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Data Visualization

CSC 6730

Final Project Report

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Project Title: Android Application on Monthly/Yearly Expenditure.

Abstract:

Mobile applications are becoming more and more useful nowadays. Various applications are available to cater a multitude of purposes. Smart phones are also becoming more and more powerful and affordable. These phones were brought to life with the help of an operating system. In the present world, Android and IOS are having the major mobile operating systems market share in the world. Also there is a rapid increase in prices these days which lead the consumers to make a record of expenditures on daily, monthly and yearly basis.

So keeping these facts in mind we are inspired to develop an android application that help consumers to track their expenses and visualize them on daily, monthly and yearly basis.

Project Description:

This an android application that takes user inputs like expenditures on daily basis. These expenditures can be of different categories like rent, travel expenses, food expenses, purchase items and any other. The user enters the money he/she spent on different items in a particular day and can visualize the monthly/yearly expenditure in graphs.

System Requirements:

Windows

- Microsoft® Windows® 8/7/Vista (32 or 64-bit)
- 2 GB RAM minimum, 4 GB RAM recommended
- 400 MB hard disk space
- At least 1 GB for Android SDK, emulator system images, and caches
- 1280 x 800 minimum screen resolution
- Java Development Kit (JDK) 7
- Optional for accelerated emulator: Intel® processor with support for Intel® VT-x, Intel® EM64T (Intel® 64), and Execute Disable (XD) Bit functionality

Mac OS X

- Mac® OS X® 10.8.5 or higher, up to 10.9 (Mavericks)
- 2 GB RAM minimum, 4 GB RAM recommended
- 400 MB hard disk space
- At least 1 GB for Android SDK, emulator system images, and caches
- 1280 x 800 minimum screen resolution
- Java Runtime Environment (JRE) 6
- Java Development Kit (JDK) 7
- Optional for accelerated emulator: Intel® processor with support for Intel® VT-x, Intel® EM64T (Intel® 64), and Execute Disable (XD) Bit functionality

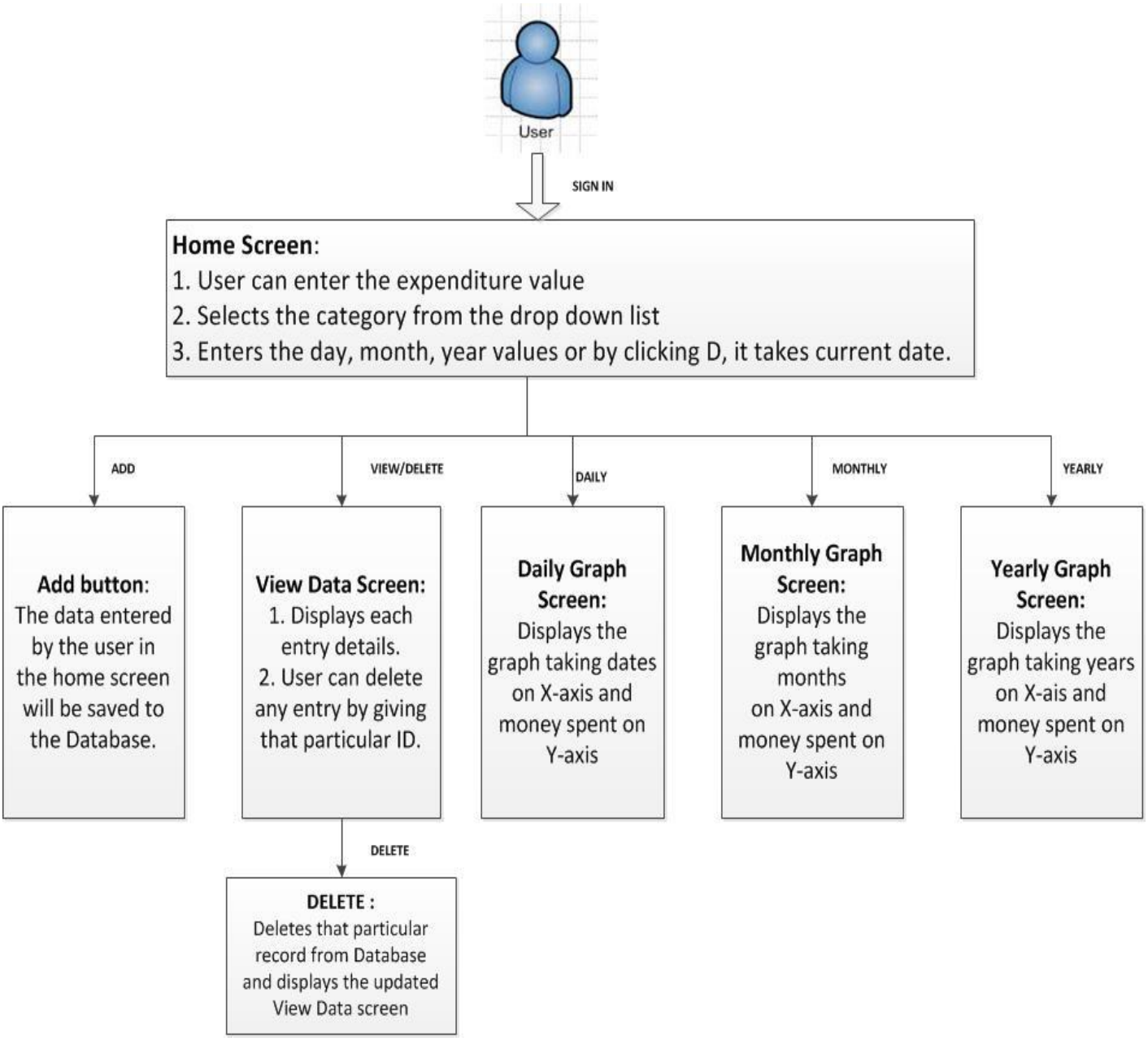
On Mac OS, run Android Studio with Java Runtime Environment (JRE) 6 for optimized font rendering. You can then configure your project to use Java Development Kit (JDK) 6 or JDK 7.

