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REPORT

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Gurnoor Singh

Abstract

Modern life offers a plethora of options of services and goods for consumers. As a result, peoples expenses have gone up dramatically, e.g., compared to a decade ago, and the cost of living has been increasing day by day. Thus it becomes essential to keep a check on expenses in order to live a good life with a proper budget set up.

The Android OS smartphones is one of the top-selling in the world ,it is apparent that people have been using smartphones as an organizational tool. .

Expense Tracker Mobile Application (Monitary) was developed for Android users to keep track of their expenses and determine whether they are spending as per their set budget. Potential users need to input the required data such as the expense amount, merchant, category, and date when the expense was made. Optional data such as sub-category and extra notes about the expense can be entered as well.The application allows users to track their expenses daily, weekly, monthly, and yearly in terms of summary, bar graphs, and pie-charts.

CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Introduction to Organization

Forget about not remembering where you spent your money! Keep track of your expenses and get a lot of statistics to know in what you spend more and you can evaluate where you can cut some expenses! Take advantage of this tool that will help you to manage your money and be informed all the time. You can also configure to get notifications when you have to make some payments every month so you dont forget! This Application is made for any user who wants or wish to keep a better track of their expenses in order to keep them in a same place.

1.2 Introduction To Project

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 applications comprise various different categories such as Entertainment, Sports, Lifestyle, Education, Games, Food and Drink, Health and Fitness, Finance, etc. This Expense Tracker application falls in the Finance Category and serves the important purpose of managing finances which is a very important part of ones life. The software product went through the design, development, and the testing phase as a part of the Software Development Lifecycle.

The applications interface is designed using custom art elements, the functionality is implemented using Android SDK, and the phase of testing the product was accomplished successfully. The application is not much user intensive but just comprises of having them enter the expense amount, date, category, merchant and other optional attributes (taking picture of the receipts, entering notes about the expense, adding subcategories to the categories). With this entered information, the user is able to see the expense details daily, weekly, monthly, and yearly in figures, graphs. All these topics have been explained in detail in their respective chapters

1.3 Project Category(Internet based, Application or System Development, Research based ,Industry Automation, Network or System Administration)

1.4 Objectives

- Implement the various concepts of Android programming together within an application that becomes helpful for intended users.
- Developing an Android based money management system having user friendly interface.

1.5 Problem Formulation

yo

1.6 Identification/Reorganization of Need

1.7 Existing System

1.8 Proposed System

1.9 Unique Features of the System

CHAPTER 2

REQUIREMENT ANALYSIS AND SYSTEM SPECIFICATION

2.1 Feasibility Study (Technical,Economical,Operational)

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that spend on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. Carrying out a feasibility study involves information assessment, information collection and report writing. The information assessment phase identifies the information that is required to answer the three questions set out above. Once the information has been identified, you should question information sources to discover the answers to these questions Thus when a new application is proposed it normally goes through a feasibility study before it is approved for development.

A feasibility study is designed to provide an overview of the primary issues related to a business idea. The purpose is to identify any make or break issues that would prevent your business from being successful in the marketplace. In other words, a feasibility study determines whether the business idea makes sense. A thorough feasibility analysis provides a lot of information necessary for the business plan. For example, a good market analysis is necessary in order to determine the projects feasibility. This information provides the basis for the market section of the business plan.

The document provide the feasibility of the project that is being designed and lists various areas that were considered very carefully during the feasibility study of this project such as Technical, Economic and Operational feasibilities. Feasibility is defined as the practical extent to which a project can be performed successfully. To evaluate feasibility, a feasibility study is performed, which determines whether the solution considered to accomplish the requirements is practical and workable in the software. Information such as resource availability, cost estimation for software development, benefits of the software to the organization after it is developed and cost to be incurred on its maintenance are considered during the feasibility study. The objective of the feasibility study is to establish the reasons for developing the software that is acceptable to users, adaptable to change and conformable to established standards.

Objectives of feasibility study are listed below.

- To analyze whether the software will meet organizational requirements
- To determine whether the software can be implemented using the current technology and within the specified budget and schedule

- To determine whether the software can be integrated with other existing software.

