



Dharmsinh Desai University, Nadiad  
Faculty of Technology  
Department of Computer Engineering  
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**Subject: System Design Practice**

PROJECT TITLE:  
**EXPENSE TRACKER – APP WITH VISUALIZATION & CHARTS**

**By:**

● **Kaushal Chovatiya**

Roll no: CE028  
Id: 19CEUES015

● **Mihir Modi**

Roll no: CE085  
Id: 19CEUES123

**Guided by:**

Prof. Pandav K. Patel  
Assistant Professor  
Dept. of Comp. Engg.

# **CERTIFICATE**

This is to certify that the practical / term work carried out in the subject of

**System Design Practice** and recorded in this journal is the

bonafide work of

**KAUSHAL CHO VATIYA (CE-28) (19CEUES015)**

**MIHIR MODI (CE-85) (19CEUES123)**

of B.Tech semester **VI** in the branch of **Computer Engineering**

during the academic year **2021-2022**.

Prof. Pandav K. Patel  
Assistant Professor,  
Dept. of Computer Engg.,  
Faculty of Technology  
Dharmsinh Desai University, Nadiad

Dr. C. K. Bhensdadia,  
Head,  
Dept. of Computer Engg.,  
Faculty of Technology  
Dharmsinh Desai University, Nadiad

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## Abstract:

In today's busy and expensive life we are in a great rush to make money. But at the end of the month we broke off. As we are unknowingly spending money on little and unwanted things. So, we have come over with the idea to track our earnings. Expense Tracker aims to help everyone who are planning to know their expenses and save from it. Expense Tracker is an application which users can execute in their mobile phones and update their daily expenses so that they are well known to their expenses. Here user can define their own categories for expense type like food, clothing, rent and bills where they have to enter the money that has been spent. User can also define expense categories. User will be able to see pie chart of expense. Although this application is mainly focused on Family members and also focused on new job holders, interns and teenagers, everyone who wants to track their expense can use this app.

Every day Expense Tracker System is intended to monitor Income-Expense of a Housewife on an everyday premise. This System separates the Income-based daily expenses.

EXPENSE TRACKER is an android application mainly focused for family members. This monitors your own costs, family cost and also the date, time and name of the family member.

## Introduction :

The "Expense Tracker" has been developed to override the problems prevailing in the practicing manual system. This application is supported to eliminate and in some cases reduce the hardships faced by the existing system. Moreover this application is designed for the particular need in Family members to carry out operations in a smooth and effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. Expense Tracker, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather than concentrate on the record keeping. Thus it will help the family members in better utilization of resources.

In this application, Head of the family member adds the family members with his/her name. After every family member can add their income amount in the application. And in daily life every family member can add their own expenses in different category. And user can also add its custom category. User also can save the date and time of their expenses and can see by any family member. Also user can see the pie chart of Income vs expense and some other also.

In this project we use Android Studio with JAVA language, Firebase as the database and Mpchart library for the pie charts and graphs.

# Software Requirement Specifications:

## Expense Tracker

### Functional Requirement :

**Req 1 : Create account**

This application allow the user to create account 1<sup>st</sup> time.

**Req 2 : Add transaction**

This application will allow adding transaction.

**Req 3 : Delete transaction**

This application will allow to deleting transaction.

**Req 4 : Amount Spent in Categories**

This application will allow adding the amount spent in a particular category.

**Req 5 : View all transactions**

This application will allow viewing all previous transactions.

**Req 6 : Total amount**

This application will allow seeing the total amount, the amount spent in different category and balance left.

**Req 7 : Overview**

This application will allow viewing overall transactions.

**Req 8 : Graph representation**

This application will show the graph which will help the users to visualize the budget.

**Req 9 : Pie representation**

This application will show the pie.

**Req 10 : Bar representation**

This application will show the bar.

**Req 11 : Add multiple users**

This application allow to add multiple family members.

**Req 12 : Add custom category**

This application allow to add new custom category.

**Req 13 : Edit custom category and Family Members**

This application allow user to edit their custom category and user also can edit the family members.

