SMART BUDGET TRACKER

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INTRODUCTION

This is an android app which helps user to track his monthly expenses and alert him if he crosses budget. This app also helps user to have analyse his spending trend through the month or even year.

CAPABILITIES OF THIS APP

Capabilities achieved	**Capabilities specified in agreement.pdf**
1. Tracking expense	Track expenditure
2. Notification shown along with the budget limit.	Notification when goal limit is reached
3. Updated status of user's expenditure.	
4. Statistic representation of user's spending through the year	Historical Report
5. Anytime modification of user entered data.	
6. Automatic updation and display of user data after entering.	

END USER INSTRUCTIONS

1. New user needs to register.
    - Lands on Home Tab
    - Go to Categories Tab
    - Add categories to see updated list of categories list.
    - Go to Goal Tab.
    - Set goal for each category user entered.
    - Add expense in Expense Tab.
    - Check Home Tab if new expense have been added to pie chart or not.
    - Check for any warning sign from Goal tab.
    - Signout from Home Tab if needed.

2. Existing user needs to login.
    - Add Expense if any. Check Home Tab for updated monthly spending.
    - Go to Category Tab and add Categories if any.
    - Set Goal for newly entered Category.
    - Add expense and check for warning sign from Goal Tab.
    - May check History Tab to have a comparison of current month with previous months' total expenditure.
    - Signout if needed.

Fig 1. Gives an overall view of the system from user point of view.