2.1.1 Types of Feasibility

Various types of feasibility that are commonly considered include technical feasibility, operational feasibility, and economic feasibility.

2.1.1.1 Technical Feasibility

Technical feasibility is one of the first studies that must be conducted after the project has been identified. In large engineering projects consulting agencies that have large staffs of engineers and technicians conduct technical studies dealing with the projects. In individual agricultural projects financed by local agricultural credit corporations, the technical staff composed of specialized agricultural engineers, irrigation and construction engineers, and other technicians are responsible for conducting such feasibility studies. The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system. This assessment is based on an outline design of system requirements, to determine whether the company has the technical expertise to handle completion of the project. When writing a feasibility report, the following should be taken to consideration:

- A brief description of the business to assess more possible factors which could affect the study
- The part of the business being examined
- The human and economic factor
- The possible solutions to the problem

The system must be evaluated from the technical point of view first. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, output, programs and procedures. Having identified an outline system, the investigation must go on to suggest the type of equipment, required method developing the system, of running the system once it has been designed. Technical feasibility assesses the current resources (such as hardware and software) and technology, which are required to accomplish user requirements in the software within the allocated time and budget. For this, the software development team ascertains whether the current resources and technology can be upgraded or added in the software to accomplish specified user requirements. Technical feasibility also performs the following tasks.

- Analyzes the technical skills and capabilities of the software development team members
- Determines whether the relevant technology is stable and established
- Ascertains that the technology chosen for software development has a large number of users so that they can be consulted when problems arise or improvements are required.

Technical issues raised during the investigation are:

- Does the existing technology sufficient for the suggested one?
- Can the system expand if developed?

The project should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed within latest technology. Through the technology may become obsolete after some period of time, due to the fact that never version of same software supports older versions, the system may still be used. So there are minimal constraints involved with this project. The system has been developed using Java the project is technically feasible for development.

2.1.1.2 Economic Feasibility

The purpose of the economic feasibility assessment is to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost/ benefits analysis.

Economic feasibility is the cost and logistical outlook for a business project or endeavor. Prior to embarking on a new venture, most businesses conduct an economic feasibility study, which is a study that analyzes data to determine whether the cost of the prospective new venture will ultimately be profitable to the company. Economic feasibility is sometimes determined within an organization, while other times companies hire an external company that specializes in conducting economic feasibility studies for them.

The purpose of business in a capitalist society is to turn a profit, or to earn positive income. While some ideas seem excellent when they are first presented, they are not always economically feasible. That is, that they are not always profitable or even possible within a company's budget. Since companies often determine their budget's several months in advance, it is necessary to know how much of the budget needs to be set aside for future projects. Economic feasibility helps companies determine what that dollar amount is before a project is ultimately approved. This allows companies to carefully manage their money to insure the most profitable projects are undertaken. Economic feasibility also helps companies determine whether or not revisions to a project that at first seems unfeasible will make it feasible.

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require. Economic feasibility determines whether the required software is capable of generating financial gains for an organization. It involves the cost incurred on the software development team, estimated cost of hardware and software, cost of performing feasibility study, and so on. For this, it is essential to consider expenses made on purchases (such as hardware purchase) and activities required to carry out software development. In addition, it is necessary to consider the benefits that can be achieved by developing the software. Software is said to be economically feasible if it focuses on the issues listed below.

- Cost incurred on software development to produce long-term gains for an organization.
- Cost required to conduct full software investigation (such as requirements elicitation and requirements analysis).
- Cost of hardware, software, development team, and training.

The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also all the resources are already available, it give an indication of the system is economically possible for development.

2.1.1.3 Operational Feasibility

Behavioral feasibility assesses the extent to which the required software performs a series of steps to solve business problems and user requirements. It is a measure of how well the solution of problems or a specific alternative solution will work in the organization. It is also measure of how people feel about the system. If the system is not easy to operate, than operational process would be difficult. The operator of the system should be given proper training. The system should be made such that the user can interface the system without any problem.

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. The operational feasibility assessment focuses on the degree to which the proposed development projects fits in with the existing business environment and objectives with regard to development schedule, delivery date, corporate culture, and existing business processes.

