ANDROID APPLICATION FOR EFFECTIVE EXPENSE MANAGER (CASHITY)

A CREATIVE AND INNOVATIVE PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report **"*ANDROID APPLICATION FOR EFFECTIVE EXPENSE MANAGER(CASHITY)*"** the bonafide work of *"***R.PRIYADARSHINI (1515102088), R.SOWDESWARI (1515102108)"** who carried out the creative and innovative project work under my supervision.

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ABSTRACT

Daily Expenditure management for an individual is an essential activity in their fast moving life. This android application named as “CASHITY” is used to manage the user‘s daily expenses in a more efficient and manageable way. By using this application it can reduce the manual calculations for their daily expenses and keep the track of the expenditure. This application allows users to maintain a digital automated diary. It takes income from user and divides in daily expense allowance. Financial management and internal control should be understood, established, organised and implemented properly for a successful management. This acts as a main concept of the application. The objective of financial management is to help users to make sensible investment and financing decisions in the future. This concept acknowledges that financial theory teaches that investment and financing decisions should be based on cash flow and risk. It provides information on payback period, return on capital employed, earnings per share effect, working capital, profit planning, standard costing, financial statement planning and ratio analysis. It seeks to combine the practical rules of thumb of the traditionalists with the ideas of the financial theorists to form a balanced approach to practical financial management for MBA students, financial managers and undergraduates.

LIST OF FIGURES

LIST OF ABBREVIATIONS

CHAPTER 1

INTRODUCTION

Cashity allows users to maintain a digital automated diary. With the launch and increase in sales of smartphones over the last few years, people are using mobile applications to get their work done, which makes their lives easier. Mobile application comprises various different categories such as entertainment, sports, lifestyle, education, games, food and drink, health and fitness, finance, etc. Cashity falls in the finance category and serves the important purpose of managing finances which is a very important part of one's life.

1.1 MOTIVATION

There exist quite a few web-based software called as expense calculators. Some of them are stand alone applications which provide a single service like tracking personal expenses where as others provide a combination of services. However, there does not exist, any software which is essentially for a mobile-based expense tracking. The motivation behind taking up such a problem statement was the fact that Internet is not always available at our disposable. If such a mobile application exists it will be of enumerable help at any given time of the day.

1.2 BACKGROUND

In our day to day life, we've always dealt with money as a basic necessity for survival in this fast-moving life. As an effective expense managing practise many of us used to write down manually all our daily expenses in a small chit of paper in order to be aware of our daily expenditure, as the digitalization era is in motion, smart phones with latest operating systems from various different organisation are becoming a growing trend in the society. With the help of android studio we have developed an application in order to manage the daily expense in an

effective digitalized way. Using this application he/she will make their money management much easier and faster. It lets the user to compare their spending each week, month, and year. Numerous categories like entertainment, insurance, automobile, healthcare etc are available. Our application has a new concept which is very easy and simple to handle, not very complicated as other mobile applications. The main benefit of using mobile phone is that it's simple and innovative.

1.3 ANDROID

Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the android platform using the Java programming language.

1.3.1 FEATURES

- **Application framework** enabling reuse and replacement of components
- **Dalvik virtual machine** optimized for mobile devices
- **Integrated browser** based on the open source WebKit engine
- **Optimized graphics** powered by a custom 2D graphics library; 3D graphics based on the OpenGL ES 1.0 specification (hardware acceleration optional)
- **SQLite** for structured data storage
- **Media support** for common audio, video, and still image formats (MPEG4, H.264, MP3, AAC, AMR, JPG, PNG, GIF.
- **GSM Telephony** (hardware dependent)

- **Bluetooth, EDGE, 3G, and Wi-Fi** (hardware dependent)

- **Camera, GPS, compass, and accelerometer** (hardware dependent)

- **Rich development environment** including a device emulator, tools for debugging, memory and performance profiling, and a plug-in for the Eclipse ID

1.3.2 ANDROID ARCHITECTURE

The following diagram shows the major components of the Android operating system. Each section is described in more detail below:

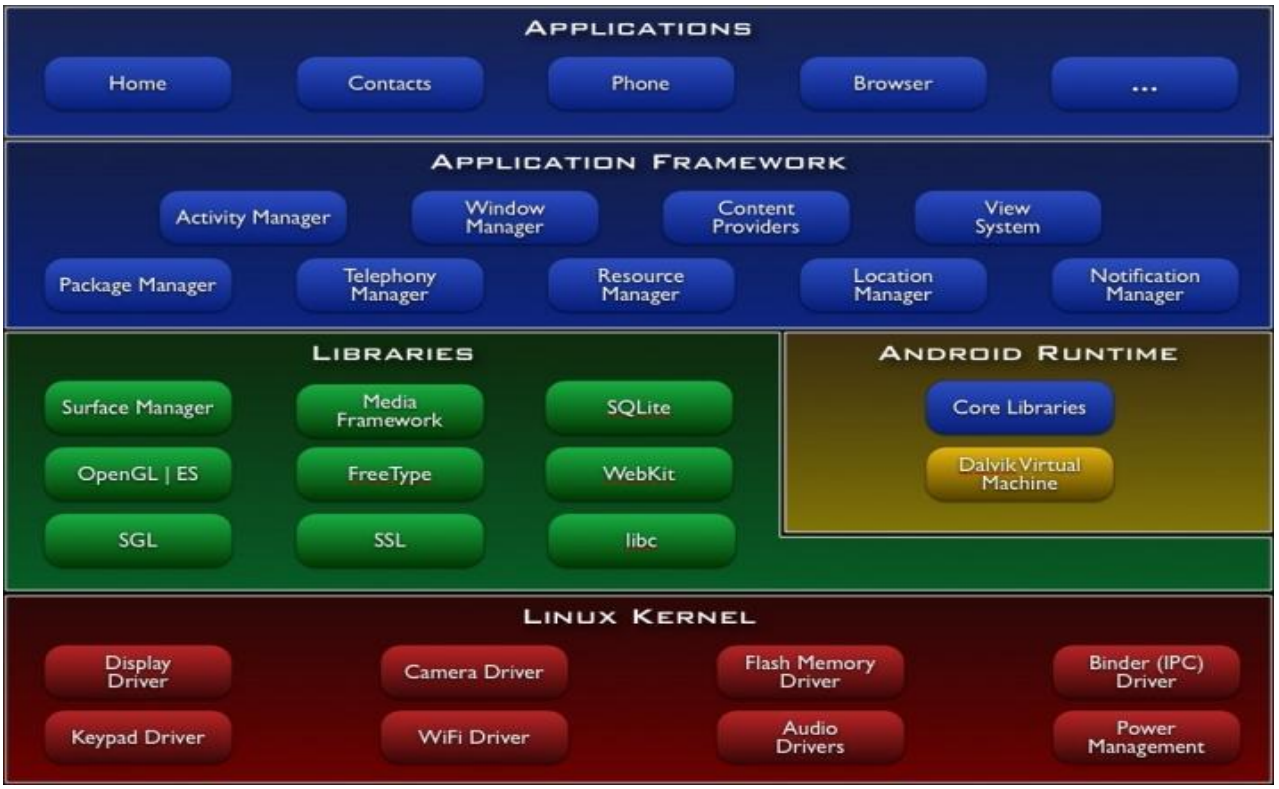

Fig.1.1: Android Architecture

Source: Google Images

1.3.3 APPLICATIONS

Android will ship with a set of core applications including an email client, SMS program, calendar, maps, browser, contacts and others. All applications are written using the Java programming language.