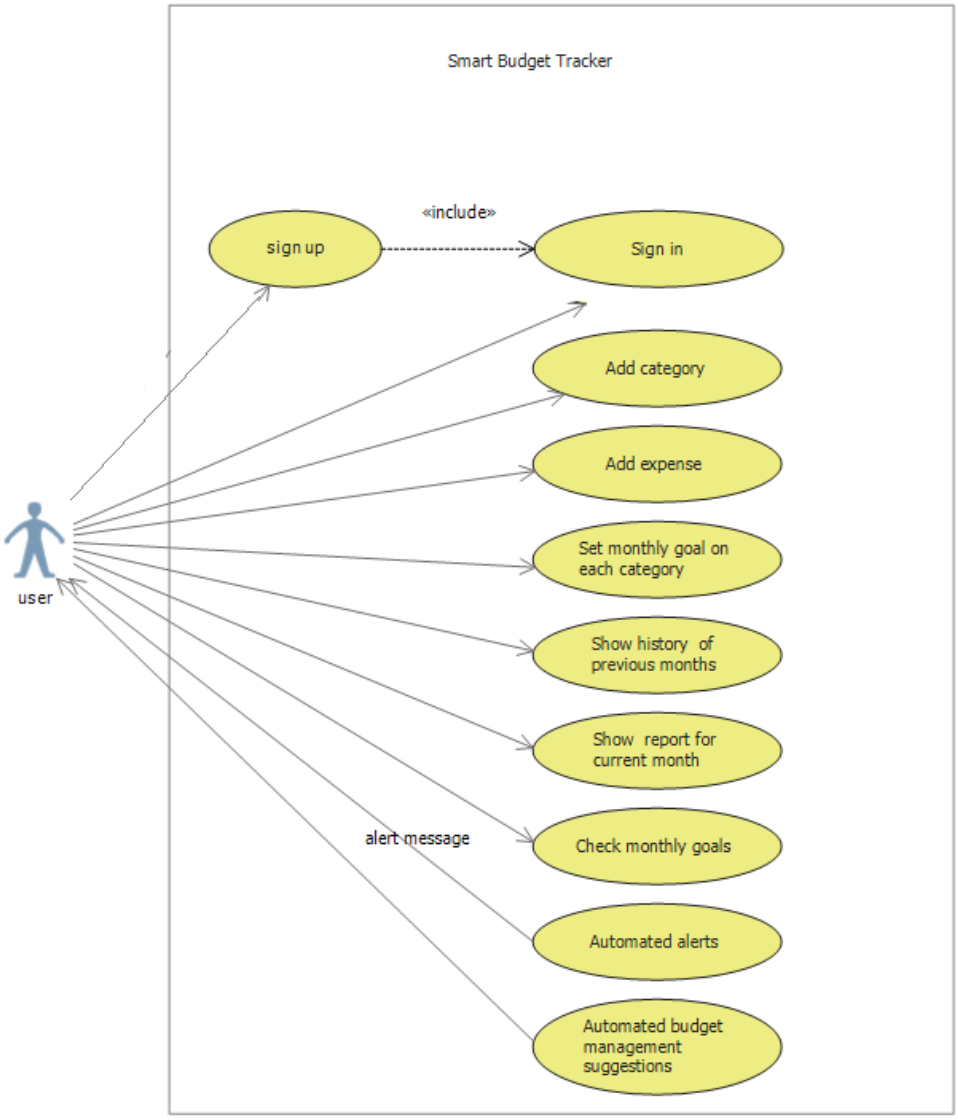

Fig 1: Usecase diagram

CLASSES AND FRAGMENTS

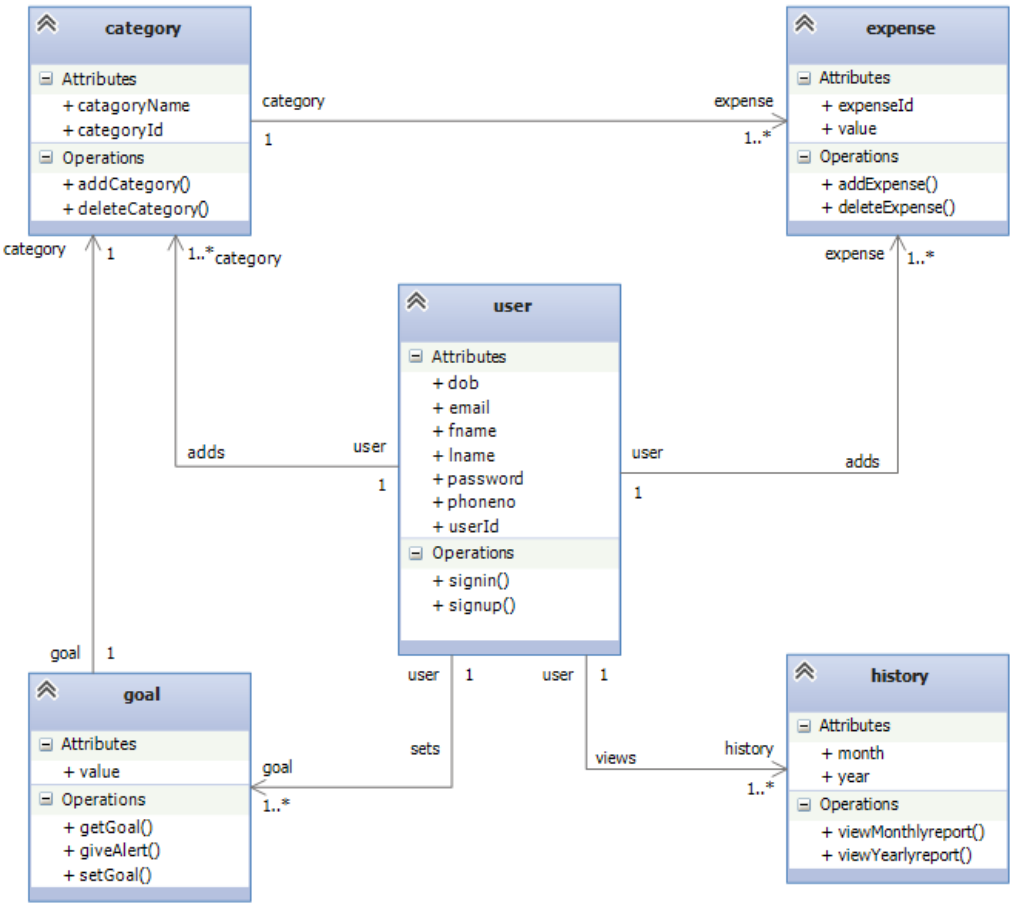

Fig 2: Class diagram with frgaments interacting with class

The main class in Smart Budget Tracker is User. In this app, we use a UserMainActivity Class which is loaded after successful login or register. Within UserMainActivity.java we created a tab layout for this App. This tab layout defines various fragments which are explained below.

The communication and other functions are being performed by Fragments (aka Tabs). Fragments are pieces of a main activity which perform more modular design and functionalities. **Fig** 2. Shows the interaction between the classes and various fragments.