To ensure success, desired operational outcomes must be imparted during design and development. These include such design-dependent parameters such as reliability, maintainability, supportability, usability, producibility, disposability, sustainability, affordability and others. These parameters are required to be considered at the early stages of design if desired operational behaviors are to be realized. A system design and development requires appropriate and timely application of engineering and management efforts to meet the previously mentioned parameters. A system may serve its intended purpose most effectively when its technical and operating characteristics are engineered into the design. Therefore, operational feasibility is a critical aspect of systems engineering that needs to be an integral part of the early design phasesThis feasibility is dependent on human resources (software development team) and involves visualizing whether the software will operate after it is developed and be operative once it is installed. Operational feasibility also performs the following tasks.

- Determines whether the problems anticipated in user requirements are of high priority.
- Determines whether the solution suggested by the software development team is acceptable.
- Analyzes whether users will adapt to a new software.
- Determines whether the organization is satisfied by the alternative solutions proposed by the software development team.

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?
- The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

2.2 Software Requirement Analysis

Software requirement analysis is a process of gathering and interpreting facts, diagnosing problems and the information to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is studied to the minutest detail and analyzed. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action.

A detailed study of the process must be made by various techniques like interviews, questionnaires etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal.

Preliminary study is the process of gathering and interpreting facts, using the information for further studies on the system. Preliminary study is problem solving activity that requires intensive communication between the system users and system developers. It does various feasibility studies. In these studies a rough figure of the system activities can be obtained, from which the decision about the strategies to be followed for effective system study and analysis can be taken.

2.3 Intended User

This Application is made for any user who wants or wish to keep a better track of their expenses in order to keep them in a same place.

2.4 Features

- Saves information of expenses
- Manage categories for expenses
- Create reminders to payment dates.
- Shows statistics of saved data.

2.5 Technologies Used

Android provides a rich application framework that allows you to build innovative apps and games for mobile devices in a Java language environment. The documents listed in the left navigation provide details about how to build apps using Android's various APIs.The various fundamental concepts about the Android app framework:

2.5.1 Android

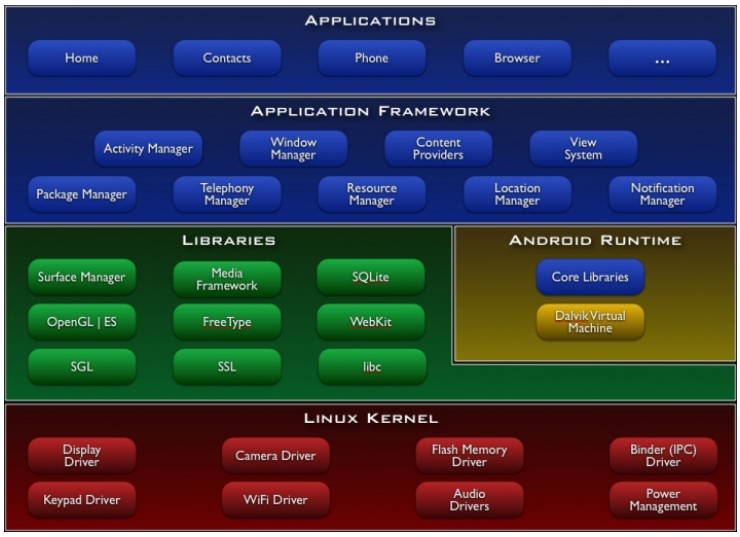

Figure 2.1: Android Anatomy

Apps provide multiple entry points.Android apps are built as a combination of distinct components that can be invoked individually. For instance, an individual activity provides a single screen for a userinterface, and a service independently performs work in the background. From one component you can start another component using an intent. You can even start a component in a different app, such as an activity in a maps app to show an address. This model provides multiple entry points for a single app and allows any app to behave as a user's "default" for an action that other apps may invoke.