By providing an open development platform, Android offers developers the ability to build extremely rich and innovative applications. Developers are free to take advantage of the device hardware, access location information, run background services, set alarms, add notifications to the status bar and much, much more.

Developers have full access to the same framework APIs used by the core applications. The application architecture is designed to simplify the reuse of components; any application can publish its capabilities and any other application may then make use of those capabilities (subject to security constraints enforced by the framework). This same mechanism allows components to be replaced by the user.

1.3.4 MERITS OF ANDROID OS

- Totally open API
- Device and network-independent software platform
- Android app marketplace is democratic
- OS is updated often and even for older devices like the HTC Dream (T-Mobile G1)
- True multi-tasking OS based on Linux kernel

- Mostly free third-party apps
- Has great potential to scale well up to higher-end devices like Smartbooks (various laptop manufacturers experimenting with this)

1.3.4(a) DEMERITS OF ANDROID OS

- Fewer developers and a smaller user base than the more established iPhone / iOS software ecosystem
- User lacks the ability to definitively close applications from within task manager
- Few payment options for application marketplace - only Google Checkout No review process on the application marketplace, nothing stopping malware from getting published
- No multi-touch implementations on handsets sold in the U.S. (up to at least Android v2.1)
- Limited to Google accounts

1.4 OBJECTIVE

The main objective of this application is to eliminate the use of the traditional way of using paper for calculating and monitoring our expenses and providing a digitalised platform that is focused on helping you manage your expenses

CHAPTER 2

LITERATURE REVIEW

2.1 EXISTING SYSTEM

In existing, we need to maintain the Excel sheets etc. files for the user daily and monthly expenses. In existing, there is no as such complete solution to keep a track of its daily expenditure easily. And there is no such pie-chart representation which is user-friendly and easy understand-ability. In the existing system, a person has to keep a log in a diary or in a computer to do all the calculations that is required for calculating the budget which may sometimes results in errors leading to losses. But in this application, the money which is spent is recorded and displayed in the pie-chart format for the better understanding of the user. There is several application which stores and maintains bank details regarding the savings and the money spent from the account. But this is a very essential application which is needed for all the people for maintaining or managing the income which they get. By tracking the money which is being spent , the user can also plan or have an idea of saving the money. This is the most important benefit of the application.

This application provides easy way of categorizing the spent money. It provides various categories in which the money will be spent like entertainment, schooling, monthly expenditures, savings etc.

With the help of these facilities, the user can easily categorize the area in which he spent the money and record it. At the end, the whole expenses which the user has made in several categories

will be displayed in the form of pie-chart for easier understand-ability. This is the benefit of the application when compared with the existing system.

2.2 KEY TERMS OF ANDROID STUDIO

Table 2.1 Key Terms used in Android Studio

Term Or Acronym	Definition
Android	Android is an open mobile phone platform that was developed by Google and, later, by the Open Handset Alliance. Google defines Android as a "software stack" for mobile phones
Android SDK	A software development kit that enables developers to create applications for the Android platform. The Android SDK includes sample projects with source code, development tools, an emulator, and required libraries to build Android applications.

SQLite	A public domain, compact SQL-based database management system designed for embedded applications such as Smarthones and PDAs. It is also linked directly into software applications.
GIT	GIT is a free & open source, distributed version control system designed to handle everything from small to very large projects with speed and efficiency. GIT is used for version control of files.
ANT	Ant is an open source build tool (a program for putting together all the pieces of a program). Ant is portable and simple to use. Ant is independent of both platform and development environment
REST	Short for Representational State Transfer, REST is a web-specific network architecture that allows easier development and deployment of

	distributed applications, mainly using Web Services

CHAPTER 3

SYSTEM ANALYSIS

3.1 NEED FOR THE PROPOSED SYSTEM

The purpose of this document is to collect, analyze and high-level requirements and features of this mobile application. It focuses on the capabilities needed by the target users. The document contains a mention of the purpose of the system, its overall description, specific requirements pertaining to the same and other supporting information.The document gives an overview of the system, a complete description of all the features and specifications and its dependencies, issues related to specific requirements and miscellaneous information.

3.2 OPERATING ENVIRONMENT

3.2.1 MODULE DESCRIPTION

Cashity provides the following functionalities to the users:-

- **Overview**

The Overview module will help the user to initially start the application and the expenses tab are visible at NULL as it does not contain any entry from the user.

- **Category creation**

The user can create their own category according to their own needs and convenience. This can be done by add category tab which is present in the home screen.

- **Additional Infos**

The user can set the date when he/she is spending their money and also an helpful notes tab is also being provided below to the dates tab in order to take notes of the expenses done by the user.

- **Logging expenses**

The user will enter all expense details in the application and this module will calculate the total amount of daily expenses accordingly.

- **History**

This module will gives the entire history of all the expenses done by the user for the course of a day, week, month and year. This tab generally is helpful in accessing the past spending on various things as and can help the user to know how much of money was spent.

- **Report generation**

This module will generate the budget report in the form of a pie-chart to classify how much money was spent on a particular category and is used to help the user to analyse their expenses.