In Smart Budget Tracker the fragments we developed are :

- Home Fragment- method onCreateView() interacts with MySql Database to display user's current month spending chart. Here we used MPAndroid Chart library to display current month expenses on Pie Chart.

- Expense Fragment – method onCreateView() communicates with DB for retrieval and method onClick() adds to DB and displays user's expenses using user id.

- Category Fragment – method onCreateView() accesses DB for retrieval of already existing category list, onClick() method adds and displays user's categories using user id and category id.
- Goal Fragment - method onCreateView() sets goal to DB and displays it. onClick() updates any goals.
- History Fragment- MPAndroid Chart library is used to generate yearly report. Here also method onCreateView() loads total expenditure of each month on a bar chart.

SYSTEM CONFIGURATION AND MYSQL DATABASE SCHEMA

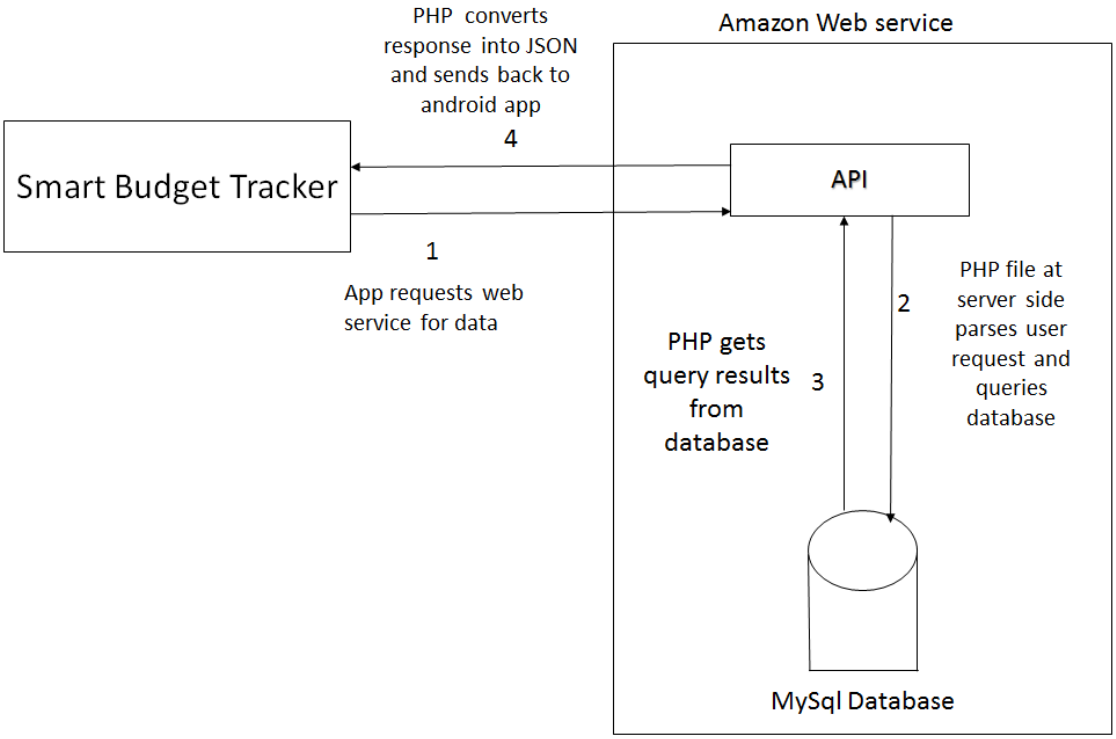

Fig 3: Working of system

We have used Android Studio as Front end. MySql has been used as backend. In this App we have used Remote Method Invocation to access database. The Web Service we use is Amazon Web Service, where we have created the Database and tables, this securely storing user data.

As shown in figure 3, any user initiated activity from user's Android device sends a request in the form of a http post request to the web server located at Amazon Web Service. There the request will get decoded and the php file corresponding to user's request is run and query is executed on Mysql Database. Hence result of the request is sent back to user's Android device in the form of JSON object which is again decoded and displayed to user.

