Tiny Financial Assistant

An Android App to help users manage their finances

Zhelin Li (Leader)
CSE 118 Fall 2019
University of California, Santa Cruz
zli251@ucsc.edu

Zihan Yang
CSE 118 Fall 2019
University of California, Santa Cruz
zyang41@ucsc.edu

Bonnie Chan
CSE 118 Fall 2019
University of California, Santa Cruz
bochan@ucsc.edu

ABSTRACT

This report is for work in the course CSE 118 Mobile Applications at the University of California, Santa Cruz, under Professor Narges Norouzi.

The mobile application we implemented using Android Studio allows users to have an idea about how much they spent during a certain period of time by having users input how much they spent on specific types of things, which is stored in a database using SQLite. This data is shown to the user with various graphics and charts using the MPAndroidCharts library, making it easy for users to look through previous spendings. Users can also select a certain period of time on a calendar, and the total money they spent on all different types will be reflected on a bar chart or list. By tracking their expenses, users can manage their finances properly and keeps track of where they are spending their money.

OBJECTIVE

The goal of this application is for users to have an idea of how much money they spent on different types of things. The application allows users to see what categories they spent on by looking at different graphics and charts. There are several similar apps exist, but our app is aimed for the simplest functionality designs that are easy to use by any user.

COMPONENTS

1.1 Main Page

This is the screen that the user first sees when they open the application. The main activity shows the amount of money the user has spent

today, showing both the total amount spent and also showing the amounts separated into different types.

To show the data of the different types, the amounts are put onto a pie chart made using the MPAndroidCharts library. Each color on the pie chart corresponds to a different type, which can be seen with the labels below the pie chart. The labels have colors that match with the ones on the pie chart, also listing out the type the color is and showing the amount spent in that type. To go to another activity, there is a bar on the bottom of each activity which allows the user to go to any other activity within the application.

1.2 Input Page

This page is where the user inputs their spendings. In the input activity, the user can enter the amount of money that they spent, an optional additional note, and also choose the type of item that they bought.

In this activity, there are two places for the user to enter text. One is for the user to enter the amount they spent and the other is for the user to enter an additional note. Under this, there are ten different buttons where the user can choose the type of item that they have bought. The types that the user can choose include food, transportation, study, housing, entertainment, clothing, cleaning, personal care, hobbies, and others. The user can press on one of these buttons to choose the type of item they want to sort their spending into and a toast message will show which type they chose. To enter this data into the user has to press the ‘add item’ button in the end, with a toast message showing that the user has entered their data and the previously entered text will clear so that the user can enter another spending if they want.

1.3 Report Page

This page shows every type of data user entered for a single month by default. For instance, if today is in December, then the page will show all data starting from December 1st to current day. And the total amount of data will show up on the very top of the page. There is a calendar button on the bottom of the page which will take users to a calendar page, and allows them to select dates to show how much they spent during those days back on the bar chart of the report page.

The bar chart was implemented from the MPAndroidChart library, and the color of each type of outcome will match the colors on the

main page. This page is also scrollable in order to allow the user to see the entire chart.

1.4 List Page

This page lists all historical data in detail by default, including the type, note, date, and expense of a single input. The search bar is on the top of the page, which allows users to enter notes to find historical data. A drop-down menu allows users to list a single type of expense. There is also a calendar button on the bottom of the page which will take users to a calendar page, and allows them to select dates to show the specific data in the selection period time. Long press on the entry allows users to delete the entry with a pop-up prompt dialog to prevent delete accidentally.

1.5 Calendar

This component will pop up when users click on either the calendar button on the report page or the calendar button on the list page.

The scrollable calendar picker was implemented by using the DateRangePicker library. Users will be able to select either a single date or a range of dates from the calendar, and the result will be returned back to the previous activity they were at, updating that page.

1.6 Database Helper

This component will provide all methods about the database, including adding data, deleting data, returning a list of data objects with conditions, return the amount by type and date.

DEVELOPMENT

The project went pretty much as exactly what we planned in the proposal. It took us a long time to discuss how the basic UI should look like for our application, and the general UI was finalized after meeting with one of our helpful TAs. This is the only big change we made in the development of our application. There are some differences between the first design of our application and the final product. For example, in the proposal, we planned on including a page that can sort different types of expenses users spent over a certain amount of money, but we ended up not including this functionality in our application but instead included a calendar view where users can choose a certain period of time to view their spendings. We also added a list view page for

users to see all the data they have entered in our application.

CONTRIBUTION

Co-working:

- Skeleton of the application

Zhelin:

- List Page:
  - Display custom list
  - Sort by type using spinner
  - Searching
  - Delete
- Database Helper:
  - Saving data (in Input page)
  - Connecting data with bar chart (Report) and pie chart (Main)
  - Passing data to Report page
  - Passing data to List page
  - Delete (In List page)
- Restructuring the app after meet TA

Zihan:

- Calendar:
  - UI of the Calendar
  - Function to select single date
  - Function to select range of dates
  - Function to parse the date
  - Pass the data back to the previous activity
- Input Page:
  - Basic UI
- Draft the structure of final report

Bonnie:

- MPAndroidCharts:
  - Pie chart (in Main page)
  - Bar graph (in Report page)
- User Interface:
  - Design for all pages
  - Bottom navigation bar
  - Main Page
    - Colored labels for types
    - Scrollable view of types
  - Input Page
    - EditText for money and note input
    - Buttons for types of items and adding item
  - Report Page
    - Scrollable view for bar graph
    - Floating calendar button
  - List Page
    - Search bar
    - Floating calendar button

FUTURE WORK

For work that we hope that we can work on in the future, we definitely want to improve the user interface to give users better experiences when they are using our application. We would also like to implement a feature that can predict the user's future expenses based on their previous data. Another feature that we would like to include is where the user can enter their income, so the application can also recommend how much the user should spend on each type of item based on their spending habits. And we want to provide some ways to improve security.