Linux

- GNOME or KDE desktop
- GNU C Library (glibc) 2.15 or later
- 2 GB RAM minimum, 4 GB RAM recommended
- 400 MB hard disk space
- At least 1 GB for Android SDK, emulator system images, and caches
- 1280 x 800 minimum screen resolution
- Oracle® Java Development Kit (JDK) 7

Tested on Ubuntu® 14.04, Trusty Tahr (64-bit distribution capable of running 32-bit applications).

Design:


User
SIGN IN
Home Screen:
1. User can enter the expenditure value
2. Selects the category from the drop down list
3. Enters the day, month, year values or by clicking D, it takes current date.
ADD
VIEW/DELETE
DAILY
MONTHLY
YEARLY
Add button:
The data entered by the user in the home screen will be saved to the Database.
View Data Screen:
1. Displays each entry details.
2. User can delete any entry by giving that particular ID.
Daily Graph Screen:
Displays the graph taking dates on X-axis and money spent on Y-axis
Monthly Graph Screen:
Displays the graph taking months on X-axis and money spent on Y-axis
Yearly Graph Screen:
Displays the graph taking years on X-ais and money spent on Y-axis
DELETE
DELETE :
Deletes that particular record from Database and displays the updated View Data screen

How to Compile the Code:

1. Extract the files from the zip folder to particular folder (say DV Final Project)
2. Open Android Studio and Import all the files in this DV Final Project folder.
   File → New → Import Project → Select the folder.
3. Run the file by clicking the play button.
4. This will ask to select the device or to launch emulator. If an android device is connected to your system, you can select the device from the list and the application will be installed into the android phone.
5. If you select to launch emulator, you can see a virtual android device with an application installed in the system.
6. Or you can copy the apk file to android phone. Open that file from the file manager of the phone and click install, then the application will be installed to the android phone.

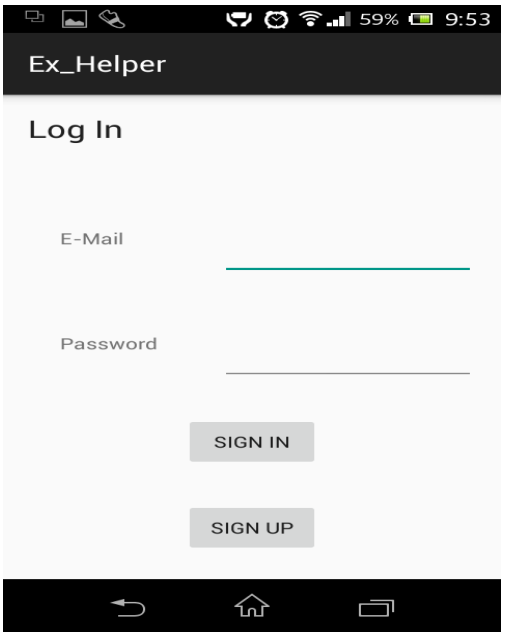
Or You can Download the apk file from the link below:

http://grid.cs.gsu.edu/~pchourasia1/Activities/DVFiles/app-release.apk

Just Open this file on your android phone. It will install the Application in your Android Phone.