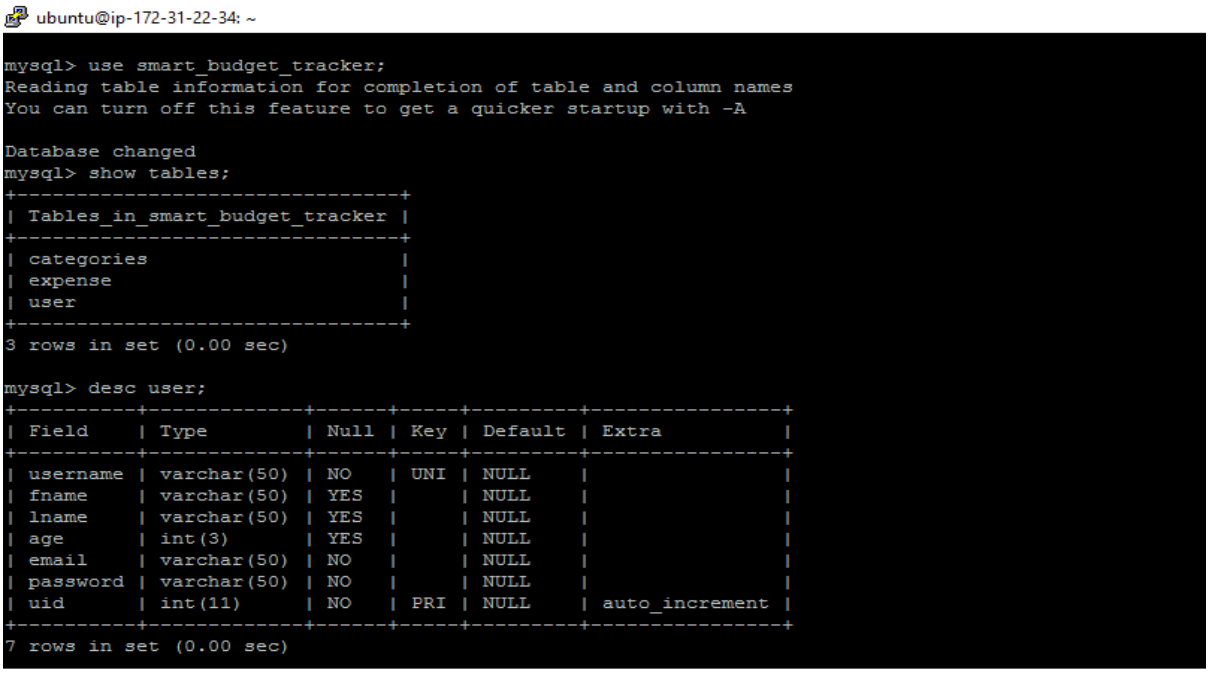

Fig 4: Screenshot of Database and tables

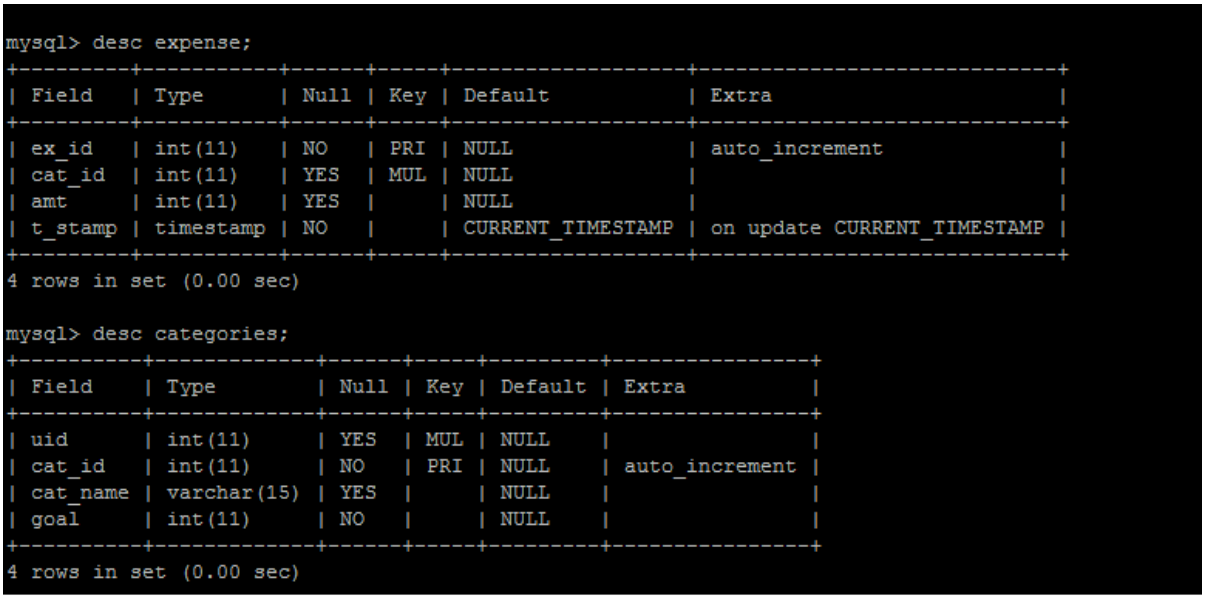

Fig 5: Screenshot of tables

We created a database SMART_BUDGET_TRACKER with tables USER, EXPENSE and CATEGORIES as shown in **fig** 3 and **fig** 4.

