APIs Used
   a. Firestore API
   b. Firebase API
2. Charting Library Used
   a. MP Android Chart
3. Android Components Used
   a. Card View
   b. Drawer Layout
   c. Recycler View
   d. Layout Manager
   e. Fragments
   f. Views
   g. Different Kinds of Layouts viz Linear, Relative

Use Case
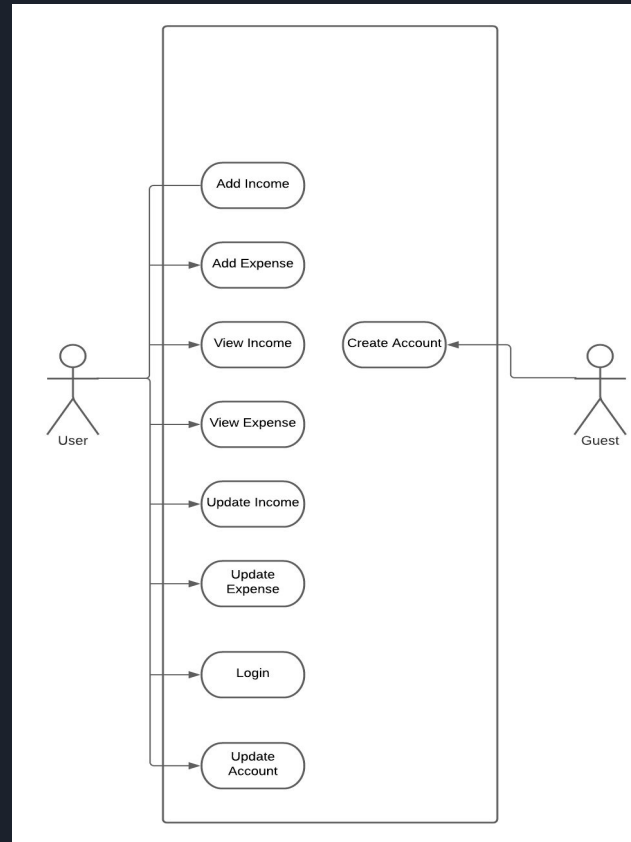
Test Cases

Test Case No.	Test Case	Test Data	Expected Result	Actual Result	Result
TC01	Registering a new user	Unregistered Email ID and password	A new account is created and the user is redirected to the dashboard	A new account is created and the user is redirected to the dashboard	PASS
TC02	Login a registered User	Registered Email ID and password	User is logged in and redirected to the dashboard	User is logged in and redirected to the dashboard	PASS
TC03	Insert new Income Data	The amount, type and note of the transaction	The data should be added to the database and changes should be reflected in the dashboard, stats and income data	The data should be added to the database and changes are reflected in the dashboard, stats and income data	PASS

Screenshots

Splash Screen

It is the graphical control introduction activity element for the app.
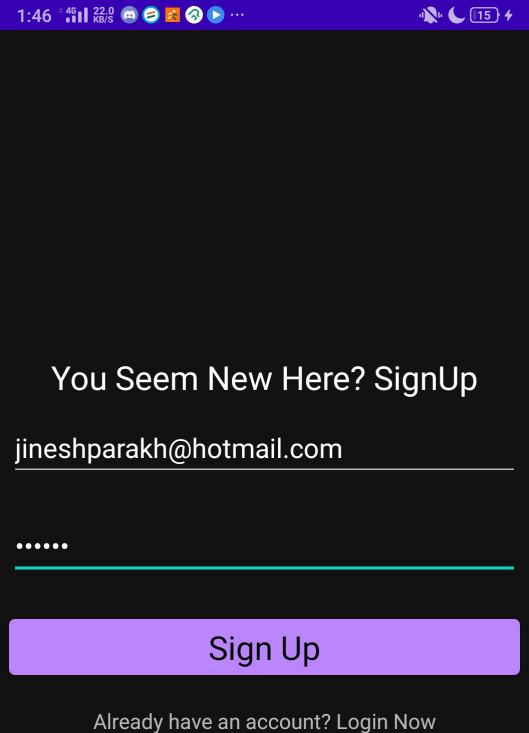
Screenshots