Apps adapt to different devices, Android provides an adaptive app framework that allows you to provide unique resources for different device configurations. For example, you can create different XML layout les for different screen sizes and the system determines which layout to apply based on the current device's screen size. You can query the availability of device features at runtime if any app features require specific hardware such as a camera. If necessary, you can also declare features your app requires so app markets such as Google Play Store do not allow installation on devices that do not support that feature Android comes with an Android market which is an online software store. It was developed by Google.

It allows Android users to select, and download applications developed by third party developers and use them. There are around 2.0 lack+ games, application and widgets available on the market for users. Android applications are written in java programming language. Android is available as open source for developers to develop applications which can be further used for selling in android market. There are around 200000 applications developed for android with over 3 billion+ downloads. Android relies on Linux version 2.6 for core system services such as security, memory management, process management,

network stack, and driver model. For software development, Android provides Android SDK (Software development kit).

2.5.2 Activity Lifecycle

Activities in the system are managed as an activity stack. When a new activity is started, it is placed on the top of the stack and becomes the running activitythe previous activity always remains below it in the stack, and will not come to the foreground again until the new activity exits. An activity has essentially four states: If an activity in the foreground of the screen (at the top of the stack), it is active or running.

If an activity has lost focus but is still visible (that is, a new non-full-sized or transparent activity has focus on top of your activity), it is paused. A paused activity is completely alive (it maintains all state and member information and remains attached to the window manager), but can be killed by the system in extreme low memory situations.

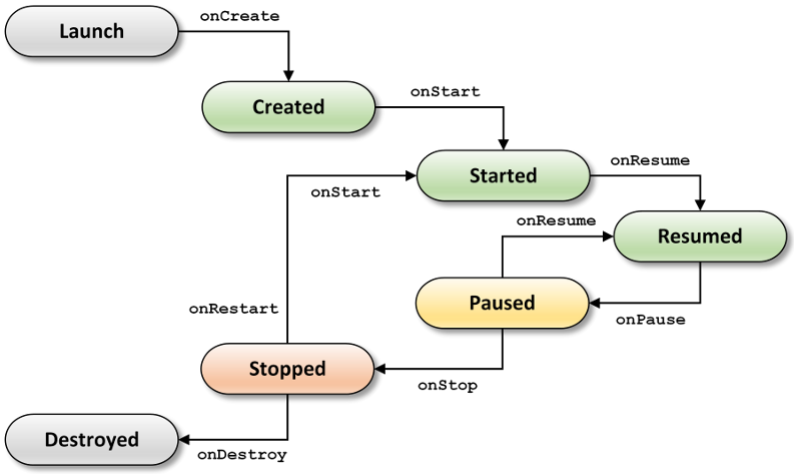

Figure 2.2: Activity Life Cycle

If an activity is completely obscured by another activity, it is stopped. It still retains all state and member information, however, it is no longer visible to the user so its window is hidden and it will often be killed by the system when memory is needed elsewhere.

If an activity is paused or stopped, the system can drop the activity from memory by either asking it to finish, or simply killing its process. When it is displayed again to the user, it must be completely restarted and restored to its previous state.

2.6 Libraries used in making this application

- **Android Support Library** Android Support Library, Card View, Recycler View, Material : The application will follow Material design guidelines.
- **Realm**

  Library to use Realm ORM in the application. This will allow to save data in the database of the app and to retrieve, update and delete objects saved.

- **Willian Charts** Library to implement the graphics to show the statistics of the app. Statistics include Expenses per month, per week and comparison of expenses according to selected dates.

2.6.1 Impliment UI for Each Activity and Fragment

- UI for MainActivity
- UI for Expenses Activity
- UI for Expense Detail that will show last known expenses in the same category as a summary.
- UI for Categories Fragment
- UI for Statistics fragment
- **Expenses Fragment** Implement Business Logic for Adding and removing Expenses. Including removing from recycler view:
  - Add expense or income
  - Remove expense or income from recycler view after enter to the detail page.
- **Categories Fragment**
  - Categories add and remove from recycler view.
  - Detail of category with graph showing last used in the present week.
- **Statistics Fragment** Picker to select dates to make the query.
  - Show Graph for expenses made that month
  - Show graph for expenses made by category

2.6.2 Any other supporting Language

Java is a platform-independent programming language used to create secure and robust application that may run on a single computer or may be distributed among servers and clients over a network.