3.2.2 SOFTWARE REQUIREMENTS

1. Android SDK.

2. SQLite for database server

3. Android Studio Version 3.0.1

4. GIT (Version Control System)

5. ANT

6. Middle-ware: REST (Protocol for web services)

3.2.3: HARDWARE REQIREMENTS

1. A mobile handset with Android Operating System.

2. For computer: 4GB RAM (min.) and 120 GB HDD

3.2.4 CONSTRAINTS, ASSUMPTIONS AND DEPENDENCIES

1. The application will only work on Android based mobile handset.

2. Internet services will not be required as it is an offline application at the time.

3. Only one member is logged into the application from one mobile handset.

CHAPTER 4

PROPOSED SYSTEM DESIGN

4.1 PROPOSED SYSTEM:

The objective behind this solution is to design a refined system which will allow the user to efficiently manage his or her expenses with ease. This system will include a website application that will allow users to maintain a digital automated diary. After logging into the system, a user can add the bills with an option to attach the image of the bill or not. The option to attach a bill helps the user to remember when and where the payment was made. The user can also add the information about how the payment was made i.e. via check, card or cash. The system also allows entering the check details. As soon as the entry is made about the expense, the database is updated and according to the nature of the bill deduction or addition to the total balance in the user's pocket is made. In order to make the user aware about the average rate of the expenses, an alluring graphical statistics are also provided. In addition to the daily tracking of the expenditure, it is also beneficial to have a quick access to the past record of the expense habit; keeping in mind there is also an option of monthly budget to provide a quick glance of the past spending. With the help of these facilities, the user can easily categorize the area in which he spent the money and record it.

At the end ,the whole expenses which the user has made in several categories will be displayed in the form of pie-chart for easier understand ability. There is also an option to view owe and lend expenses which adds or gets deducted from the overall budget according without bothering the user. The data is very important asset for corporation, so strong authentication method is to be used to ensure security of information from malicious users. It easy to be customized in future, as the client demand some other additional features. The complexity of customer (ie. Users) may be different or if mode of business changes then the system has capability to make appropriate modification to suite that change. Customization is key factor of designing this software. The accuracy of all type of calculations are important and to be achieved at any cost. The data retrieval and other manipulation related task which is done at the database level is fast enough. Storage of data is easily accessible.

4.2 SYSTEM ARCHITECTURE

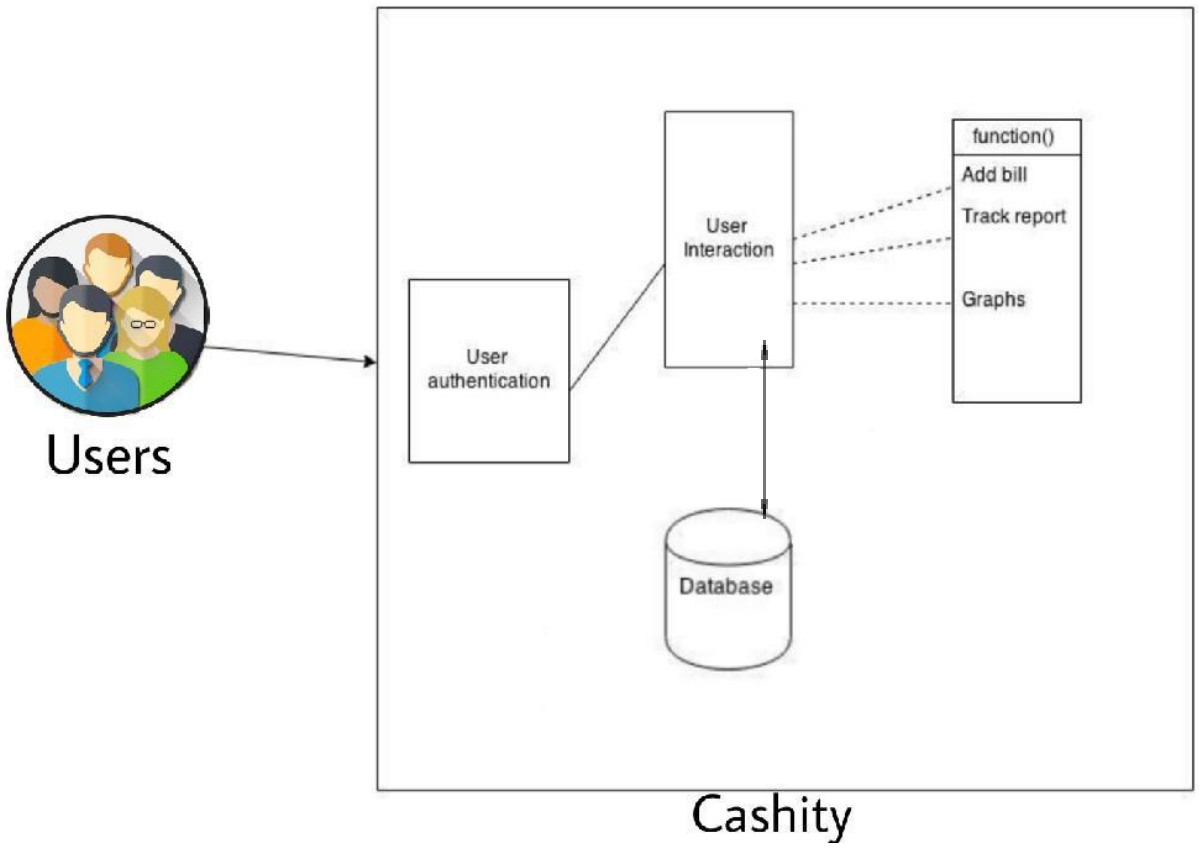

Fig.4.1: SYSTEM ARCHITECTURE OF CASHITY

- This diagram provides a clear representation of the user interaction with the system
- It gives a clear step-by-step procedure of the architecture