SIGN UP Functionality

An Unregistered User can Sign Up to the App

You Seem New Here? SignUp

jineshparakh@hotmail.com
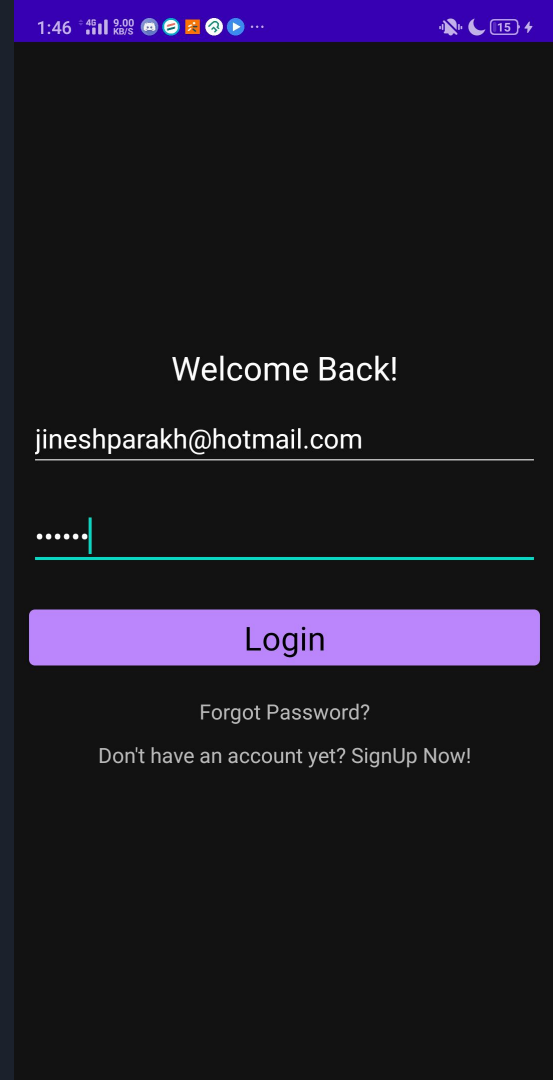
••••••

Sign Up

Already have an account? Login Now

Screenshots

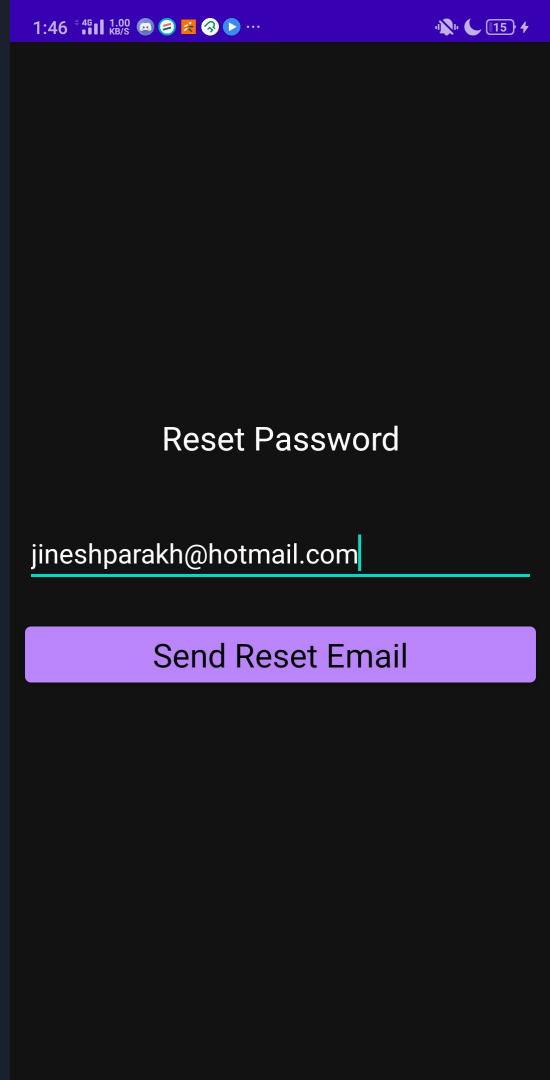## Login Functionality

A registered User Can Login to the App

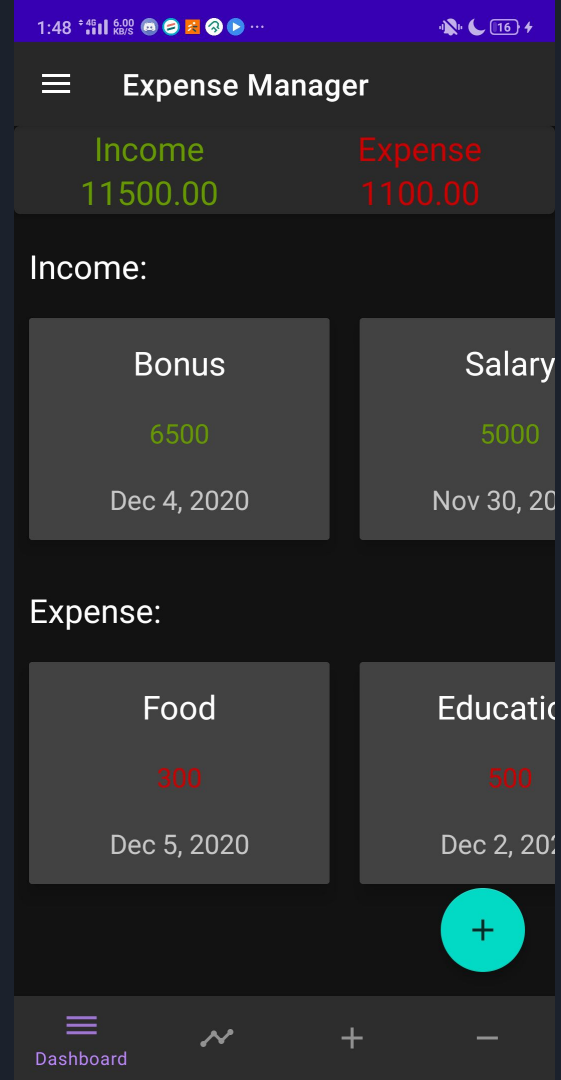# Screenshots