Java features such as platform-independency and portability ensure that while de-veloping Java EE enterprise applications, you do not face the problems related to hardware , network , and the operating system.

Java was started as a project called "Oak" by James Gosling in June 1991. Gosling's goals were to implement a virtual machine and a language that had a familiar C like notation but with greater uniformity and simplicity than C/C++. The First publication of Java 1.0 was released by Sun Microsystems in 1995. It made the promise of "Write Once, Run Anywhere", with free runtimes on popular platforms. In 2006-2007 Sun released java as open source and andplateform independent soft-ware. Over time new enhanced versions of Java have been released. The current version of Java is Java 1.7 which is also known as Java 7.he Java virtual machine (JVM) is a software implementation of a computer that executes programs like a real machine. The Java virtual machine is written specifically for a specific operating system, e.g. for Linux a special implementation is required as well as for Windows.

Java programs are compiled by the Java compiler into bytecode. The Java virtual machine interprets this bytecode and executes the Java program. The Java runtime environment (JRE) consists of the JVM

and the Java class li- braries and contains the necessary functionality to start Java programs. The JDK contains in addition the development tools necessary to create Java pro-grams. The JDK consists therefore of a Java compiler, the Java virtual machine, and the Java class libraries.

The characteristics and features of java are as follows :

- **Simple** Simple Java is a simple language because of its various features, Java Doesn?t Support Pointers , Operator Overloading etc. It doesnt require unreferenced object because java support automatic garbage collection. Java provides bug free system due to the strong memory management.

- **OOPS** Object-Oriented Programming Language (OOPs) is the methodology which provide software development and maintenance by using object state, behavior Programming Lan-guage must , and have properties. the Object Oriented following characteristics.

  - Encapsulation
  - Polymor-phism
  - Inheritance
  - Abstraction

  As the languages like Objective C, C++ fullls the above four characteristics yet they are not fully object oriented lan-guages because they are structured as well as object oriented languages.In java everything is an Object. Java can be easily extended since it is based on the Object model.

- **Secure** Secure Java is Secure Language because of its many features it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption. Java does not support pointer explicitly for the memory. All Program Run under the sandbox.

- **Robust** Robust Java was created as a strongly typed language. Data type issues and problems are resolved at compile-time, and implicit casts of a variable from one type to another are not allowed.

- **Platform-independent** Platform-independent Java Language is platform-independent due to its hardware and software environment. Java code can be run on multiple plat-forms e.g. windows, Linux, sun Solaris, Mac/Os etc. Java code is compiled by the compiler and converted into byte code. This byte code is a platform independent code because it can be run on multiple platforms i.e. Write Once and Run Anywhere(WORA).

- **Architectural Neural** Architecture neutral It is not easy to write an application that can be used on Windows , UNIX and a Macintosh. And its getting more complicated with the move of windows to non Intel CPU architectures. Java takes a diffierent approach. Because the Java compiler creates byte code instructions that are subsequently interpreted by the java interpreter, archi-tecture neutrality is achieved in the implementation of the java interpreter for each new architecture.

- **Portable** Portable Java code is portable. It was an important design goal of Java that it be portable so that as new architectures(due to hardware, operating system, or both) are developed, the java environment could be ported to them. In java, all primitive types(integers, longs, oats, doubles, and so on) are 20of de ned sizes, regardless of the machine or operating system on which the program is run. This is in direct contrast to languages like C and C++ that leave the sized

of primitive types up to the compiler and developer. Additionally, Java is portable because the compiler itself is written in Java.

- **Dynamic** Dynamic Because it is interpreted , Java is an extremely dynamic language, At runtime, the java environment can extends itself by linking in classes that may be located on remote servers on a network(for example, the internet) At runtime, the java interpreter performs name resolution while linking in the necessary classes. The Java interpreter is also responsible for determining the placement of object in memory. These two features of the Java interpreter solve the problem of changing the de nition of a class used by other classes.

