CS5551 Project Plan

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I. Introduction

Technology is increasing day by day, with the increase in technology sales of smart phones reached maximum over the last decade. People in every country are using smart phones and they have become the part of their life style. The main feature in a smart phone is the ability to run different mobile applications that allows user to access, store or capture different kinds of information right from their mobile. The importance of mobile applications is that they are in to different categories like shopping, entertainment, sports, games, finance, food, fitness and online booking.

Expense Tracker is a mobile application that falls in to the finance category and its purpose is to manage the finances of the user which is very important for every person. In a busy day to day life, unknowingly a man spends lot of money for various needs. Sometimes these expenses may exceed his/her monthly budget or income. In order to organize cash flow and financial management there is a necessity of a personal expense tracking application that stores your daily expenses and provides a clear view of your finances.

II. Project Goal and Objectives

Overall Goal:

The main objective of this project is to implement a mobile application for tracking expenses. This system helps the users to plan their future expenses as per the past history of expenses. Tracking all your expenses and incomes so as to put you on the path to financial stability and tracking expenses and incomes day by day. This application gives an overview to user about his expenses with the help of visualizations like charts.

Specific Objectives:

Any financial management application should have some basic features like adding data and representing that information using pictures or charts. Our application objective too deals with collecting information from user, storing data collected and presenting data in a manner where user can analyze his financial status

The main objectives of this system are

- This system helps users to record their daily expenses and helps them to plan their future expenses.
- It keeps a track of user money and gives a views on the items in which user spends most of his/her money.
- Displays data using charts.
- It also provides financial stability to the users by providing monthly reports.
- It can also provide user to create goals and suggests him with a plan to reach his goal.

Significance:

This application allows users to add their income and expenses with details like category and date. It provides a list of all the incomes and expenditures that are added by user in an order. It also notifies the user about his total expenses in regular intervals. User can always see his total incomes, expenditures and remaining balance.

IV. Proposed System

1) Requirements Specification:

Functional requirements:

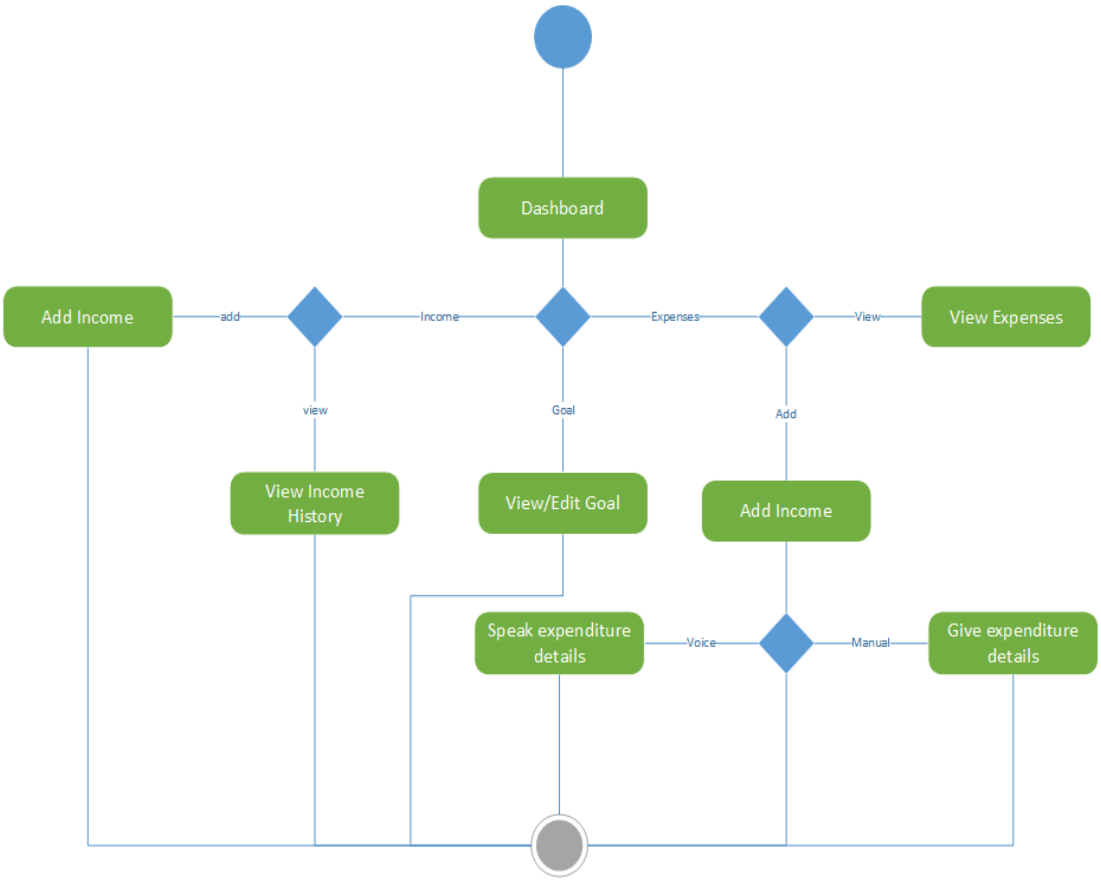
- Expense Tracker phone application should allow end users to record all sort of daily expenses like grocery, medical, education, entertainment, automobile, insurance etc.
- Expense Tracker in offline mode should allow expenses to be recorded and saved locally on the device
- Application should report these expenses in very useful manner for user to help him make decision about future expenses
- Expense Tracker allows you to reset all the incomes and expense
- Expense Tracker will ease and speed up the planning, decision-making, and process, secure, confidential and reliable reports.
- Display summary using charts
- Allow users to input data with speech.

Non Functional Requirements:

- Performance: Performance is always a programming issue not related to any physical or hardware part of the system. Since we have gathered every piece of information is needed for the development and performance orientation.
- Maintainability: The main aim of any application is to save the data efficiently and its perfect maintenance avoiding the mistakes. This application can be able to provide such maintenance of data through its functional modules that has been generated.
- Usability: The app developed must be simple enough that user with average background in using mobile phones can quickly experiment with the system and learn how to use the project. The system must have user friendly interface.
- Security: This application mainly deals with the user data that he enters during the usage of this app so the data should be kept confidential to maintain users privacy.
- Reliability: Since the applications backend is being developed through java, the most famous efficient and reliable language, so it is reliable in every aspect until and unless there is an error in the programming side. Thus the application can be compatible and reliable one.

Workflow Analysis:

Work flow in our app is based on the interaction by the user with the application. Clicking a button or tab in the application takes user to another page and each activity from user has a specific output.



Activity Diagram for Expense Tracker

When user opens the application a dashboard is displayed. When he choose any option either income or expenses user further requested with two options add or view income/expenses. User can also add a goal from the dashboard. When the user tries to add expenses the app requests for manual or by voice. If the user choose by voice user needs to give input by voice then the service is used to transfer the speech to text and updated in the data base.