# Design :

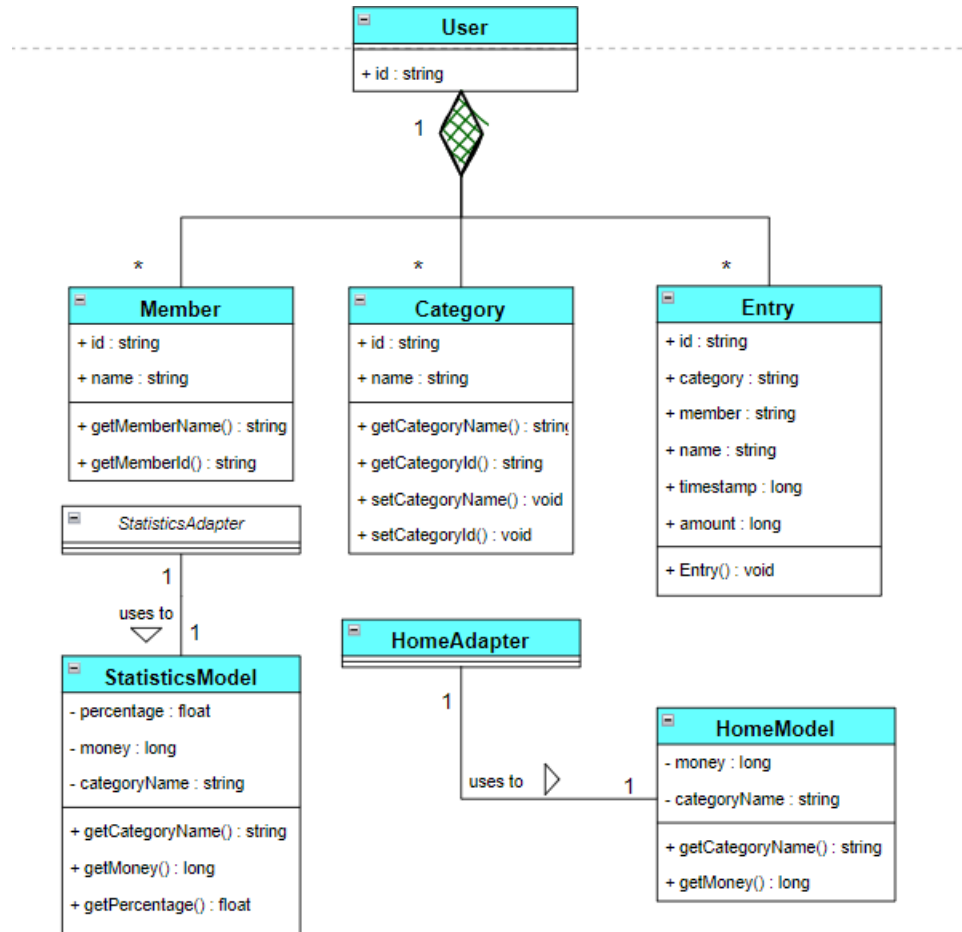
## (1) Use case diagram :

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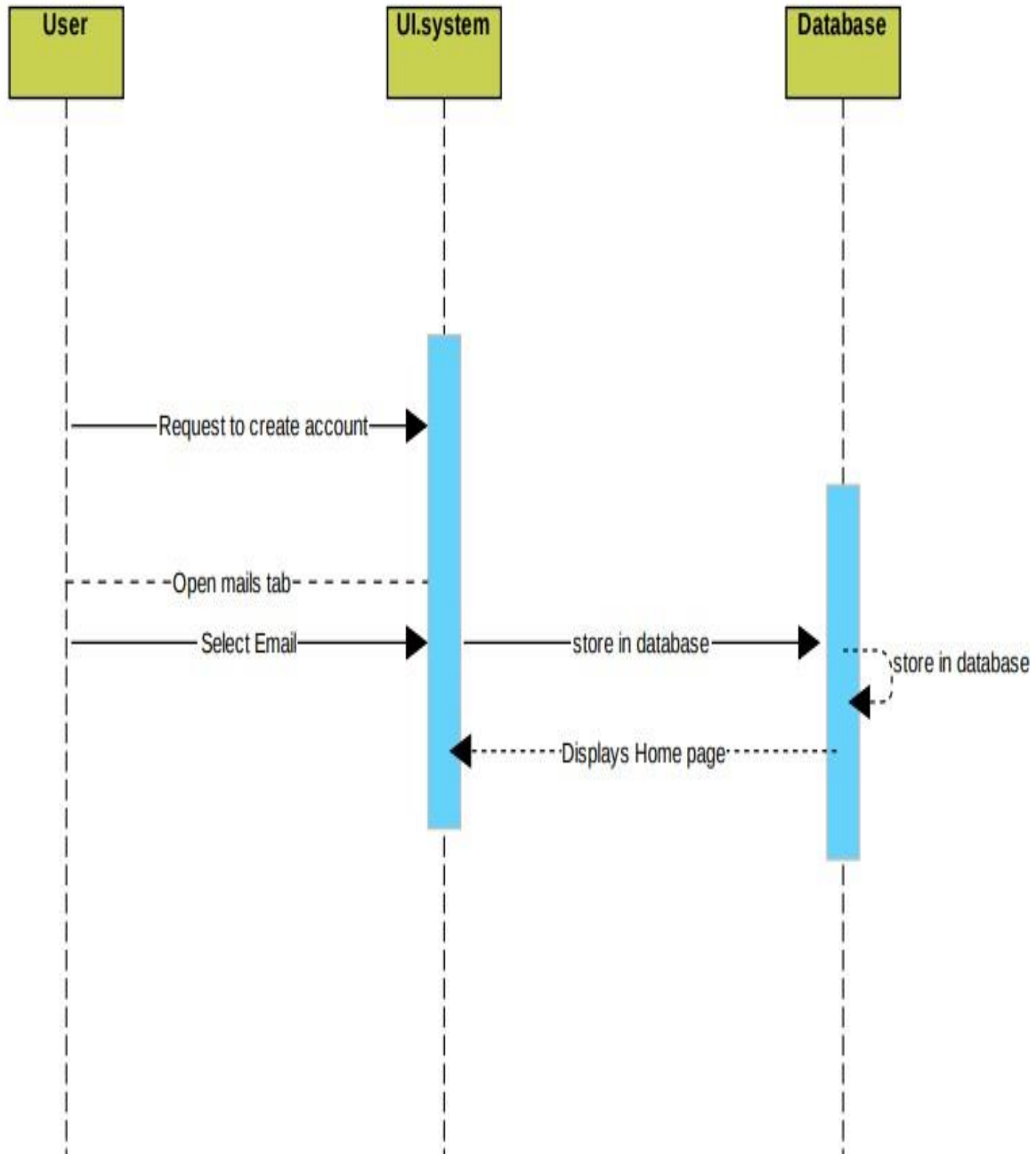