4.3 ENTITY RELATIONSHIP DIAGRAM

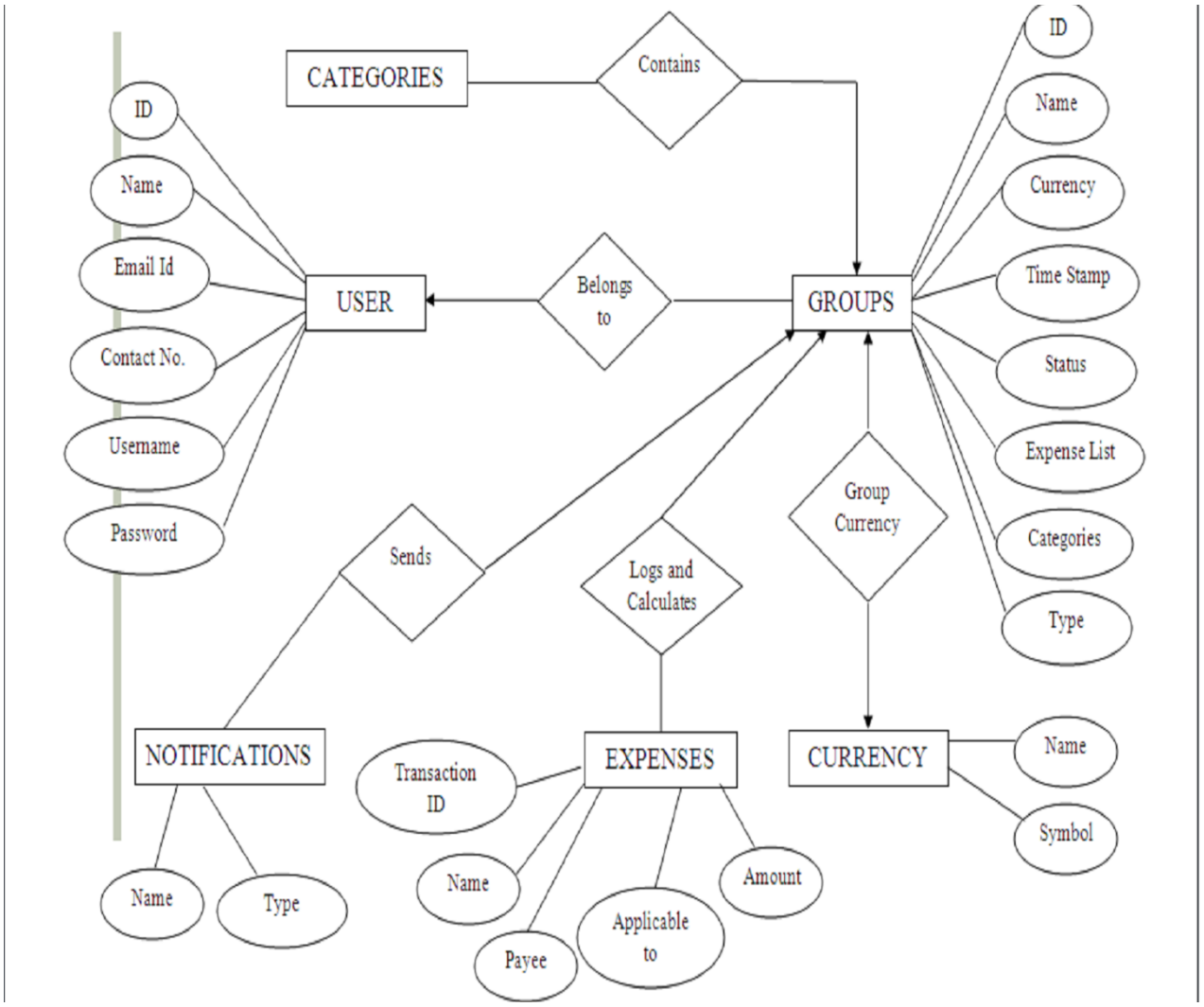

Fig.4.2: ENTITY RELATIONSHIP DIAGRAM OF CASHITY

- It tells how the various entities are related to each other along with various attributes used in the application.
- The various entities used are USER, CATEGORIES, EXPENSES, and CURRENCY.

4.4 DATA FLOW DIAGRAM:

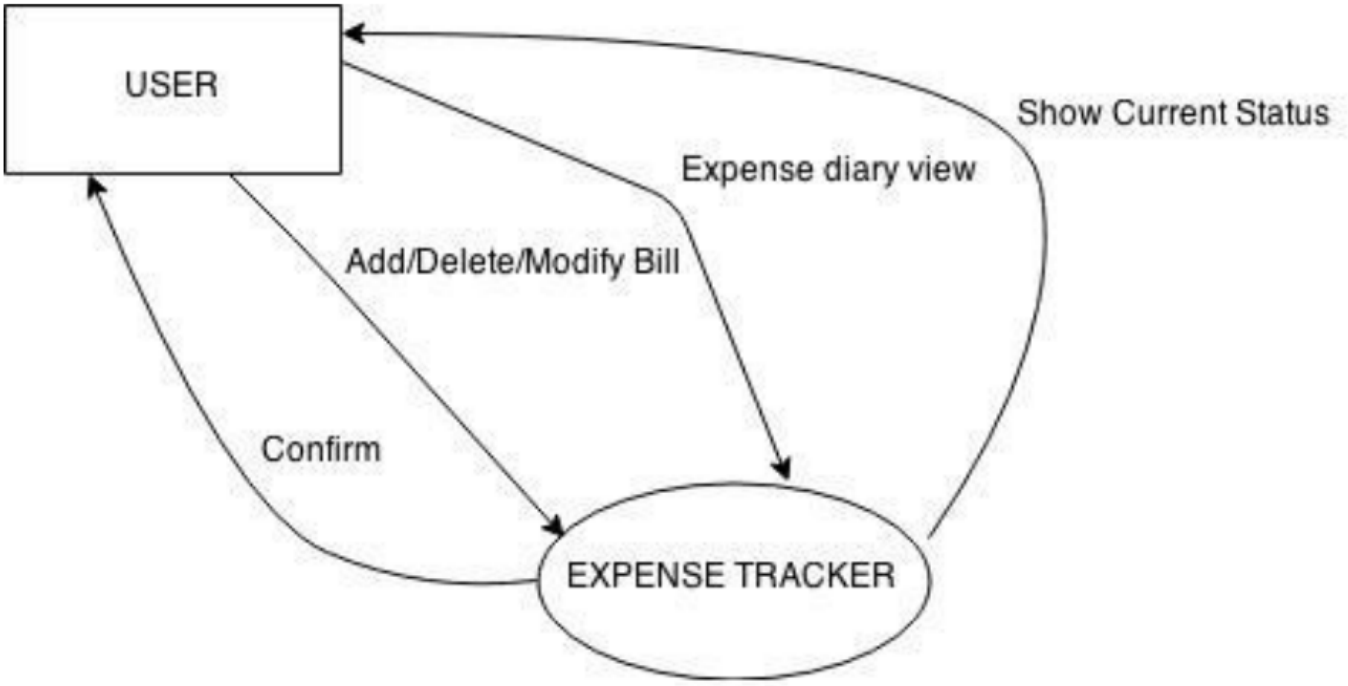

Fig.4.3: DATA FLOW DIAGRAM OF CASHITY

- The data flow of the interaction between the user and application is clearly represented in the form of a data flow diagram
- The various operations used are interpreted in the form of directed arrows from user to the application