Technological Requirements:

As we are developing a mobile application we require software development kits like android sdk or iOS sdk to develop the application. These sdks provide us the ease to create the front end of the application by just dragging and dropping the elements. For the backend we use technologies like Java and JavaScript so java developing kit and java run time environment should be configured in the system that is used to develop the application. Expense Tracker also requires a technology to store and retrieve the information from the database so a knowledge on how manage the data is required. Data base technology like SQLite, Mango DB is required to develop this application.

Architectural Requirements:

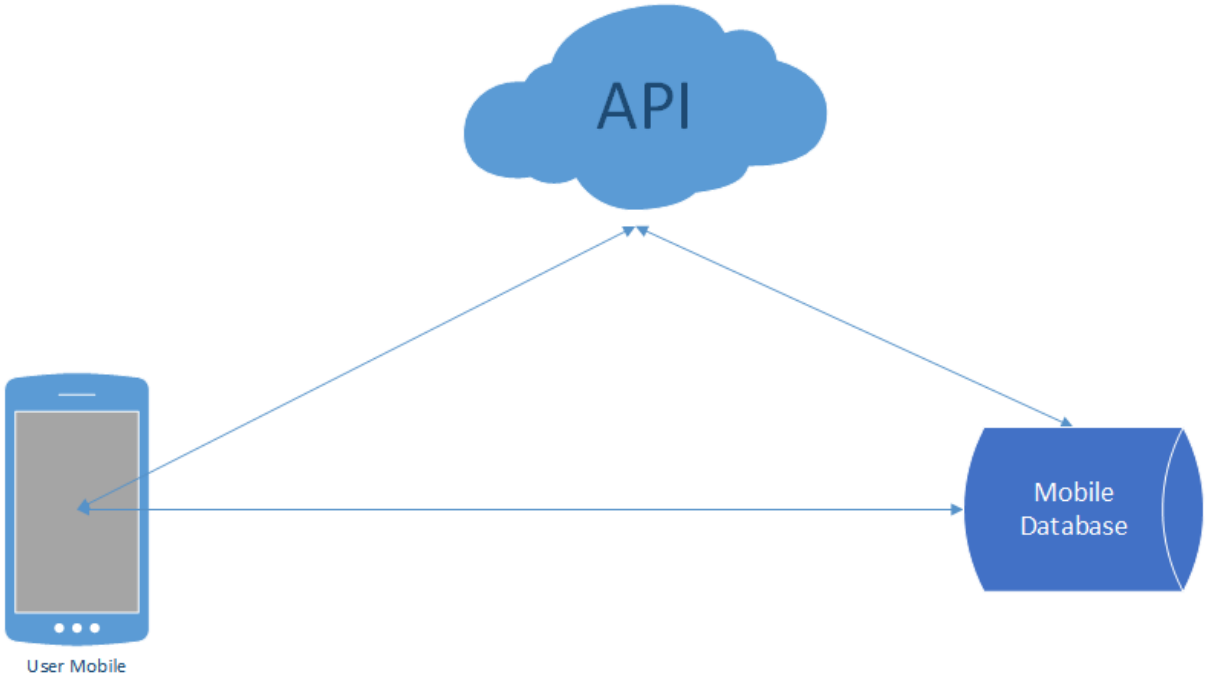
Architecture is the important aspect in a project as it involves the major elements that are used for the development of project. Expense Tracker also contains a three layers. First layer consists of the system that is used by the user to interact with the application as we are developing a mobile application the first part of our architecture will be the mobile phone or tablet.

The second layer consists of the APIs or the services that records the data from the user in different formats and converts them to the format that can be stored in the database.

Third Layer consists of the database which may be the local database in the android phone or the database that is present in the cloud.

2) Framework Specification:

Our application follows a three tier architecture with client devices like mobile phones in the first tier that runs the application and according to user request a particular service is being called to ease the process of providing the input by the user. The last layer involves the database repositories that stores the inputs like incomes and expenses that are periodically updated by user and serves the data that is requested by the user.



This shows the system architecture of the expense tracker application.

3) System Specification:

Existing Services:

In our project we are using some services like google chart services and speech to text service which are already existing

Google Chart Services: https://developers.google.com/chart/?hl=en

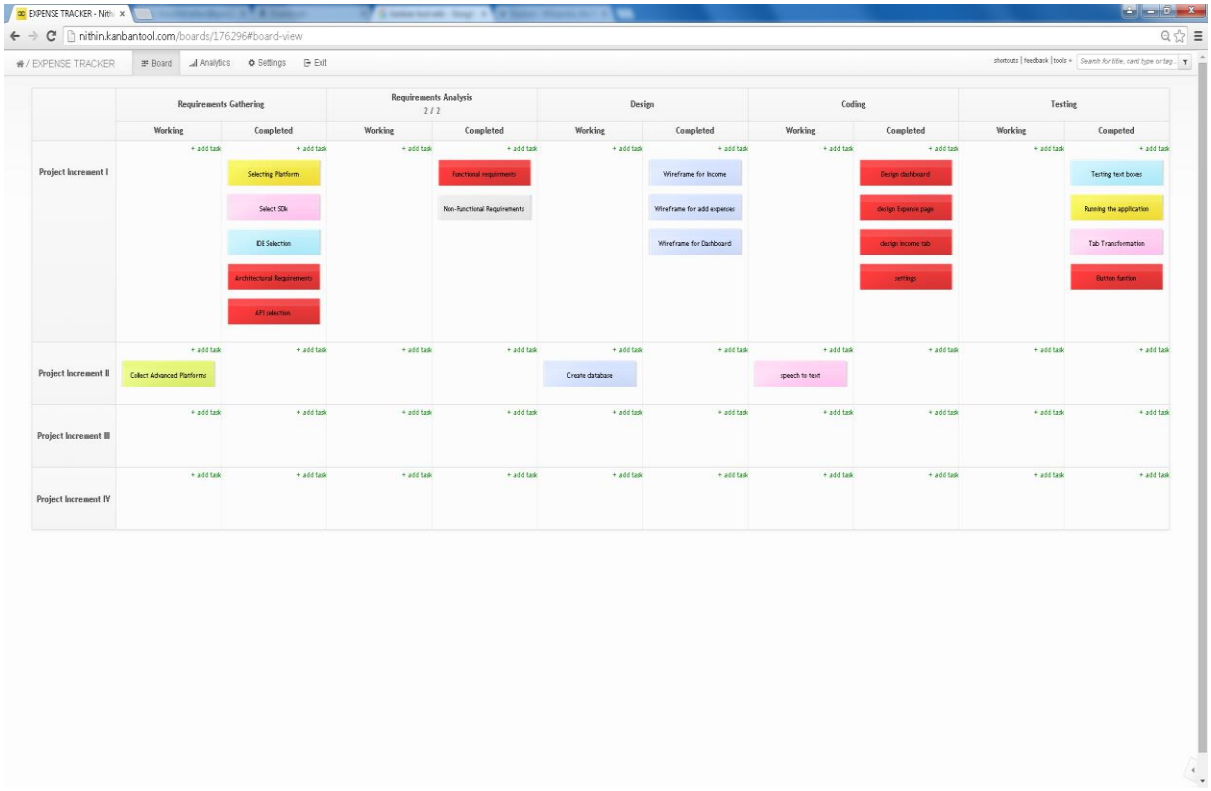
Google Charts API provides us with a wide variety of charts that can be used in our project to represent the user data in a pictorial way. This API is free to use and converts the table data stored in database to a chart with rich details.