Reset Password Functionality

Any registered user who has forgotten his/her password can reset it.

Reset Password

jineshparakh@hotmail.com

Send Reset Email

Screenshots

Dashboard

User can view the total Income and Expense and Individual Income And Expense Transactions in a Card View
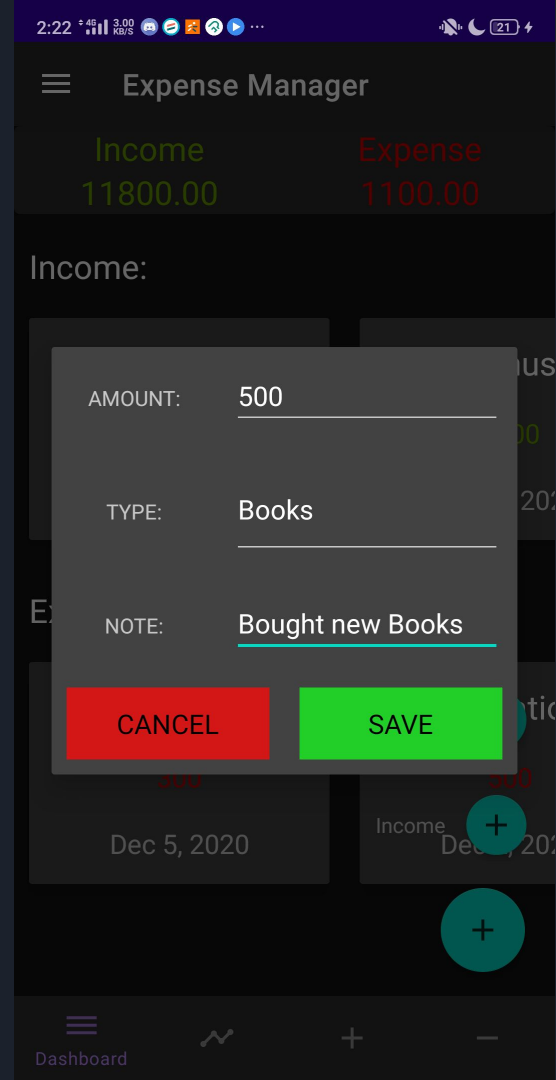
Screenshots