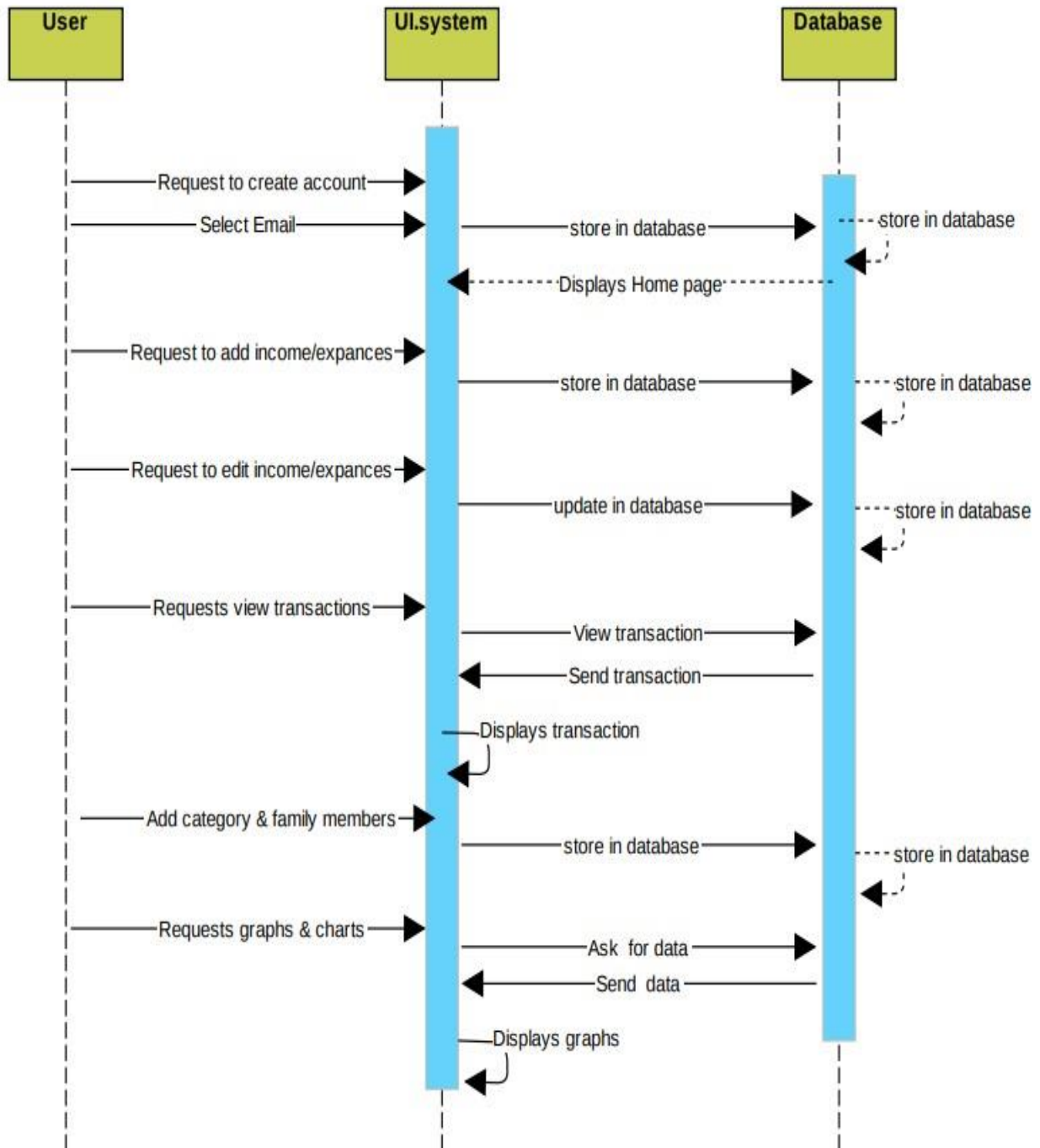
## (2) Class diagram :