- **Interpreted** We all know that Java is an interpreted language as well. With an interpreted language such as Java, programs run directly from the source code. The interpreter program reads the source code and translates it on the y into computations. Thus, Java as an interpreted language depends on an interpreter program. The versatility of being platform independent makes Java to outshine from other languages. The source code to be written and distributed is platform independent. Another advantage of Java as an interpreted language is its error debugging quality. Due to this any error occurring in the program gets traced. This is how it is di erent to work with Java.

- **High performance** High performance For all but the simplest or most infrequently used applications, performance is always a consideration for most applications, including 21graphics-intensive ones such as are commonly found on the world wide web, the performance of java is more than adequate.

- **Multithreading** Writing a computer program that only does a single thing at a time is an artificial constraint that lived with in most programming languages. With java, we no longer have to live with this limitation. Support for multiple, synchronized threads is built directly into the Java language and runtime environment. Synchronized threads are extremely useful in creating distributed, network-aware applications. Such as application may be commu-nicating with a remote server in one thread while interacting with a user in a different thread.

- **Distributed** Java facilitates the building of distributed application by a collection of classes for use in networked applications. By using javas URL (Uniform Resource Locator) class, an application can easily access a remote server. Classes also are provided for establishing socket-level connections.

2.6.3 Introduction to LaTeX

Figure 2.3: LaTeX Logo

LaTeX, I had never heard about this term before doing this project, but when I came to know about it's features, it is just excellent. LaTeX(pronounced /letk/, /letx/, /ltx/, or /ltk/) is a document markup language and document preparation system for the TeX typesetting program. Within the typesetting system, its name is styled as LaTeX.

Figure 2.4: Donald Knuth, Inventor Of TEX typesetting system

Within the typesetting system, its name is styled as LATEX. The term LATEX refers only to the language in which documents are written, not to the editor used to write those documents. In order to create a document in LATEX, a .tex file must be created using some form of text editor. While most text editors can be used to create a LATEX document, a number of editors have been created specifically for working with LATEX.

LATEX is most widely used by mathematicians, scientists, engineers, philosophers, linguists, economists and other scholars in academia. As a primary or intermediate format, e.g., translating DocBook and other XML-based formats to PDF, LATEX is used because of the high quality of typesetting achievable by TEX. The typesetting system offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting and desktop publishing, including numbering and cross-referencing, tables and figures, page layout and bibliographies.

LATEX is intended to provide a high-level language that accesses the power of TEX. LATEX essentially comprises a collection of TEX macros and a program to process LATEXdocuments. Because the TEX formatting commands are very low-level, it is usually much simpler for end-users to use LATEX.

2.6.3.1 Typesetting

LATEX is based on the idea that authors should be able to focus on the content of what they are writing without being distracted by its visual presentation. in preparing a LATEX document, the author specifies the logical structure using familiar concepts such as chapter, section, table, figure, etc., and lets the LATEX system worry about the presentation of these structures. it therefore encourages the separation of layout from content while still allowing manual typesetting adjustments where needed.

```
\documentclass[12pt]{article}
\usepackage{amsmath}
\title{\LaTeX}
\begin{document}
  \maketitle
  \LaTeX{} is a document preparation system
  for the \TeX{} typesetting program.
   \par
   $E=mc^2$
\end{document}
```

2.6.3.2 Installing LaTeX on System

Installation of LaTeX on personal system is quite easy. As i have used LaTeX on Ubuntu 13.04 so i am discussing the installation steps for Ubuntu 13.04 here:

- Go to terminal and type

  sudo apt-get install texlive-full

- Your Latex will be installed on your system and you can check for manual page by typing.

  man latex

  in terminal which gives manual for latex command.

- To do very next step now one should stick this to mind that the document which one is going to produce is written in any type of editor whether it may be your most common usable editor Gedit or you can use vim by installing first vim into your system using command.

  sudo apt-get install vim

- After you have written your document it is to be embedded with some set of commands that Latex uses so as to give a structure to your document. Note that whenever you wish your document to be looked into some other style just change these set of commands.

- When you have done all these things save your piece of code with .tex format say test.tex. Go to terminal and type

  latex path of the file test.tex Or pdflatex path of the file test.tex
  eg: pdflatex test.tex
  for producing pdf file simultaneously.
  After compiling it type command

  evince filename.pdf
  eg: evince test.pdf
  To see output pdf file.