Insert New Income Data

User can insert data for any new Income transaction.
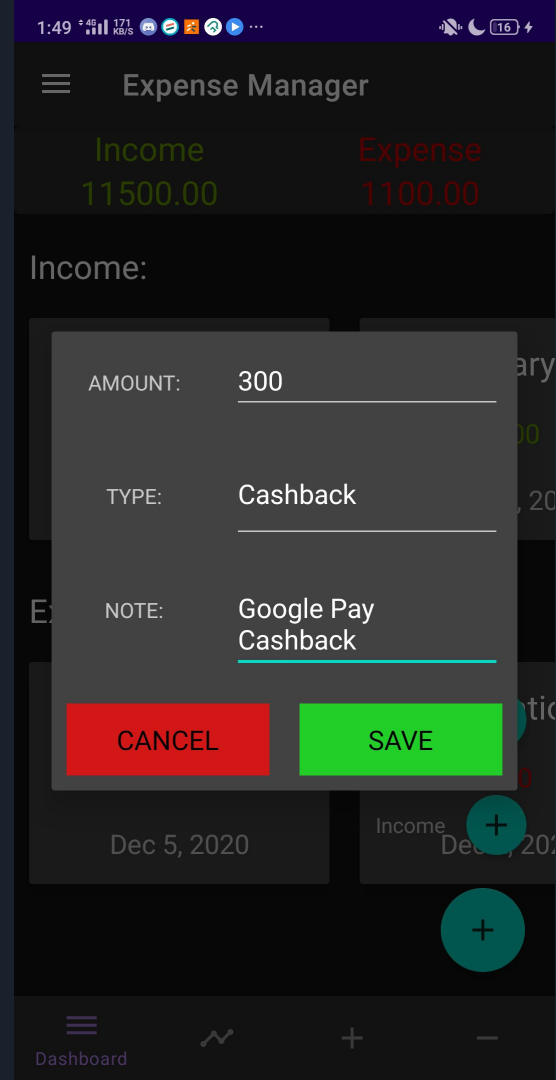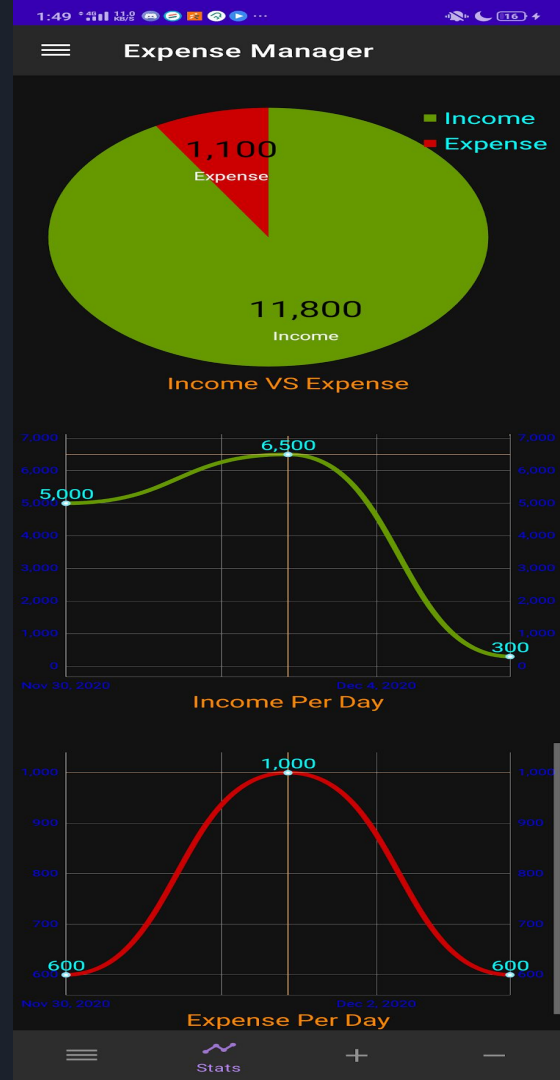
Screenshots