Speech to Text API: https://dvcs.w3.org/hg/speech-api/raw-file/tip/speechapi.html

Our application also requires a API that recognizes speech from the user and converts them in to the text which can be later saved to database. This API provides user a facility to give inputs to the app by speech. It will act as a mini voice assistant to the application to record user inputs.

V. Project Plan:

Kanban tool is best for collaborative working and for just in time tasks. It is easy view the tasks that are completed by different members in the project. It can be operated by the all the members in the project and it is very to understand the tasks completed in the project. It is the best tool to be used in project to analysis the present status of the project and also to now the status of individual work done by the project members.

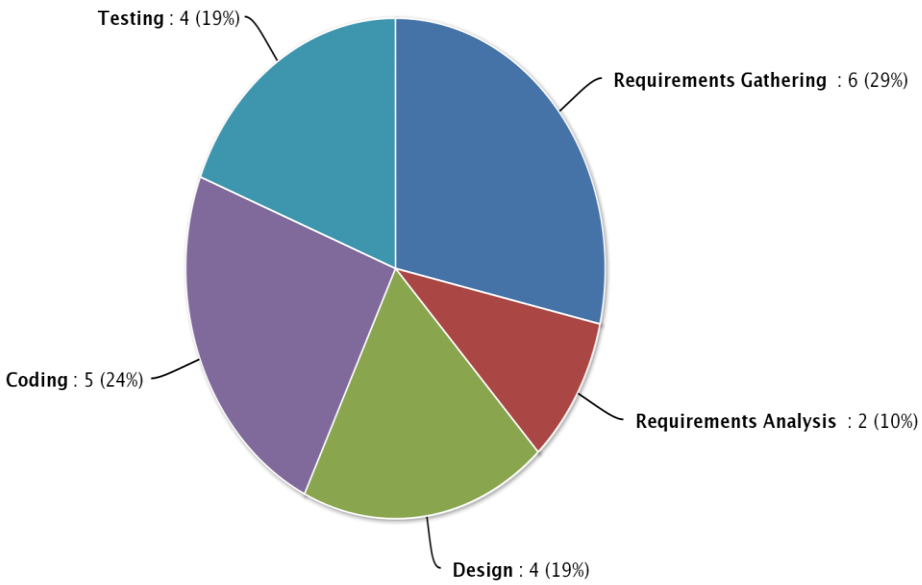


Project board created using Kanban Tool.

Tasks Included on Board:

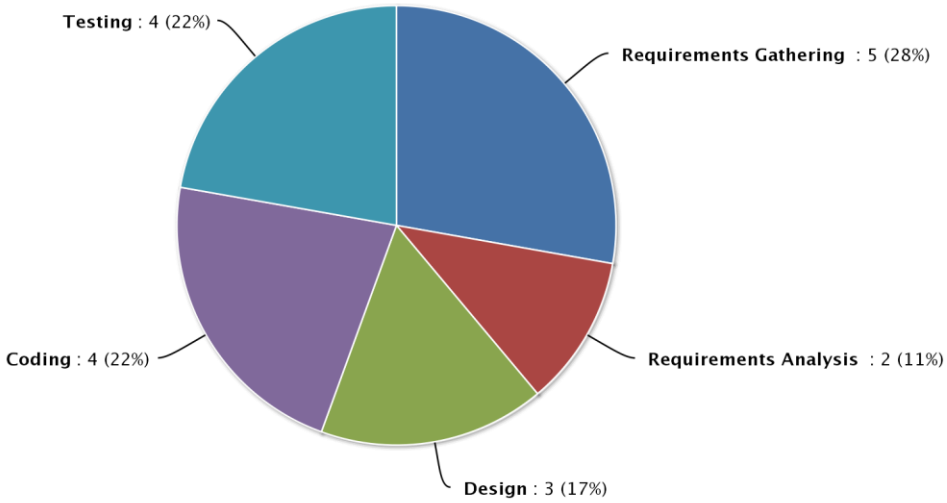
1) We have selected the platforms, SDk , IDE, architectural designs and API which required for the project increment-I.
2) We have analyzed all the functional and non-functional requirements.
3) Also Designed wire frames for the income of user, add expenses and dashboard.
4) We have done coding for design dashboard, design add expenses, design income tab and settings tab.
5) We tested whole application by running on the hand set.
6) We have also stared to more advanced applications and tools to improve the interface.
7) We started designing database for storing data in the handset and for that we working on the coding.

Analytics Pie Chart:

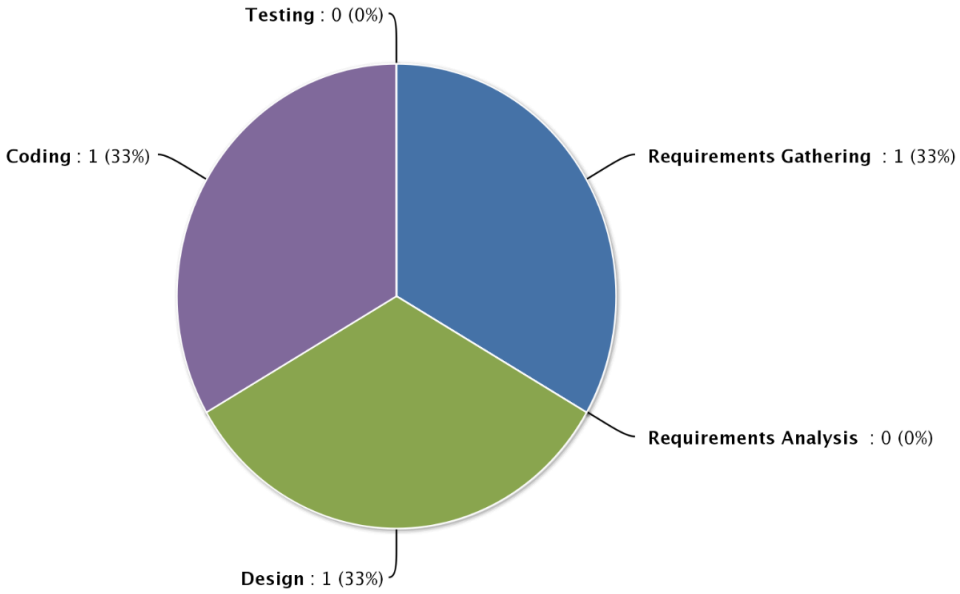


Pie Chart for all tasks

This analysis for the whole tasks in the board. In Kanban tool we can divided different tasks and can analyze the chart. For example if we want to analyze project increment-I we can do that very easily. It is the best user friendly tool.