4.5 USE-CASE DIAGRAM:

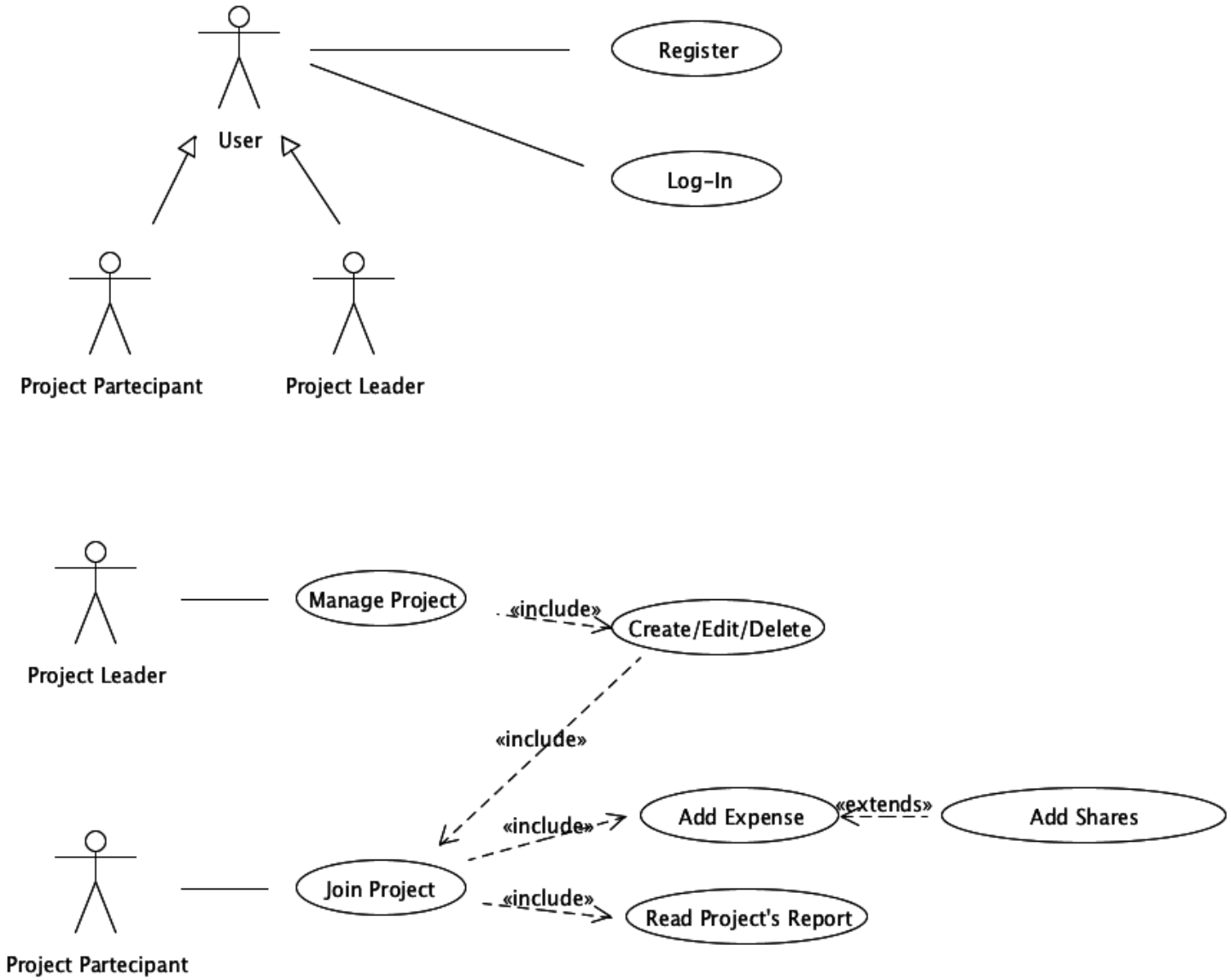

Fig.4.4: USE-CASE DIAGRAM OF CASHITY

CONCLUSION

Program works faster without any error. This application is very useful for calculating personal expenses. Tracking your expenses daily can save you money, but it can also help you set financial goals for the future. If you know exactly where your money is going every month, you can easily see where some cutbacks and compromises can be made. It will also give you a good outlook on your spending habits and those impulse buys will stick out like little red flags.

In this report, a flexible solution is discussed for keeping track of group expenses on the go rather than the contemporary way of making mental and sometimes erroneous calculations. It is discussed at length about some existing applications along with their limitation. Our application deals with developing an application to overcome the shortcomings of the existing expense-tracking applications.

A comparative study of various available technologies to solve and their feasibilities and advantages/disadvantages were also made. Finally in conclusion the best approach would be an Android mobile application synchronized with a web-application to track the expenses. This report discusses the proposed system in detail, with regards to its functionality, strengths and weaknesses.