SEQUENCE DIAGRAM

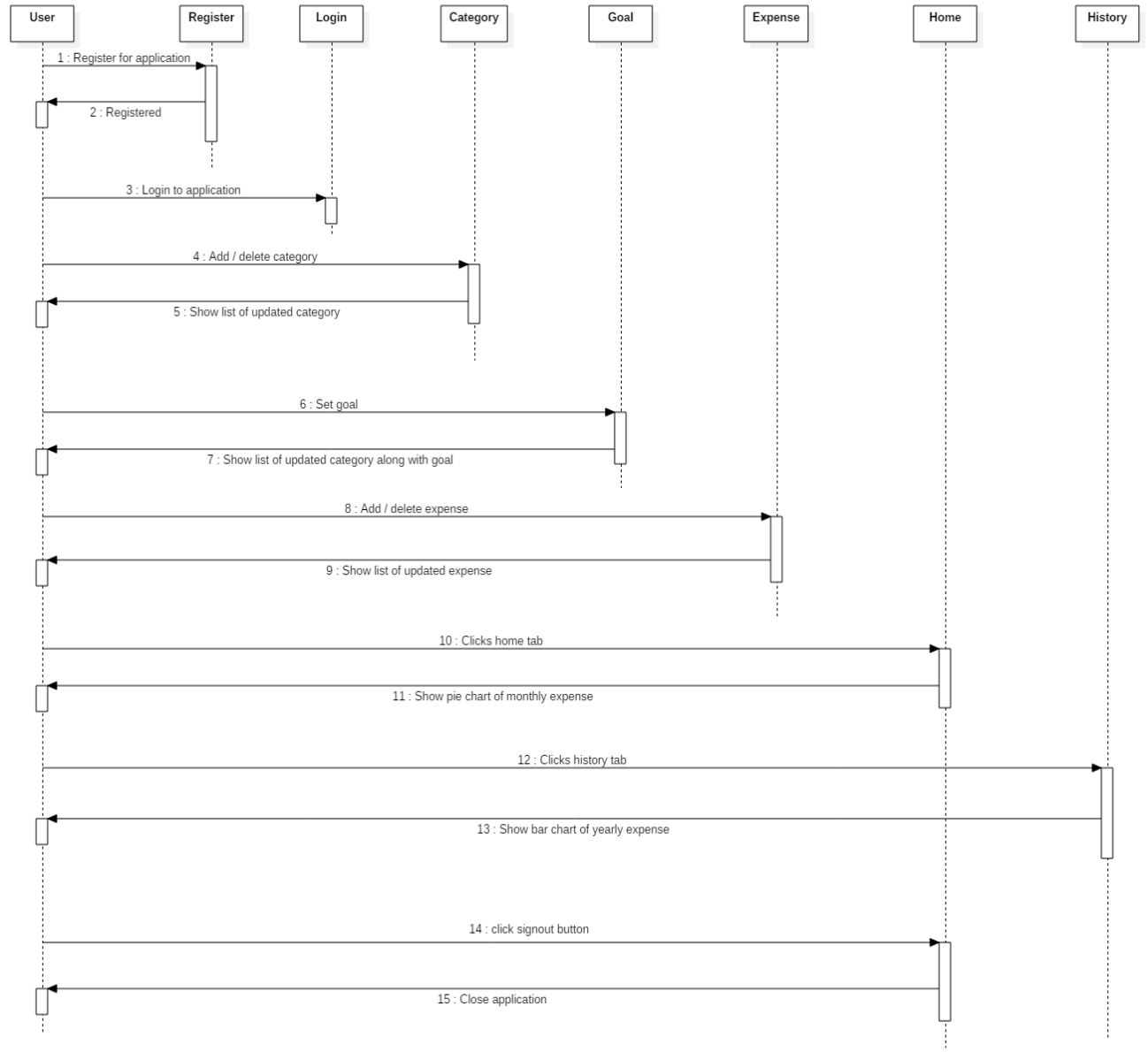

Fig 6: Sequence Diagram

Above fig 5 shows the sequence diagram of Smart Budget Tracker. It has the flow of events starting from sign up to sign out.