This is the analysis chart for project increment-I.



This is the analysis chart for project increment-II.

VI. Bibliography

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[3] https://play.google.com/store/apps/details?id=com.expensemanager

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[9] https://github.com/pardha5/Expense-Tracker

[10] http://www.androidhive.info/2014/07/android-speech-to-text-tutorial/

CS 5551 First Increment Report

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CS-5551 – FALL 2015

I. Introduction

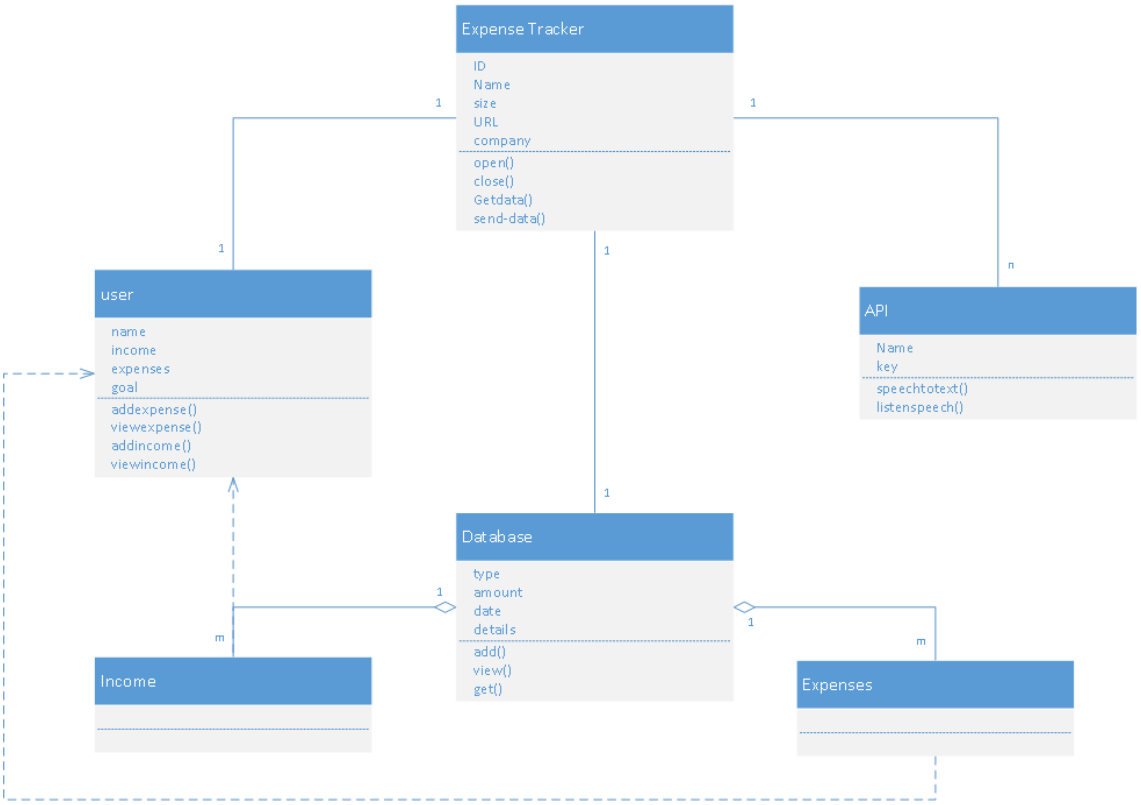
This is the summary report of the first iteration of the work done in Expense Tracker application. This application is used to control and track the income and expenses details of the user and also to remind the user about his goals.

For the first iteration we have focused our work on the requirement phase in gathering the required services, platforms, API and their usage. Also we have designed the architecture of the application which we should design.

II. Design Overview:

In design phase we have designed the general flow of the state of the user and the application. Structure of the data to be created is designed and represented as the following class diagram.

Class Diagram:



Expense tracker application consists of 5 classes Expense Tracker, User, Database, API, Income, Expenses. In Expense Tracker class the data values are ID, Name, size of application, URL of the project and company or organisation name. Its functions are open application, close application, link with the database and get or send the data for the user or by the user.

We determine user as another class consisting of name, income, expenses, balance and goal. User operations are open app, add income or expenditure, view previous incomes and expenses, user can add a goal with a period of time and value.

Goal is the class which is dependent on the user, user may create the goal or remove to control user expenses. Its values are start date, end date, time period, value or worth for the savings of amount and details. Its functions are to add or delete a goal and also to remind about the goal if user has a lot of expenditure.

API is the class in which we use API's of values name, key and functions. We use speech-to-text and listen speech functions in the current increment.