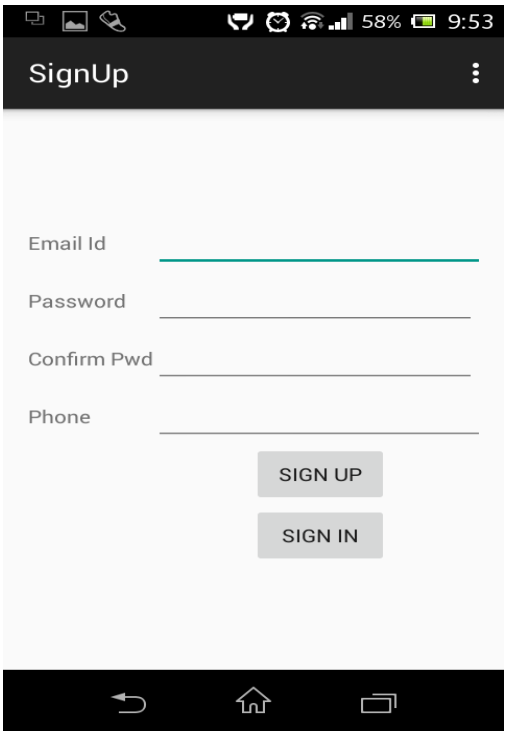
How to use the Program:

Main Activity Screen:

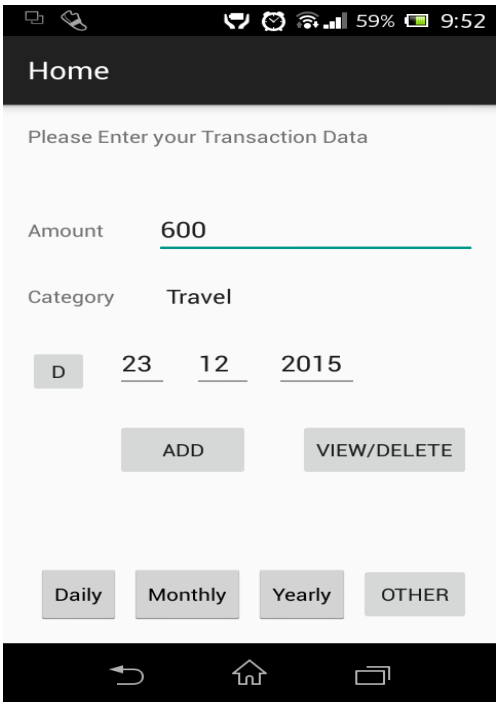


User can enter any email ID and password to get Sign In.

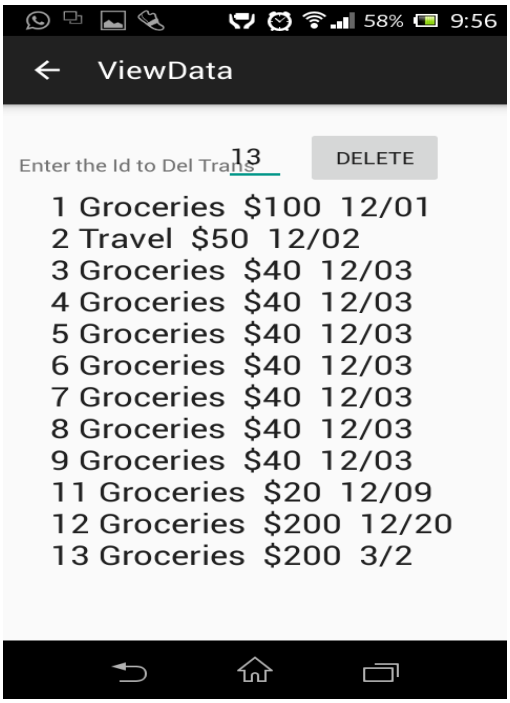
Sign Up screen:



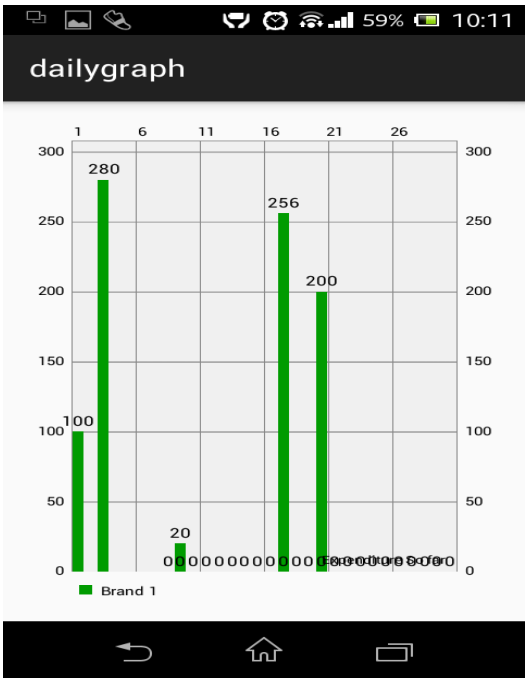
Home Screen:



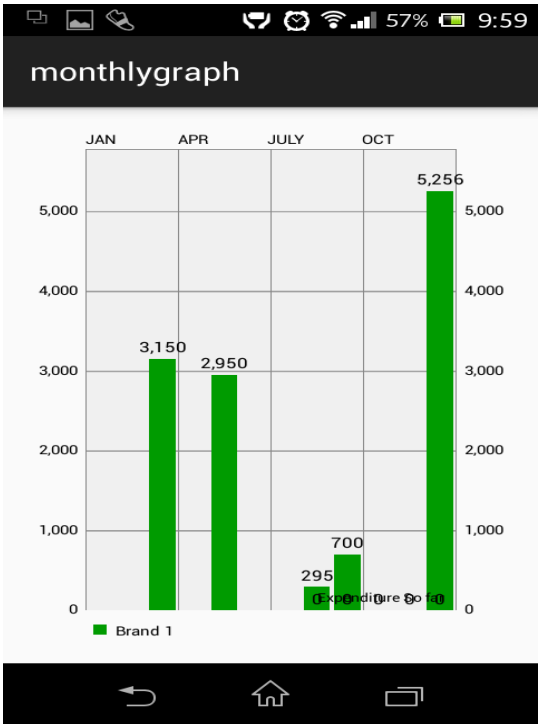
View/Delete Data Screen:



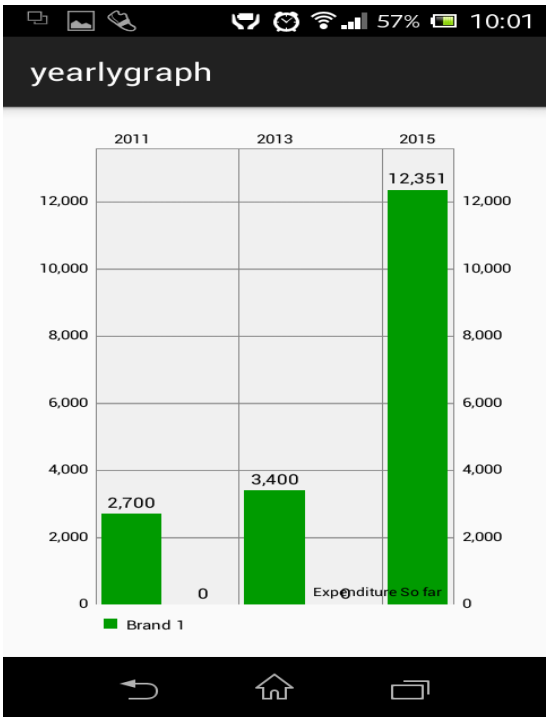
Daily Graph:



Monthly Graph:



Yearly Graph:



Technical Details:

- Used General Android development methodology
- Created Activities with **Grid Layout and Relative Layout** as required.
- **Called a Service** named “MyService” class for getting the current date (day, month, year) on click event of button “D” placed in “activity_home.xml”.
- **MyDBHandler Class** is used for placing all database related stuff, All methods for inserting, reading and deleting the transactions data are defined in this class.
- **BackGroundTask Class** is used for sending the “Sign In” And “Sign Up” Information to the **php Scripts**, which later on push the data and **perform** the **Registration and Check Authentication** for user requesting Log In.
- These **php Scripts** fetch or push the data from/to **MySql Database**

  (For using these Sign Up and Online Authentication Functionality, You Need to

create Database and Tables in MySql) *For ease we have submitted the code skipping these functionality also. Both apk's are submitted separately*.

- **"Transcaction.class"-** class file is used to write Getter And Setter for Database fields.
- Each Activity logic is written in respective class file and designed in separate .xml files.

Future Work:

In future, we would like to make the **interactive graphs** like display of graph information on a mouse hover, controls, **filters to display the graph with in a range**, coloring, option to select the type of graph to visualize the data etc.

We also want to work on displaying the **graphs on category basis** and giving more options on selecting month or year.

References:

1. Android Studio Developers
   http://developer.android.com/training/index.html

2. https://github.com/PhilJay/MPAndroidChart