2.6.3.3 Making Graphics in LaTeX

LaTeX s also know popularly for making complex graphics. One such example is shown below here:

```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{calendar,shadings}
\renewcommand*{\familydefault}{\sfdefault}
\colorlet{winter}{blue}
\colorlet{spring}{green!60!black}
\colorlet{summer}{orange}
```

```
\colorlet{fall}{red}
\newcount\mycount
\begin{document}
\begin{tikzpicture}[transform shape,
every day/.style={anchor=mid,font=\tiny}]
\node[circle,shading=radial,outer color=blue!30,inner color=white,
minimum width=15cm] {\textcolor{blue!80!black}{\Huge\the\year}};
\foreach \month/\monthcolor in
{1/winter,2/winter,3/spring,4/spring,5/spring,6/summer,
7/summer,8/summer,9/fall,10/fall,11/fall,12/winter} {
\mycount=\month
\advance\mycount by -1
\multiply\mycount by 30
\advance\mycount by -90
\shadedraw[shading=radial,outer color=\monthcolor!30,middle color=white,
inner color=white,draw=none] (\the\mycount:5.4cm) circle(1.4cm);
\calendar at (\the\mycount:5.4cm) [
dates=\the\year-\month-01 to \the\year-\month-last]
if (day of month=1) {\large\color{\monthcolor!50!black}\tikzmonthcode}
if (Sunday) [red]
if (all) {
\mycount=1
\advance\mycount by -\pgfcalendarcurrentday
\multiply\mycount by 11
\advance\mycount by 90
\pgftransformshift{\pgfpointpolar{\mycount}{1.2cm}}};}
\end{tikzpicture}
\end{document}
```

LaTeX with just invoking few additional packages.

2.6.3.4 Pdfscreen LaTeX

There are some packages that can help to have unified document using LaTeX. Example of such a package is pdfscreen that let the user view its document in two forms-print and screen. Print for hard copy and screen for viewing your document on screen. Download this package from www.ctan.org/tex-archive/macros/latex/contrib/pdfscreen/.
Then install it using above mention method.

To test it the test code is given below:-
Just changing print to screen gives an entirely different view. But for working of pdfscreen another package required are comment and fancybox.

The fancybox package provides several different styles of boxes for framing and rotating content in your document. Fancybox provides commands that produce square-cornered boxes with single or double lines, boxes with shadows, and round-cornered boxes with normal or bold lines. You can box mathematics, floats, center, flushleft, and flushright, lists, and pages.

Whereas comments package selectively include/excludes portions of text. The comment package allows you to declare areas of a document to be included or excluded. One need to make these declarations in the preamble of your file. The package uses a method for exclusion that is pretty robust, and can cope with ill-formed bunches of text.

So these extra packages needed to be installed on system for the proper working of pdfscreen package.

2.6.3.5 Web based graphic generation using LaTeX

LaTeX is also useful when there is need of generating the graphics from browser. For example to draw a circle by just entering its radius in html input box. So this kind A of project can be conveniently handled using LaTeX. Basic idea behind this generation process is that when user clicks on submit button after entering radius a script will run that enter the radius in already made .tex file and recompiles it on server and makes its pdf and postscript file. After that user can view those files by clicking on link provided to view the files. See some screen shots of such a graphic generation project made by Dr. H.S. Rai:
So here in the above input page which is also the index page user can enter input for length of rectangle, breadth of rectangle and for radius of circle after that user can submit the values. After the values get submitted a script get runs by php code at server side. This script first enters the dimensions of rectangle and circle that were selected by user in to an already existing .tex file and replace with the older dimensions there. After that script recompiles the the tex file and make it available for user.

In above figure it gets clear that .tex file has been compiled and pdf and postscript files are available to user and user can download the graphics so produced. Hence graphics can be generated in LaTeX through web interface.