Insert New Expense Data

User can insert data for any new Expense transaction.
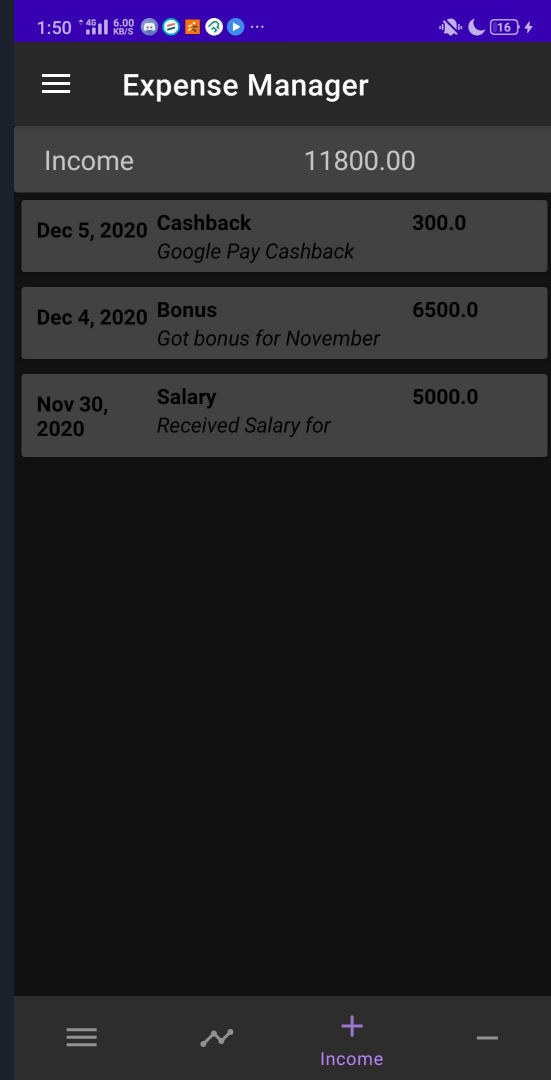
Screenshots

View Interactive Charts

User can view Income Vs Expense Pie Chart, Variation of Income Per Day and Variation of Expense Per Day
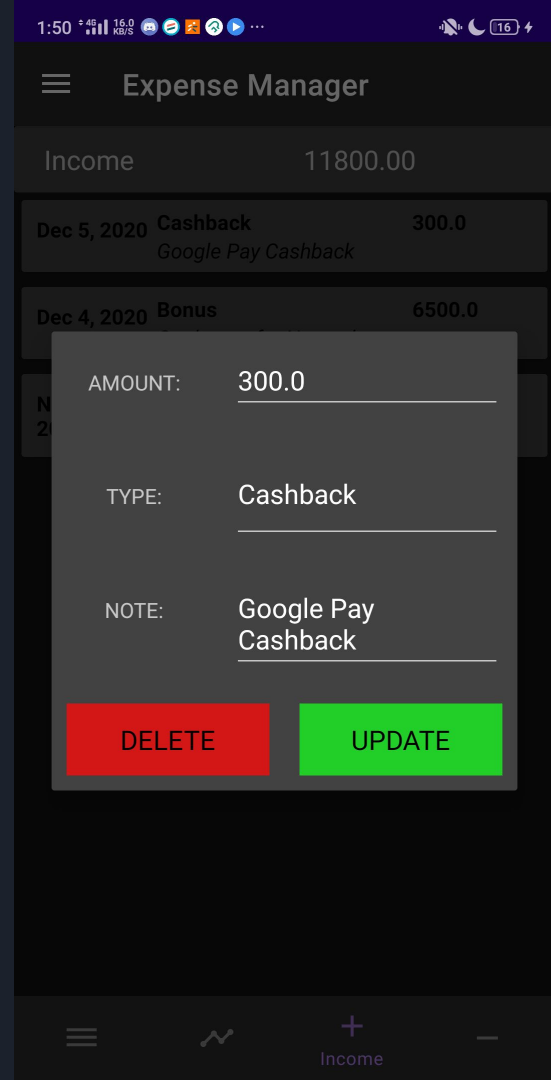
Screenshots

View All Income Data

User can view all Income Data in A ScrollView Format. From here the user can Update and Delete a particular income transaction