STATE CHART DIAGRAM

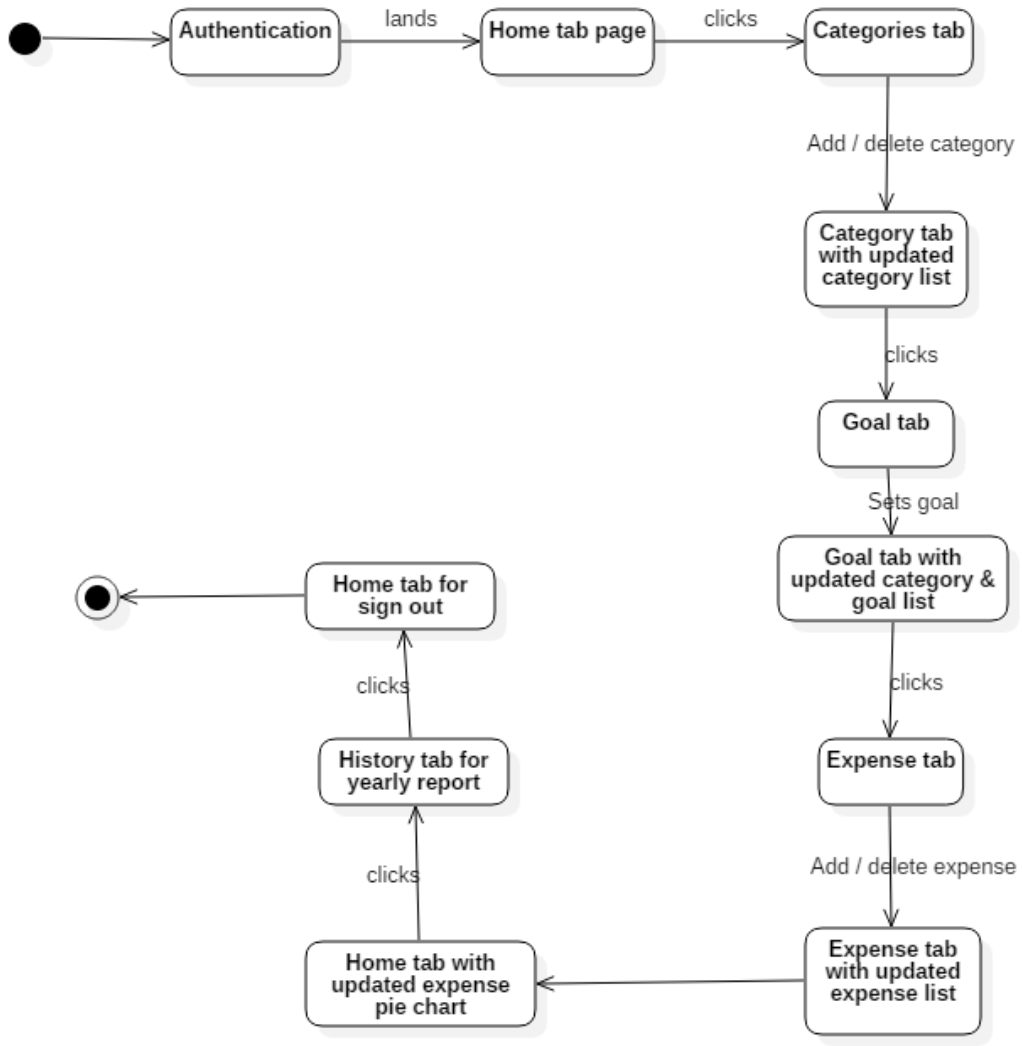

Fig 7: State chart Diagram

Above figure 6 shows the state chart diagram of Smart Budget Tracker. It shows the static view of system after each user input. Each state is reached after app receives corresponding user click.