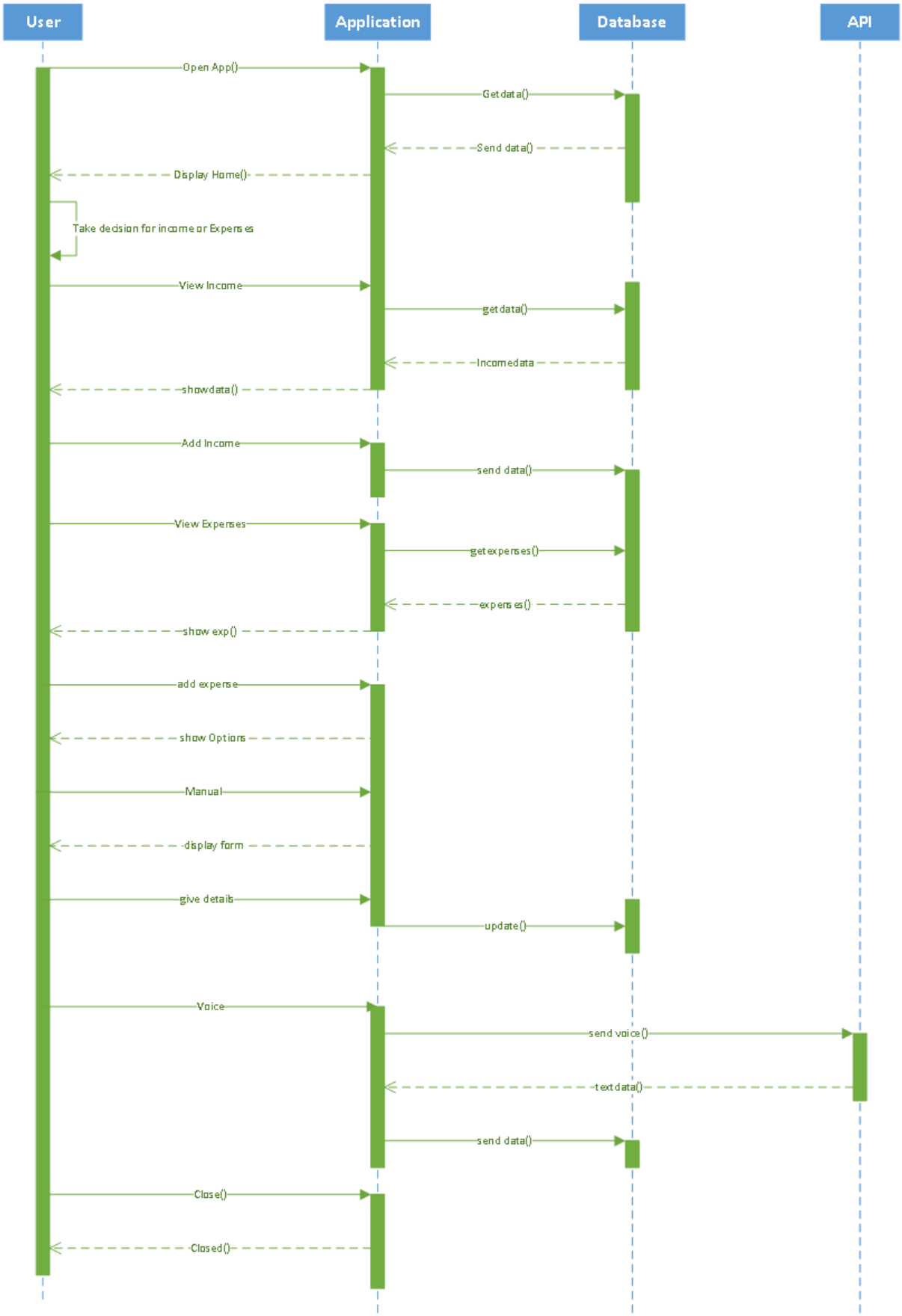
Database is a class in which all the data is stored. Its members are type of entry income or expenses, amount or value of entry, date of entry, details about the entry. Its functions are to add, view, and get the entries to the database and from the database.

Income and Expenses are the dependents of database classes which share the features of the database class.

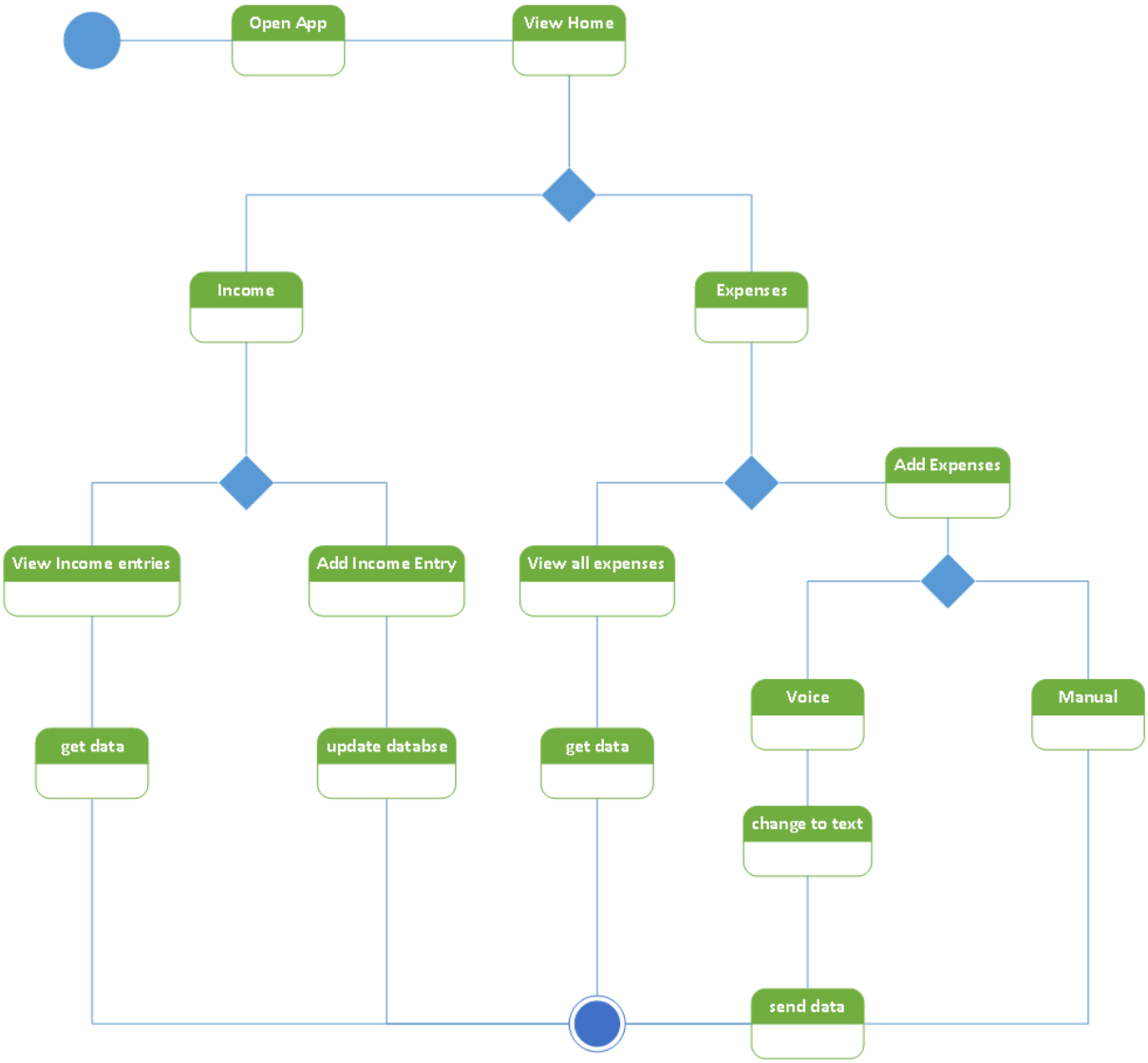
Sequence Diagram:

Sequence diagram represents the flow of the application processes done by the different roles. In the initial sate user opens the application, the application fetch the data form the database and view in the dashboard. Then user decide for the operation he should be done. In first case if use press income button then the application shows two options either to add or view income. If user selects for view option then the application request the database for the all income history to display in on the screen. If user selects for add income, application displays a form for the user to enter the inputs. After the entry the user press add then the application send the data to the database and the balance gets updated on the dashboard.

In second case if the user select the expenses tab user is provided with add or view options. If user selects for view the application request the database for the expenses list. The list is shown on the view screen. In case of add expense user is provided with two options entry by voice or manual. In voice mode the user give the input in form of speech then the application capture it and send to the API, in API the speech is converted to text and returned to the application. Application uses the data and store in the database and updates the balance and expenses value.