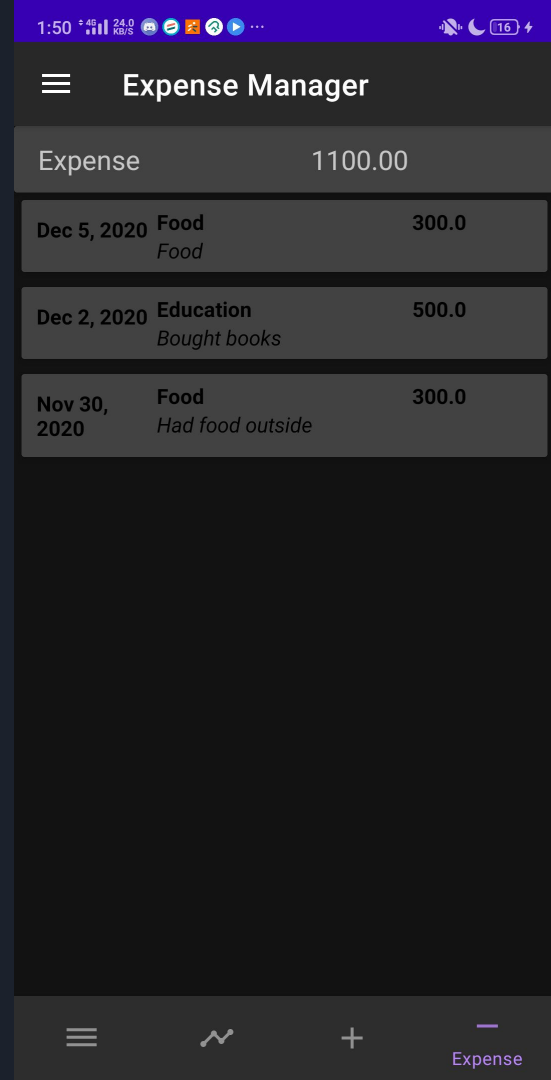# Screenshots

Update And Delete Income Data

User can update and Delete any Income Data

Screenshots

View All Expense Data

User can view all Expense Data in A ScrollView Format. From here the user can Update and Delete a particular expense transaction
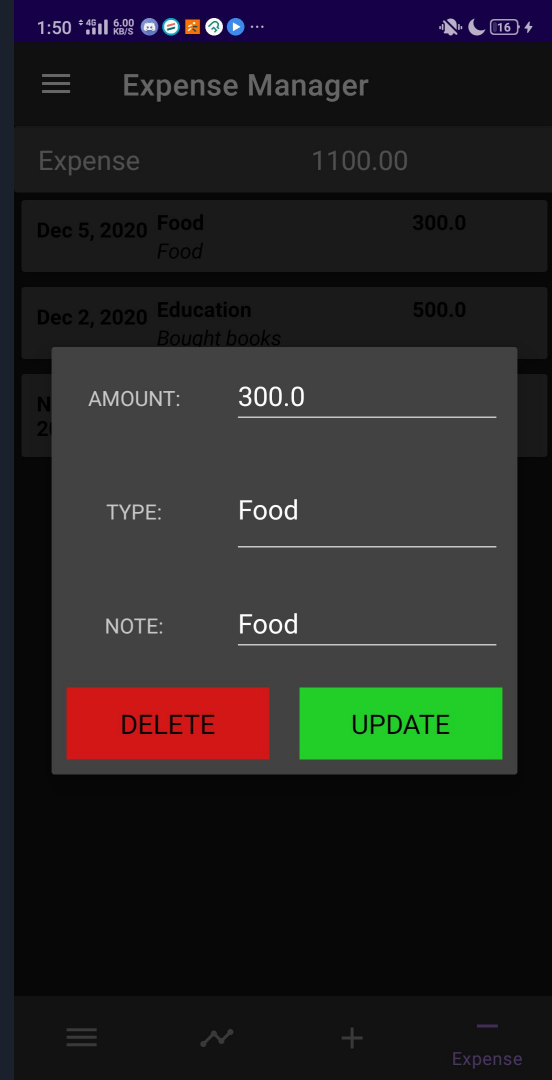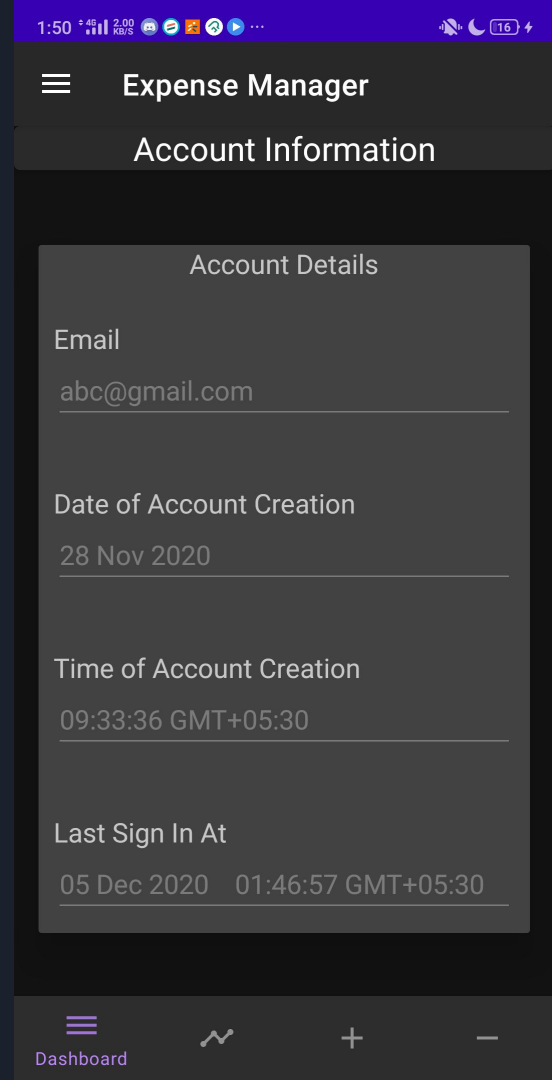
Screenshots