### (3) Sequence diagrams :

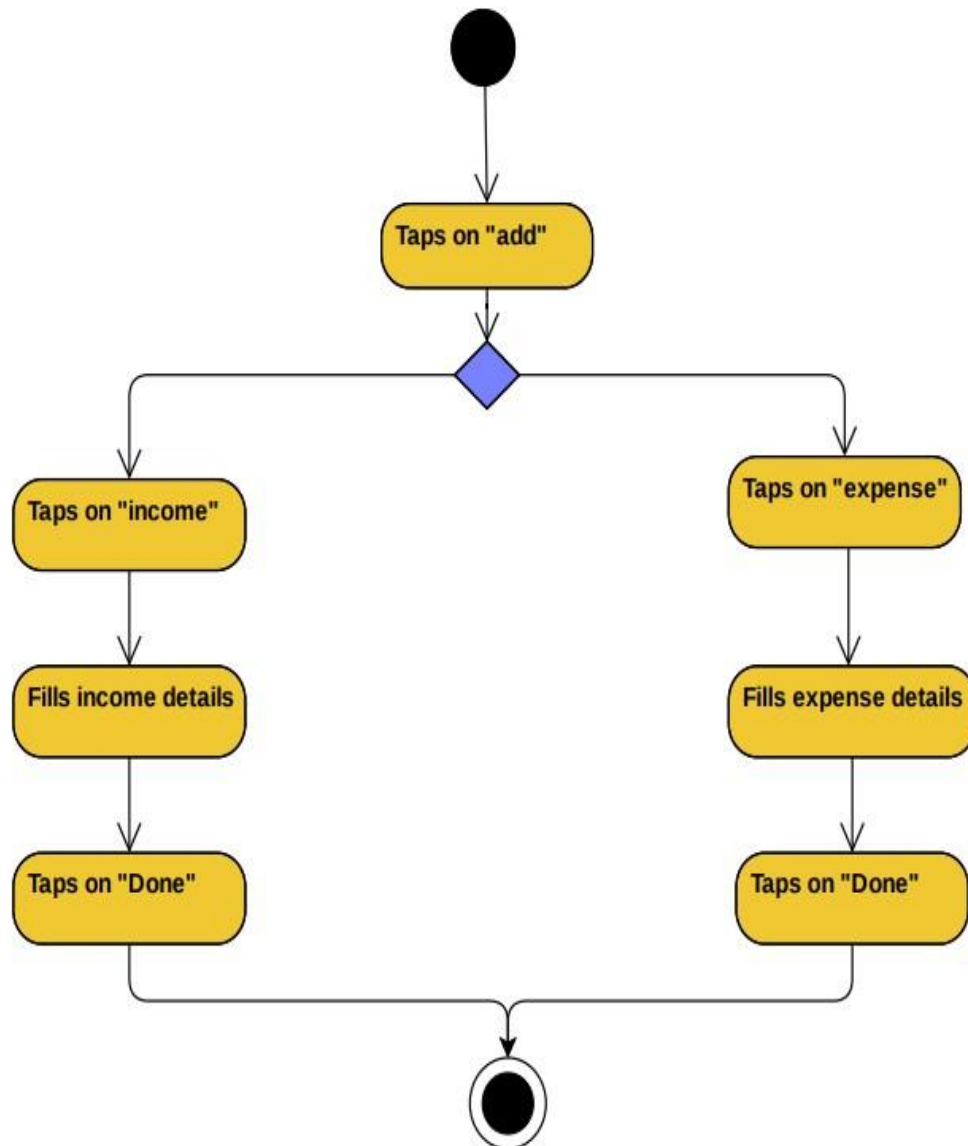
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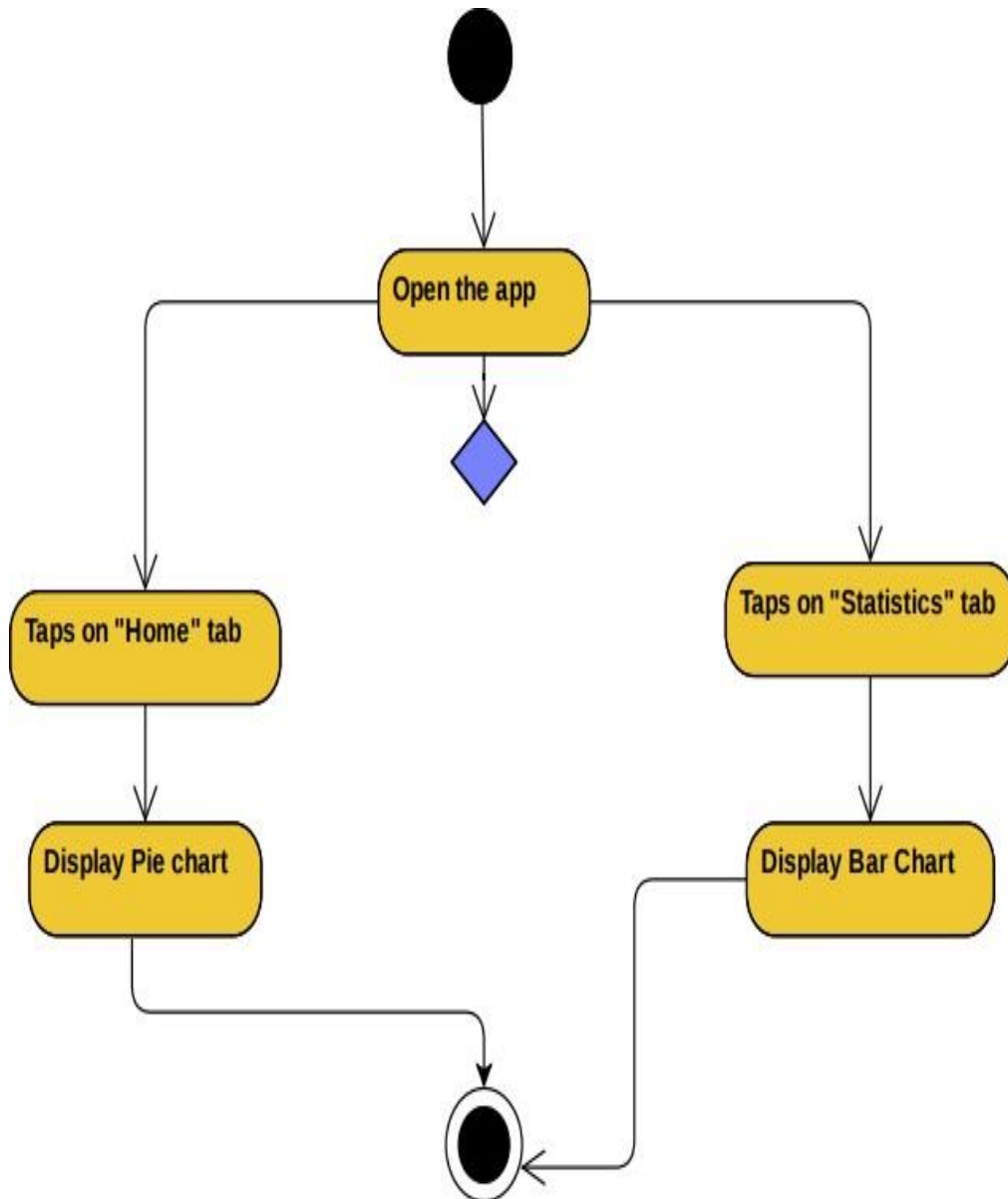