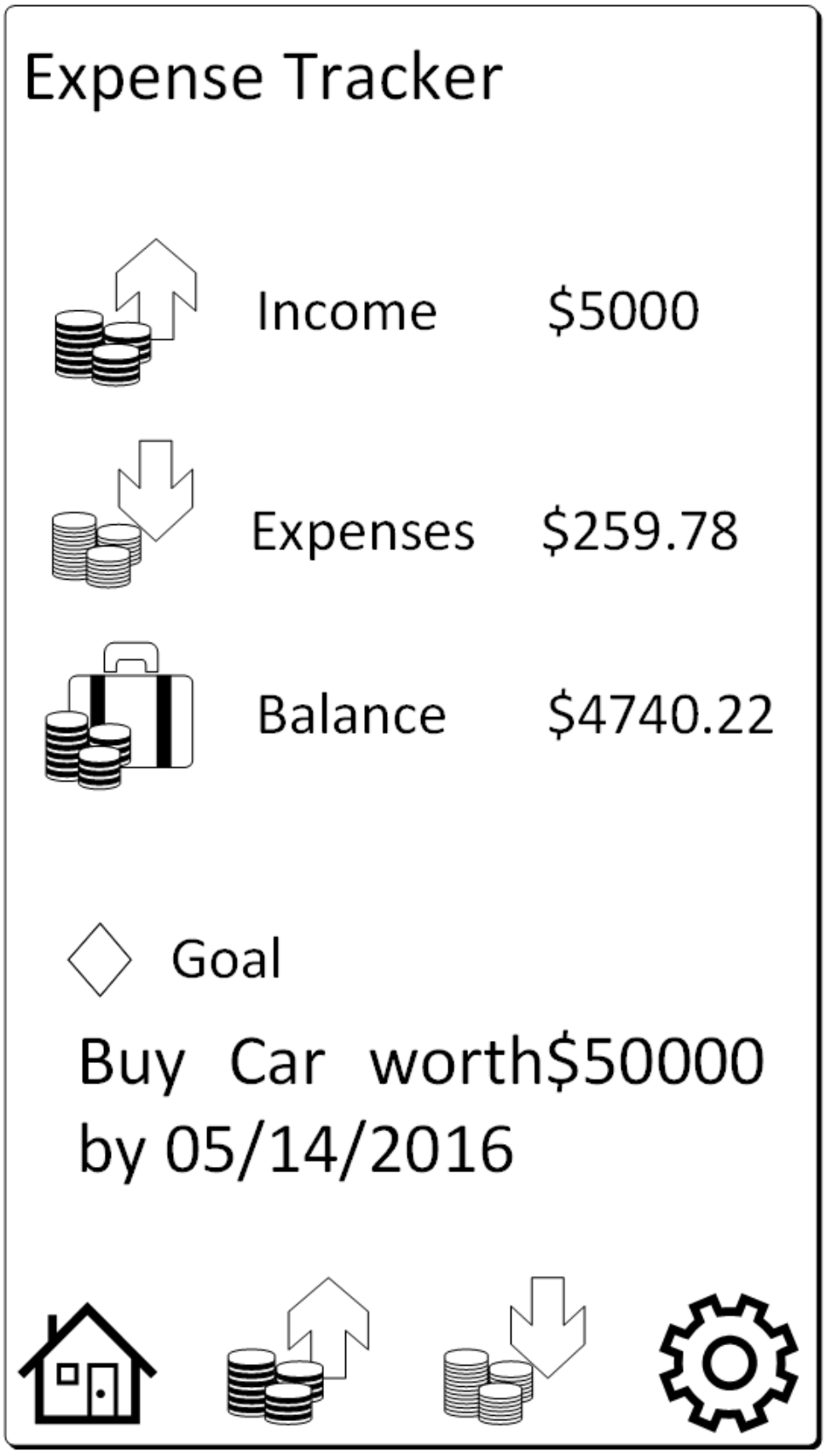

User
Application
Database
API
Open App()
Get data()
Send data()
Display Home()
Take decision for income or Expenses
View Income
get data()
Incomedata
showdata()
Add Income
send data()
View Expenses
get expenses()
expenses()
show exp()
add expense
show Options
Manual
display form
give details
update()
Voice
send voice()
text data()
send data()
Close()
Closed()

State Chart Diagram:



Initially user is in idle state user opens the app and view home. In the dashboard user can view the summary of income, expenses, balance and goal. User decides either income or expenses, if the user decide for expenses he can add or view the income. Similarly hew can add or view expenses. When the user decides to view income or expenses the application request the database and view the results. In case of add of income user gives the input and the application updates in the database. While in adding of expenses user can give inputs manual by entering the data or by give a voice speech. In case of voice speech the API is invoked to change the speech to text, after transformation the text file is sent to the application and application is stores the data in the database. Finally user closes the application.

WireFrames and Mockups:



Wireframe of Dashboard

The above picture shows the view of the dashboard which consists of income value, value of expenditure spent and the final balance remaing. In addition we can also see the goal created by the user.