Update And Delete Expense Data

User can update and Delete any Expense Data
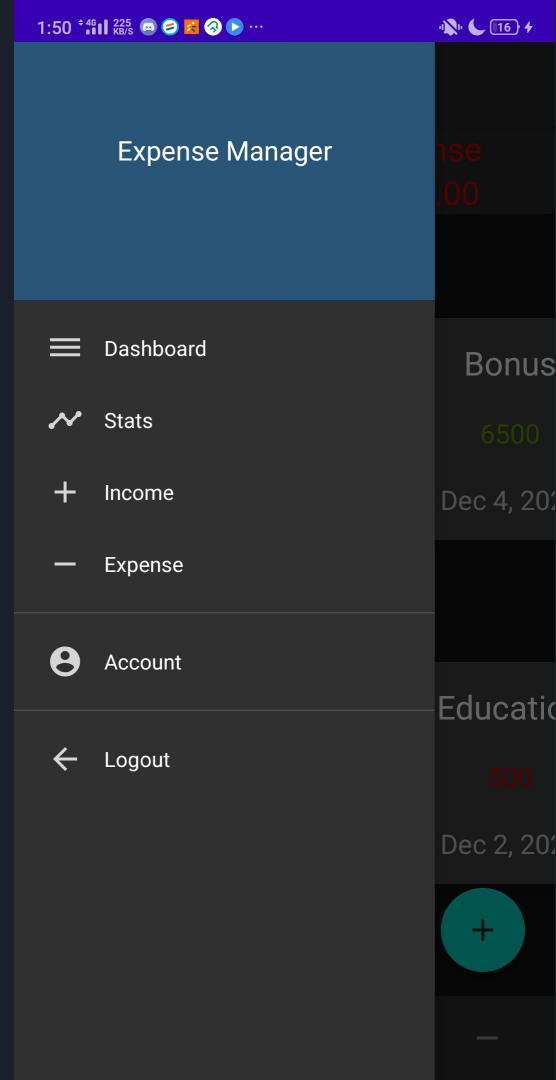
Screenshots

Account Information

User can view his account details viz. Email, Date And Time of Creation of the Account and Last Sign In details.

Screenshots

Hamburger Menu

Clicking on the Hamburger Menu Icon on the top left will trigger this menu. User can easily access all the functionalities and can also logout whenever needed.

Conclusion

To conclude, we developed an Android Application that has tried to implement all the requirements specified in user requirements. We used various functionalities provided by Android Studio and Google Firebase for development of this application. The app will prove to be helpful in maintaining records of expenses.

Future Scope

- Allow the user to upload various bills of their expenditures and income so that the user can obtain all information from one place itself, the app.
- Alerting the user when they spend more than a predefined amount which will be set at the beginning of the month.
- Send an automatically generated monthly script via email with all expenses and incomes.

This project being a basic prototype for a small model in Expense Management systems also leaves a lot of scope for future work. Hence, the technologies selected for its development would be apt to support the further additions to be made without any scalability or availability issues cropping up.

References

[1] https://developer.android.com/reference/androidx/cardview/widget/CardView

[2] https://developer.android.com/reference/kotlin/androidx/recyclerview/widget/RecyclerView

[3] https://developer.android.com/guide/topics/ui/layout/linear

[4] https://firebase.google.com/docs/android/setup

[5] https://github.com/PhilJay/MPAndroidChart

[6] https://stackoverflow.com/questions/34163550/add-horizontal-views-line-between-menu-items-xml

[7] https://developer.android.com/guide/topics/ui/layout/relative

[8] https://developer.android.com/reference/android/widget/ScrollView

[9] https://weeklycoding.com/mpandroidchart-documentation/xaxis/

[10] https://developer.android.com/reference/android/widget/ScrollView