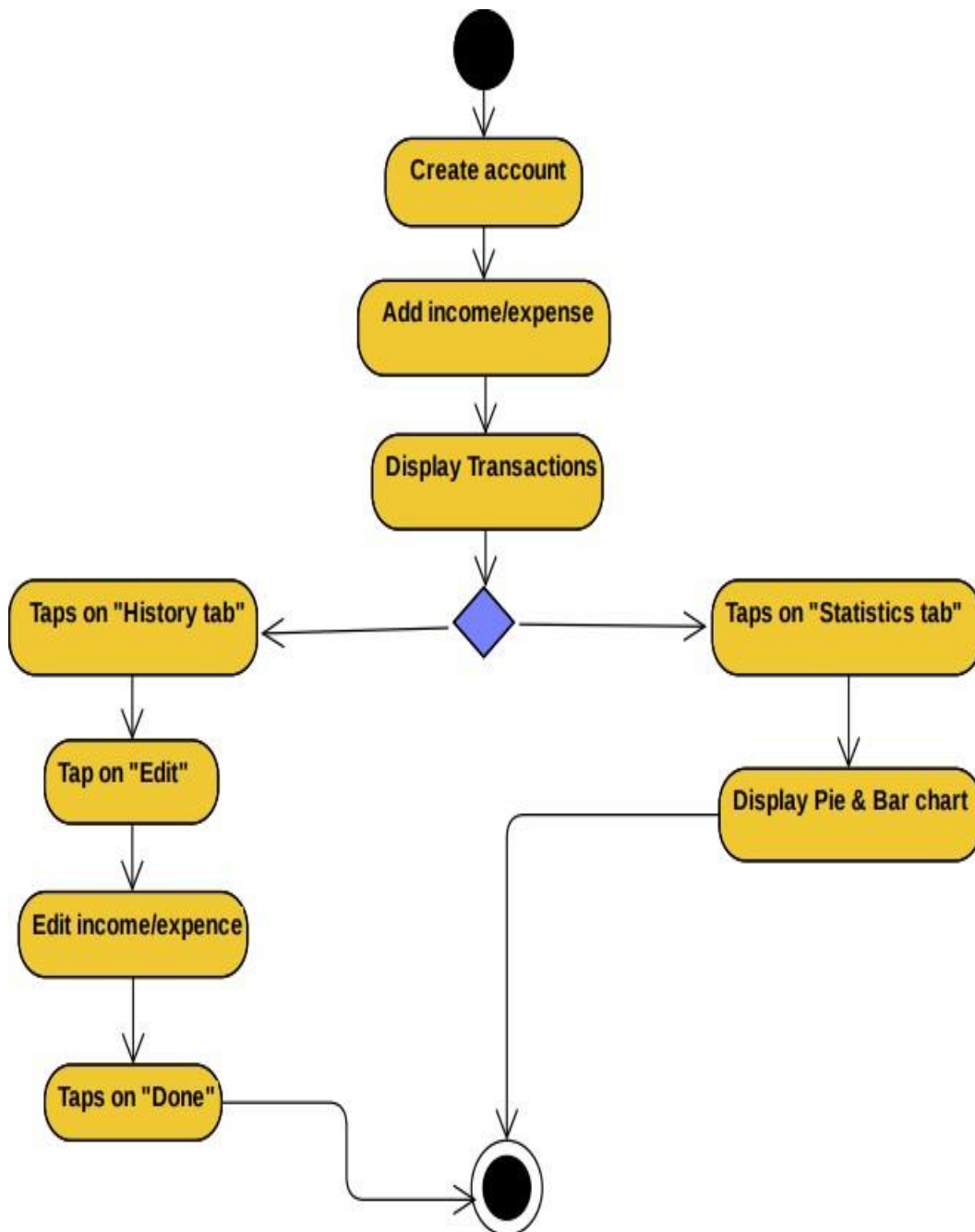


## (4) Activity diagrams :

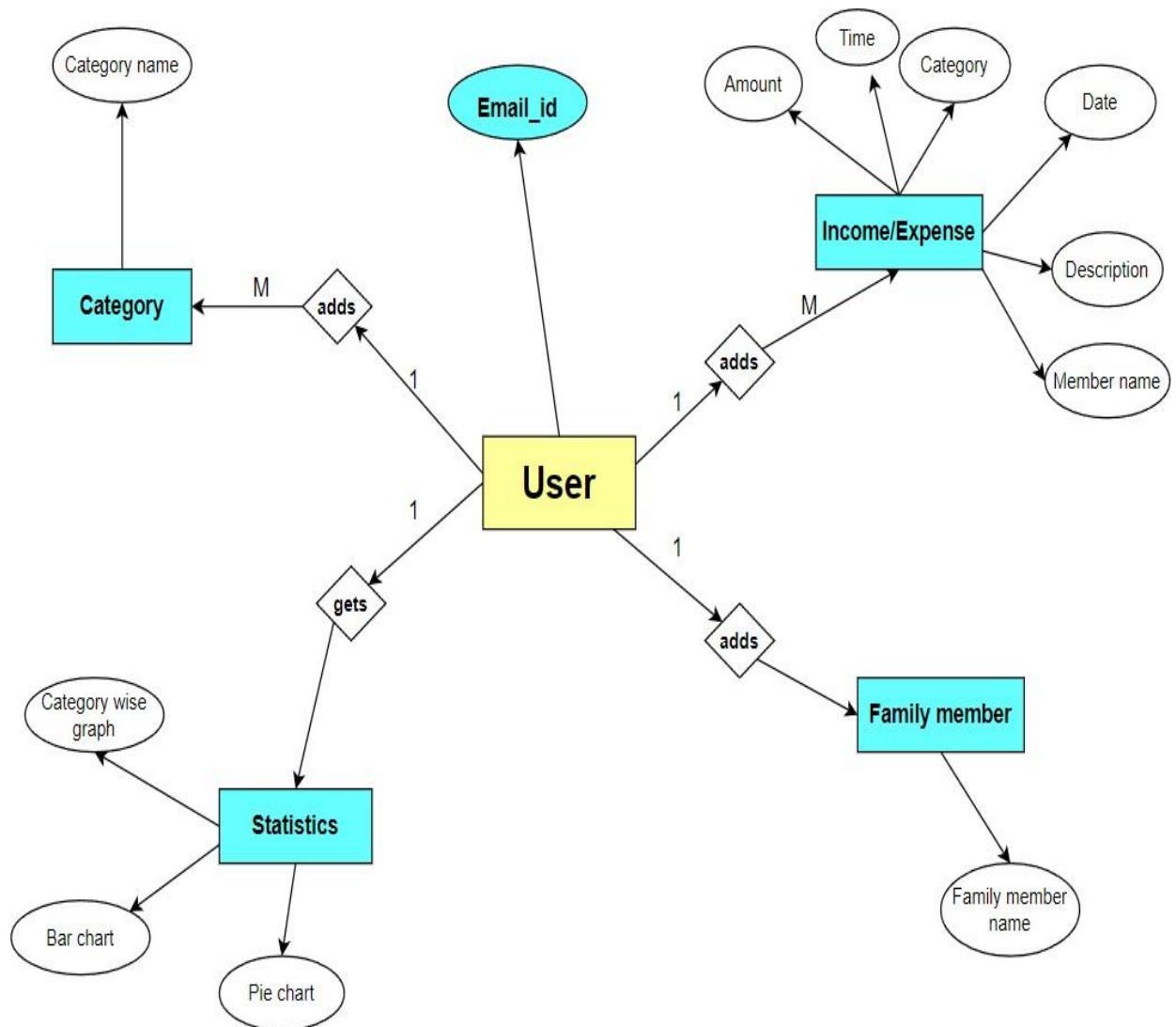
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## (5) ER diagram :