APPENDIX

SCREENSHOTS

Fig5.1 Welcome Screen

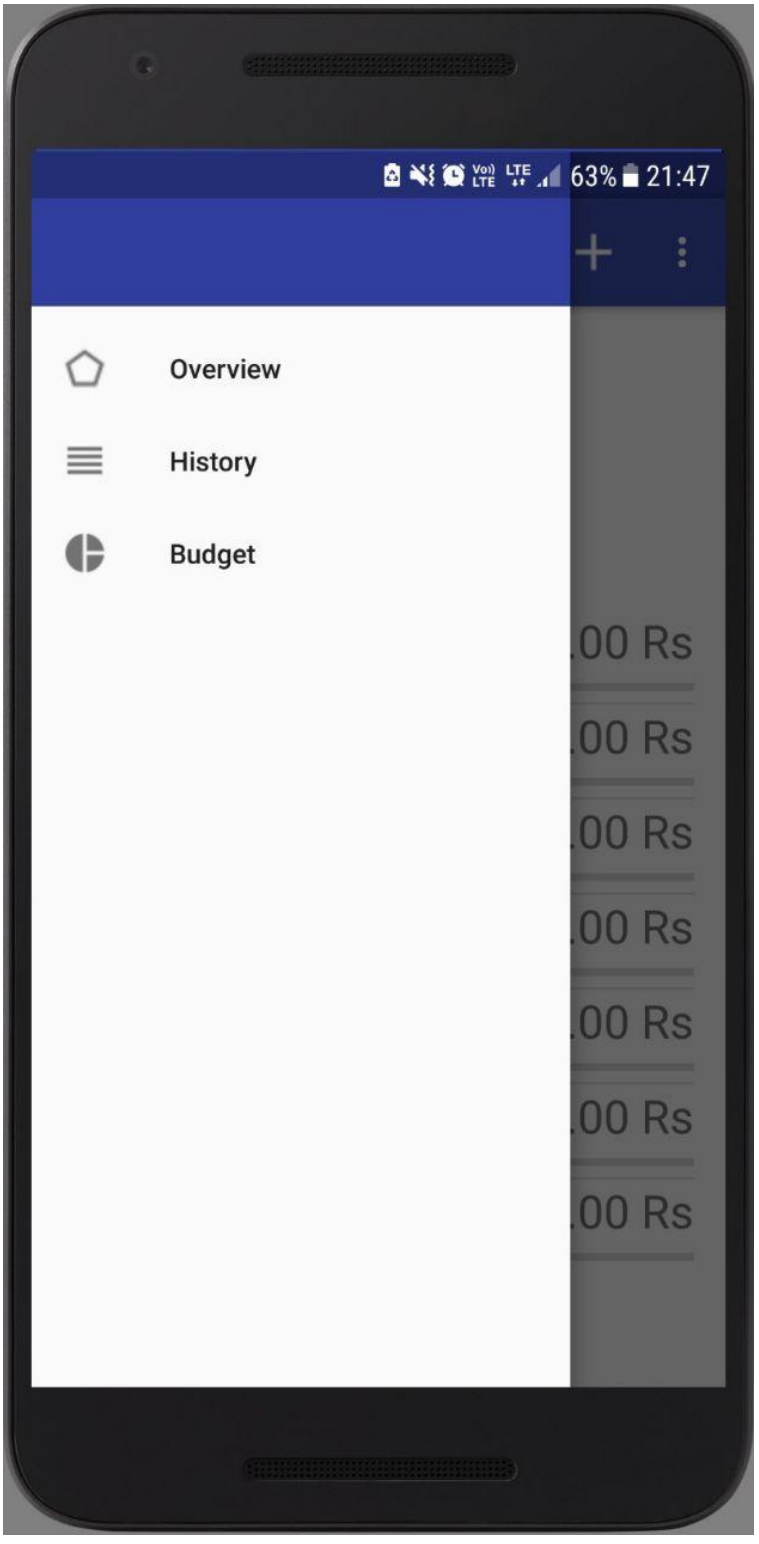

Fig5.2 Navigation Toolbar

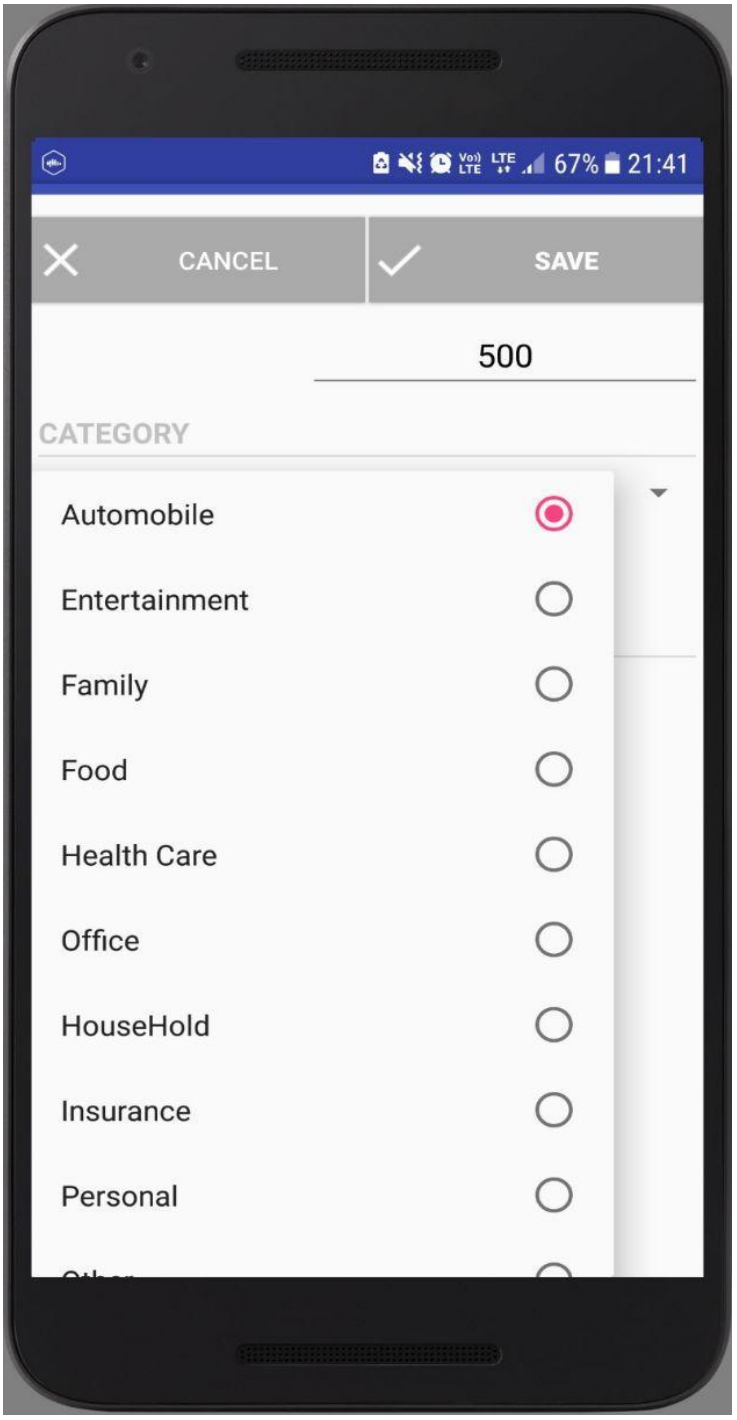

Fig 5.3 Category List

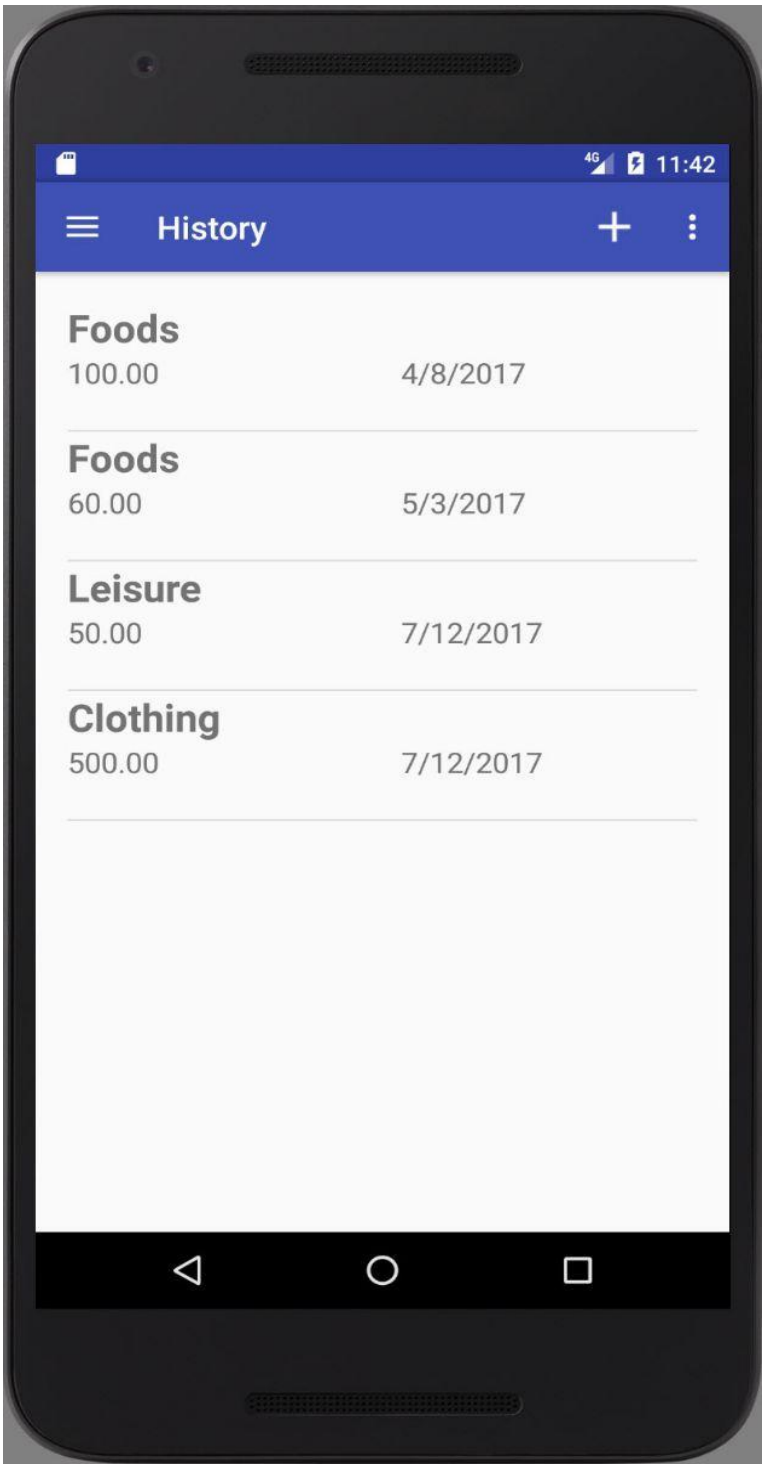

Fig 5.4 History Tab

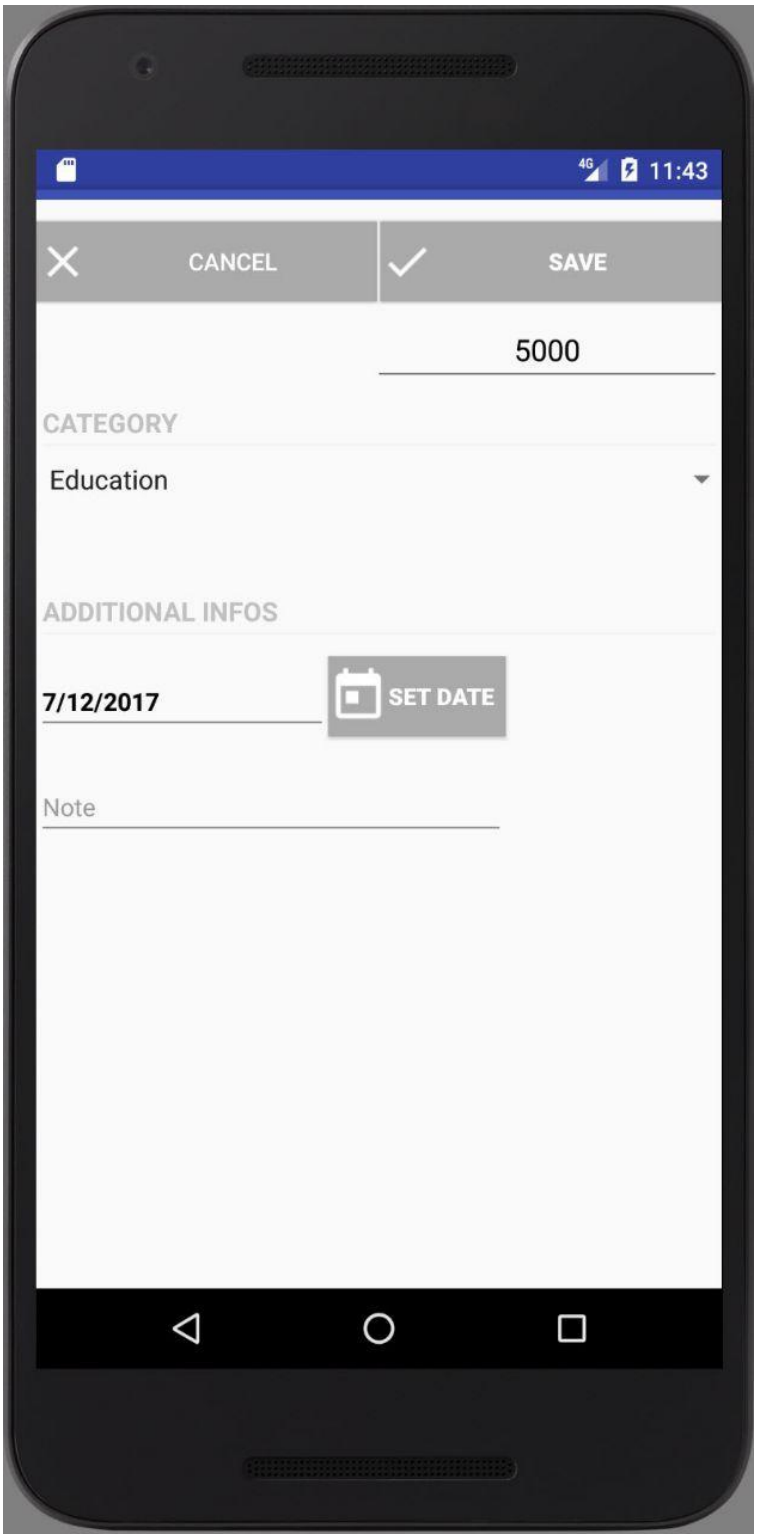

Fig 5.5 Expense Tab

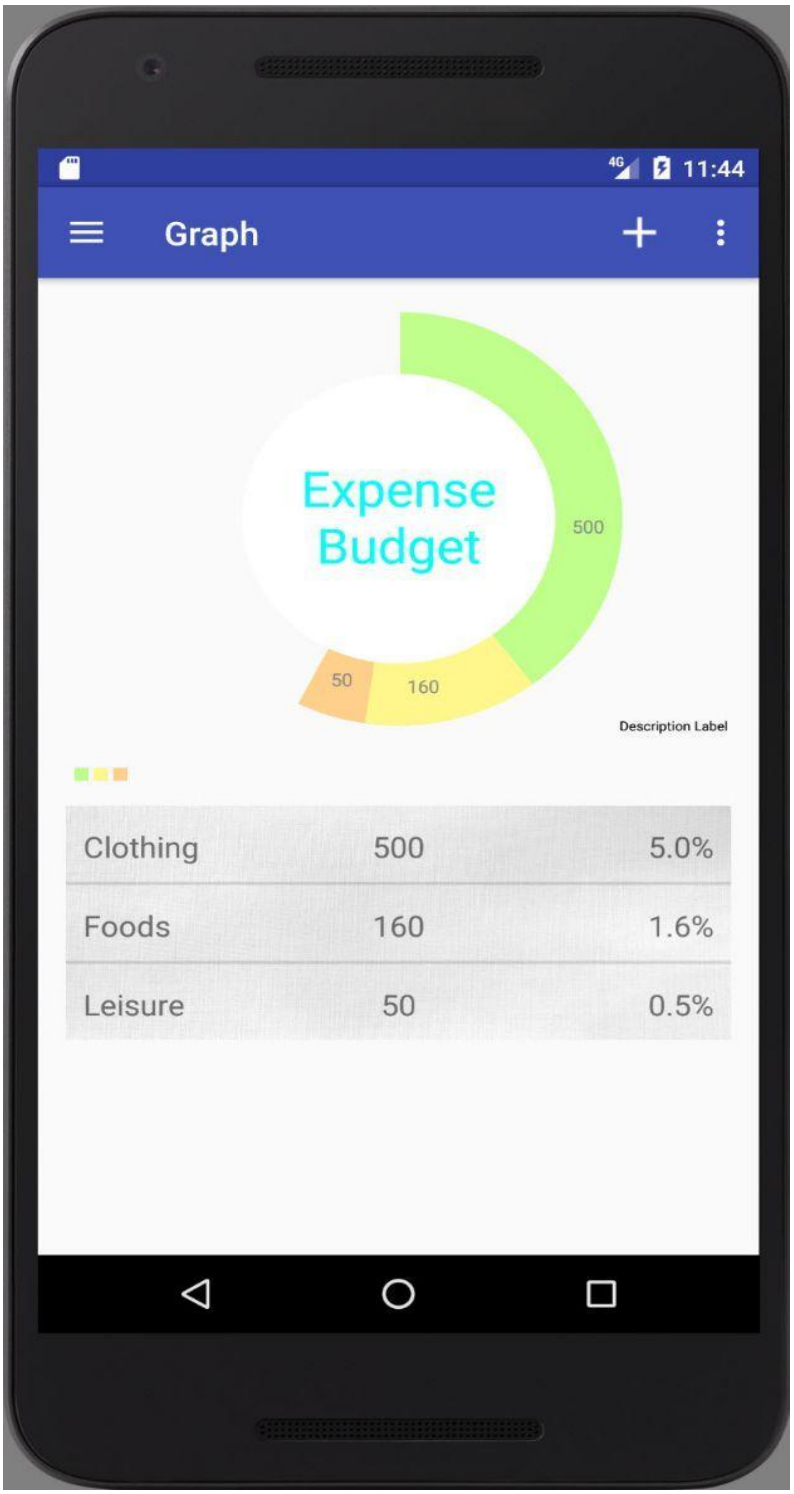

Fig5.6 Graph View

SAMPLE CODE

Main Activity.java

```
package com.project.priyadarshrajendran.cashity;

import android.app.AlertDialog;
import android.app.FragmentTransaction;
import android.content.DialogInterface;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.provider.Settings;
import android.support.design.widget.NavigationView;
import android.support.v4.view.GravityCompat;
import android.support.v4.widget.DrawerLayout;
import android.support.v7.app.ActionBarDrawerToggle;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.Toolbar;
import android.text.Layout;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.RelativeLayout;
import android.widget.Toast;

import layout.add;

import static android.R.attr.onClick;

public class MainActivity extends AppCompatActivity
        implements NavigationView.OnNavigationItemSelectedListener {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

        //RelativeLayout relativeLayout = (RelativeLayout) findViewById(R.id.content_main);