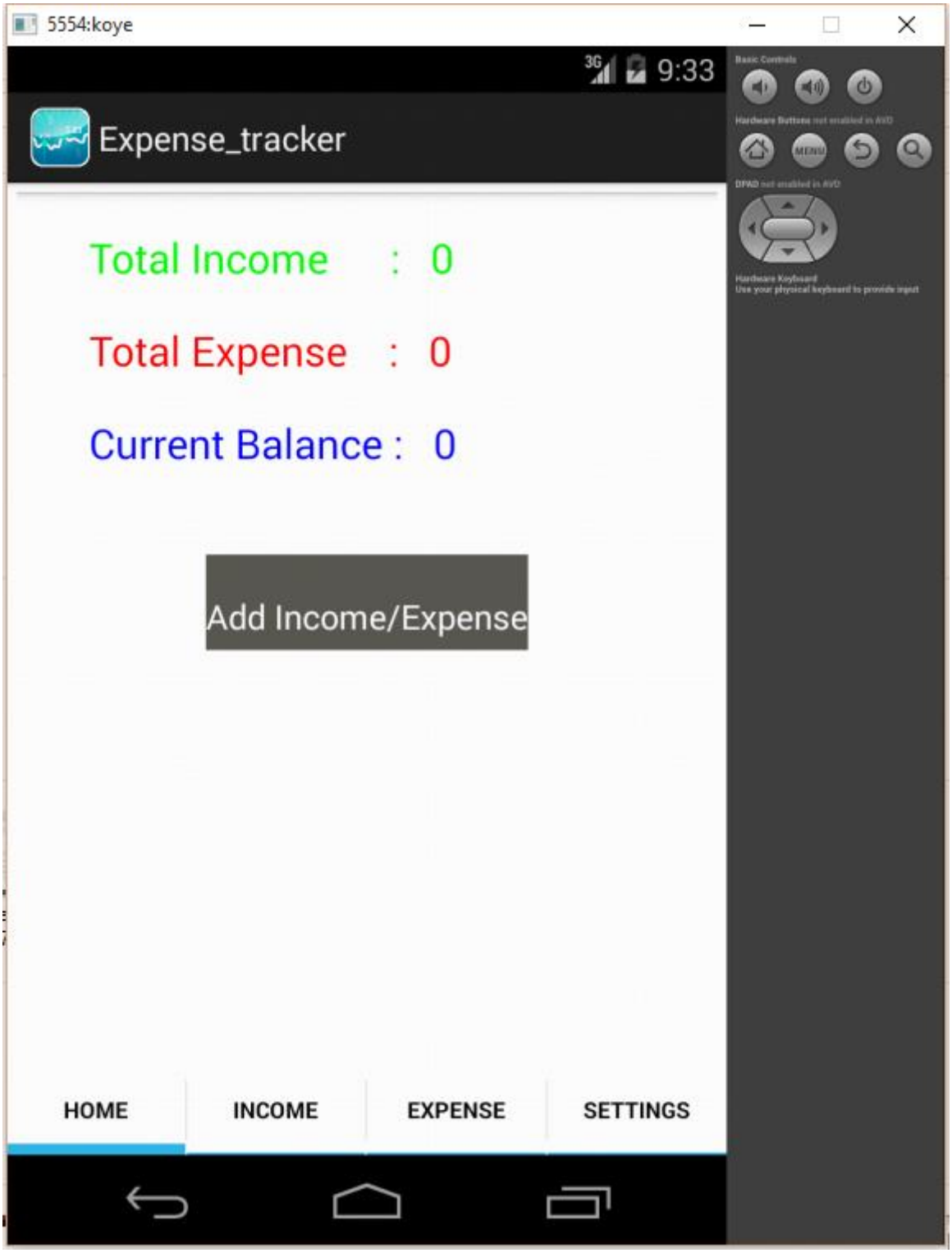
Wireframe of Income Window

In the above wireframe the user gives the input to add an expense occurred by the user.

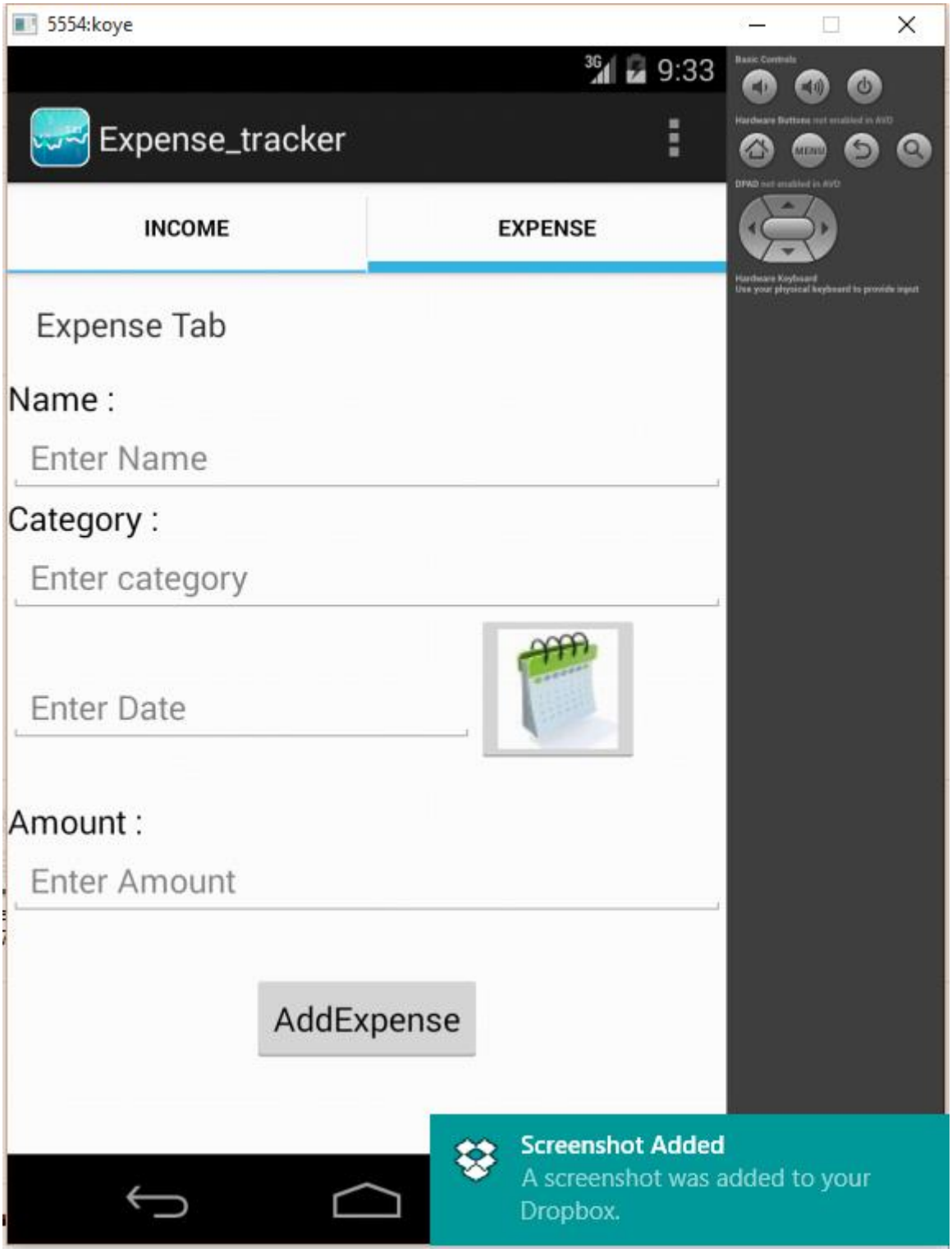
Wireframe of Add Expenses (manual)

In the above wireframe the user gives the input to add an expense occurred by the user.