# Implementation Details :

## 1. Modules :

**Register** : User can register himself by Signing Up by google account. User's data will be stored in database

**Home** : User will redirect to Home page where user can add expenses and income.

### **Add income/add expense :**

This module deals with adding income and expenses. The user has both options available for adding income and expense. But there is a condition if the user hasn't entered the amount yet then the user can't enter expenses and one more condition if the user hasn't entered the family member name yet then the user can't enter expenses and income. When the user enters any transaction then that transaction will be added in both History and Statistics tabs.

### **Edit income/Edit expense :**

If the user wants to edit that transaction then user has to click the edit button available in History tab then transaction details will be edited in both tabs.

### **Delete income/Delete expense :**

If the user wants to delete that transaction then the user has to click the edit button available in the History tab and after click on delete button after that transaction will be deleted from both tabs.

### **Add category/Remove category :**

User can use the default category, and if the user wants to create new category then user has to click on add category after that user can create custom category. And that same category can also be remove by user.



### **Adding family members/Removing family members :**

User can add their Family members name. So when the user enters the expenses of family members at that time user can select family member name directly. And user can also remove the family member name.

### **Transactions overview as Pie Chart/Bar Chart :**

The user has two options available for graphical representation. When the user is in Home tab then the pie chart will appear on the screen and also when user is in Statistics tab then the Bar chart will appear on the screen.

### **Charts for Category wise overview :**

User can see the every month expenses in the particular category. For that user has to go in statistics tab and then select the category after that chart was shown.

**Log out :** For user to log out from the account.

## **2. Major functionalities :**

### **a) Adding income & expenses:**

A user will able to add income and the expenses with date & time .

### **b) Adding Family members :**

A user will able to add their family members in the application So at the time of adding expenses user will select the family member name .

### **c) Display Pie chart & Bar chart :**

A user can see their expenses and incomes in the form of Pie chart in home tab and in form of the Bar chart in statistics tab.

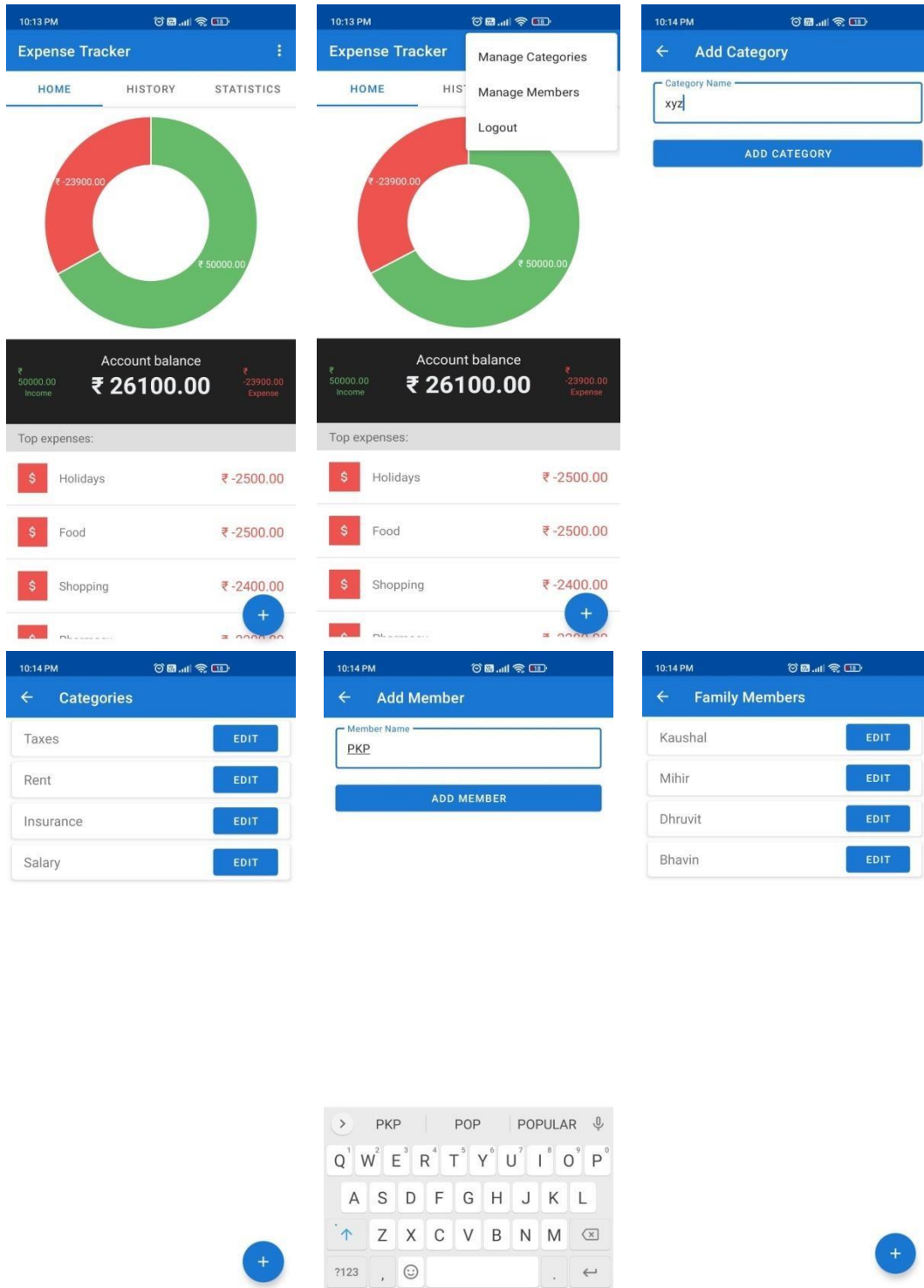
## Testing :