```

```
        // relativeLayout.setBackgroundColor(Color.BLUE);

        DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
        ActionBarDrawerToggle toggle = new ActionBarDrawerToggle(
                this, drawer, toolbar, R.string.navigation_drawer_open,
R.string.navigation_drawer_close);
        drawer.setDrawerListener(toggle);
        toggle.syncState();

        NavigationView navigationView = (NavigationView) findViewById(R.id.nav_view);
        navigationView.setNavigationItemSelectedListener(this);

        Overview fragment = new Overview();
        android.support.v4.app.FragmentTransaction fragmentTransaction =
getSupportFragmentManager().beginTransaction();
        fragmentTransaction.replace(R.id.frame, fragment, "Overview");
        fragmentTransaction.commit();
    }

    @Override
    public void onBackPressed() {
        DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
        if (drawer.isDrawerOpen(GravityCompat.START)) {
            drawer.closeDrawer(GravityCompat.START);
        } else {
            super.onBackPressed();
        }
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);

        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
```

```
        int id = item.getItemId();
        //noinspection SimplifiableIfStatement
        switch (item.getItemId()) {
            case R.id.add:
                startActivity(new Intent(this, Tab2.class));
                return true;

            case R.id.archive:
                startActivity(new Intent(this, Setting.class));
                return true;

            case R.id.action_1:
                return true;

            case R.id.exit:
                finish();
                return true;
        }/*

        DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
        drawer.closeDrawer(GravityCompat.START);
        return true;
    }

}
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.v4.widget.DrawerLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/drawer_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"

    tools:openDrawer="start">

    <include
        layout="@layout/app_bar_main"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

    <android.support.design.widget.NavigationView
        android:id="@+id/nav_view"
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_gravity="start"
        android:fitsSystemWindows="true"
        app:headerLayout="@layout/nav_header_main"
        app:menu="@menu/activity_main_drawer" />

</android.support.v4.widget.DrawerLayout>
```

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