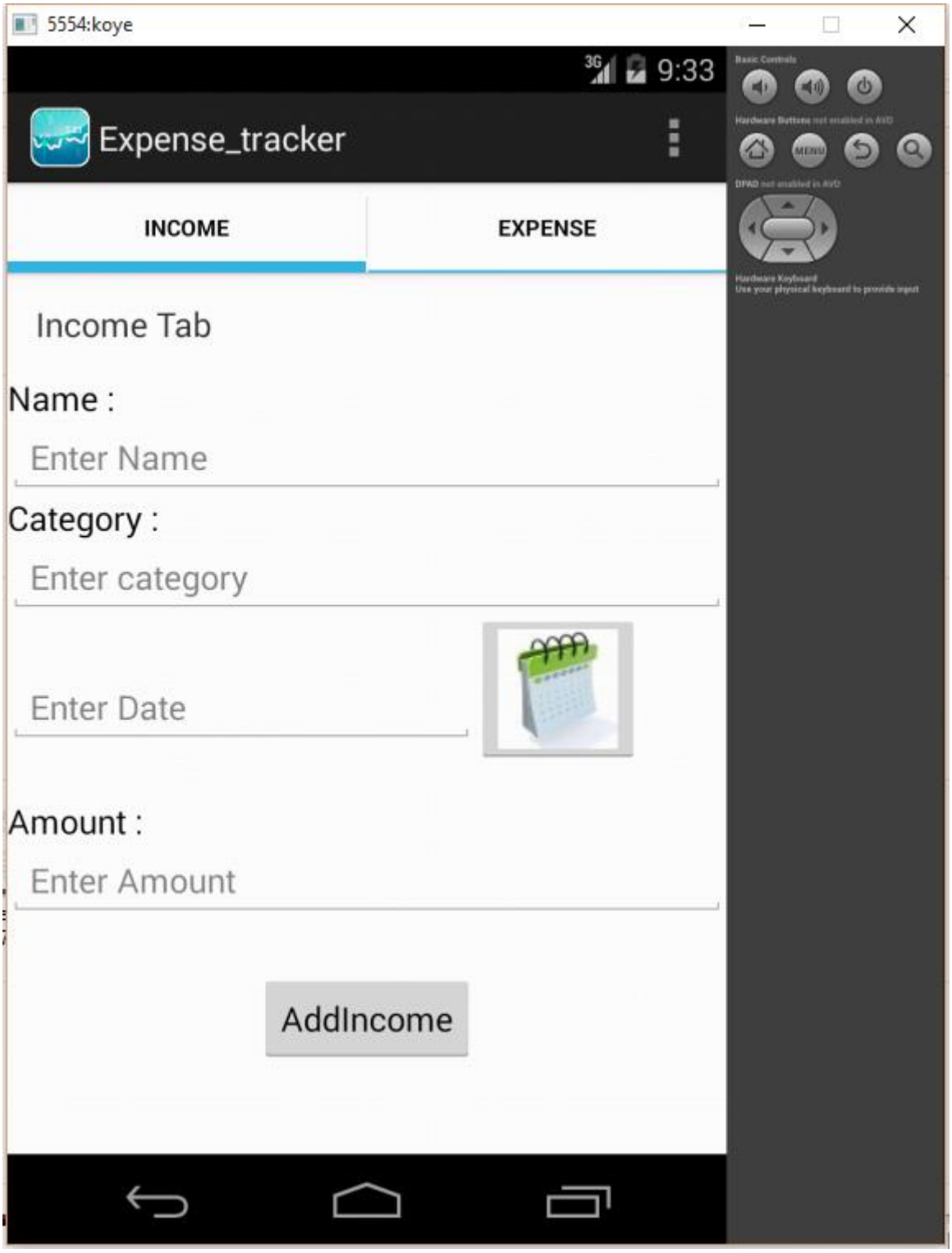
III. Implementation Overview:



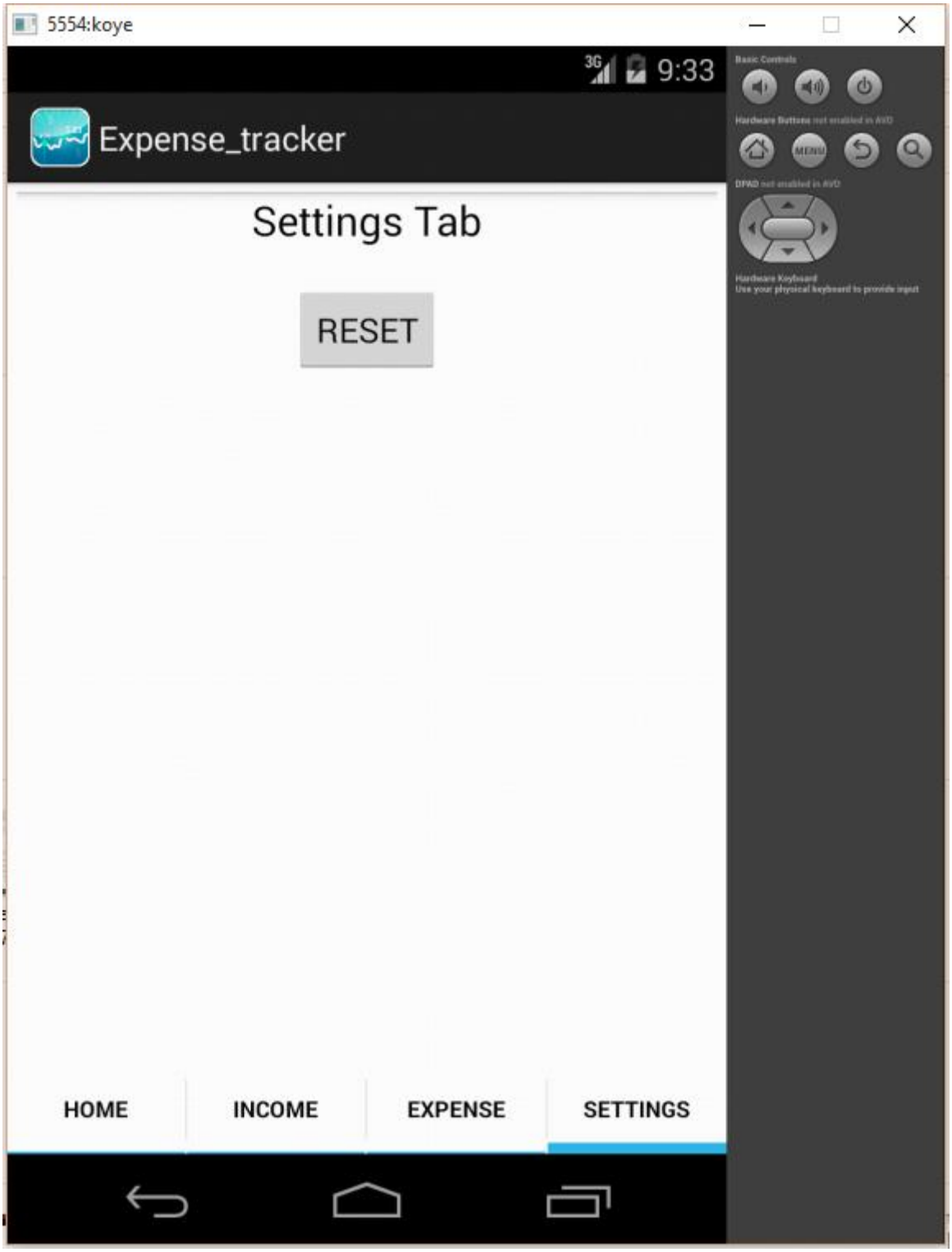
Mockup of dashboard



Mockup of Add Expense (Manual)



Mockup of Add Income Tab



Mockup of Settings Tab

The above images show the design of the real view of the dashboard, add income tab, and add expense tab and settings.

IV: Reference

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