Sr.no	Test Scenario	Expected Result	Actual Result	Status
1	Trying to install application on many devices	It should be install on every device	Successfully installed on every device	Success
2	Trying to use it in tablet	It should proper work on tablet	Application proper works on tablet	Success
3	Give some wrong input details in adding incomes/expences	It should be give error	Error was shown on display	Success
4	Trying to register with 2 gmail_id	It should not register with 2 <sup>nd</sup> gmail_id	User can't able to register with 2 <sup>nd</sup> gmail_id	Success
5	Trying to create custom category	Custom category should be created successfully	Successfully create custom category	Success
6	Trying to add all family members	Family members should be added successfully	Family members successfully added	Success
7	Trying to add entries for income and expense	Entries should be added successfully (It should be visible in history)	Entries added successfully. (Also visible in history)	Success
8	Trying to see category wise Pie Chart.	Pie Chart should be visible properly.	Pie Chart is visible properly	Success
9	Trying to see Bar Chart for selected category	Bar Chart of monthly expenses for selected category should be visible.	Bar chart is properly visible.	Success

## Conclusion :

Thus, we have developed such type of android application which help the users to reduces their effort of handling daily expenses. That the application will have various components of updating and viewing users' expenditures. As part of research, we considered adding certain components to the application to make it more useful to the user. Some of the extra Components are like enabling users to register to the application using existing email, it will synchronize the users profile data to the application. We can add more functionalities with newer updates

## Screen-shots :



10:15 PM

Add Wallet Entry

Choose type:

☒ Expense
☐ Income

Select Category

Others

Select Member

Admin

Name

Amount

₹ 0.00

Select Date

10-03-2022

Select Time

10:15 pm

ADD

10:15 PM

Expense Tracker

HOME
HISTORY
STATISTICS

\$	Salary React Kaushal 01-01-2022 01:08 pm	₹ 50000.00	EDIT
\$	Food Pizza Dhruvit 04-01-2022 01:11 pm	₹ -2000.00	EDIT
\$	Holidays Spain Kaushal 26-01-2022 01:09 pm	₹ -2400.00	EDIT
\$	Food Panipuri Kaushal 14-02-2022 01:11 pm	₹ -2000.00	EDIT
\$	Pharmacy Eye gel Kaushal 17-02-2022 01:14 pm	₹ -2200.00	EDIT
\$	Holidays India Kaushal 28-02-2022 01:09 pm	₹ -4000.00	EDIT
\$	Holidays Dubai Kaushal 05-03-2022 01:10 pm	₹ -2000.00	EDIT +

...

## STATISTICS



## Limitations :

- Application doesn't work in offline mode.
- User cannot filter the date wise transaction of income & expense.
- User can see category wise charts of 1 month interval only, user can't see charts of 15 days or 2 month interval.
- Report of incomes & expenses has not been developed yet.
- Once user register with 1 email id after that user can't register with other email id. For that user needs to reinstall the application or clear the data.

## Future Extension :

- implement the backup mechanism for taking backup of codebase and database on regular basis.
- We are trying for work our application in offline mode also.
- User can download their reports of incomes & expenses.
- User can see category wise charts on different time intervals.
- User can filter the transactions between specified date.
- User can register with different email id.
- Sharing files via Bluetooth, WhatsApp can be allowed
- Printing the details of the particular income or expense details can be made.

## Bibliography :

- <https://www.youtube.com/playlist?list=PLFh8wpMiEi89LcBupeftmAcgDKCeC24bJ>
- <https://youtu.be/mXjZQX3UzOs>
- <https://github.com/PhilJay/MPAndroidChart>
- <https://stackoverflow.com/>
- <https://www.geeksforgeeks.org/android-projects-from-basic-to-advanced-level/>
- <https://console.firebase.google.com/>