2.6.4 Doxygen

Doxygen is a documentation generator, a tool for writing software reference documentation. The documentation is written within code, and is thus relatively easy to keep up to date. Doxygen can cross reference documentation and code, so that the reader of a document can easily refer to the actual code. Doxygen supports multiple programming languages, especially C++, C, C#, Objective-C, Java, Python, IDL, VHDL, Fortran and PHP.[2] Doxygen is free software, released under the terms of the GNU General Public License.

Doxygen is the de facto standard tool for generating documentation from annotated C++ sources, but it also supports other popular programming languages such as C, Objective-C, C#, PHP, Java, Python, IDL (Corba, Microsoft, and UNO/OpenOffice flavors), Fortran, VHDL, Tcl, and to some extent. Doxygen can help you in three ways:

- It can generate an on-line documentation browser (in HTML) and/or an off-line reference manual (in) from a set of documented source files. There is also support for generating output in RTF (MS-Word), PostScript, hyperlinked PDF, compressed HTML, and Unix man pages. The

documentation is extracted directly from the sources, which makes it much easier to keep the documentation consistent with the source code.

- You can configure doxygen to extract the code structure from undocumented source files. This is very useful to quickly find your way in large source distributions. Doxygen can also visualize the relations between the various elements by means of include dependency graphs, inheritance diagrams, and collaboration diagrams, which are all generated automatically.

- You can also use doxygen for creating normal documentation (as I did for the doxygen user manual and web-site).

Doxygen looks at the files extension to determine how to parse a file. If a file has an .idl or .odl extension it is treated as an IDL file. If it has a .java extension it is treated as a file written in Java. Files ending with .cs are treated as C# files and the .py extension selects the Python parser. Finally, files with the extensions .php, .php4, .inc or .phtml are treated as PHP sources. Any other extension is parsed as if it is a C/C++ file, where files that end with .m are treated as Objective-C source files.

If you start using doxygen for an existing project (thus without any documentation that doxygen is aware of), you can still get an idea of what the structure is and how the documented result would look like. To do so, you must set the EXTRACT ALL tag in the configuration file to YES. Then, doxygen will pretend everything in your sources is documented. Please note that as a consequence warnings about undocumented members will not be generated as long as EXTRACT ALL is set to YES.

To analyse an existing piece of software it is useful to cross-reference a (documented) entity with its definition in the source files. Doxygen will generate such cross-references if you set the SOURCE BROWSER tag to YES. It can also include the sources directly into the documentation by setting INLINE SOURCES to YES (this can be handy for code reviews for instance).

Doxygen is developed under Mac OS X and Linux, but is set-up to be highly portable. As a result, it runs on most other Unix flavors as well. Furthermore, executables for Windows are available.

2.6.4.1 Features of Doxygen

- Requires very little overhead from the writer of the documentation. Plain text will do, Markdown is support, and for more fancy or structured output HTML tags and/or some of doxygen's special commands can be used.

- Cross platform: Works on Windows and many Unix flavors (including Linux and Mac OS X).

- Comes with a GUI frontend (Doxywizard) to ease editing the options and run doxygen. The GUI is available on Windows, Linux, and Mac OS X.

- Automatically generates class and collaboration diagrams in HTML (as clickable image maps) and LaTeX (as Encapsulated PostScript images).

- Allows grouping of entities in modules and creating a hierarchy of modules.

- Doxygen can generate a layout which you can use and edit to change the layout of each page.

- Can cope with large projects easily.

2.6.4.2 Installation of Doxygen

Doxygen can be installed using following commands:

$ git clone https://github.com/doxygen/doxygen.git

$ cd doxygen

$ ./configure

$ make

2.7 Validation

2.8 Expected hurdles

2.9 SDLC model to be used

CHAPTER 3

SYSTEM DESIGN

3.1 Screenshots

The basic requirement of this app is that the user must be having ANDROID Operating System in his phone or tablet. The minimum version of Androids Operating System must be ICECREAM SANDWICH. All the versions of Android OS above IcecreamSandwich(i.e. Jellybean, Kitkat, Lollipop,Marshmallows) will support this app. A user needs Monitary app installed in device .
As shown in the Figure 3.1, .
Brief introduction showing the features available in the application.
This are the options the navigation drawer the app will contain. These will contain the screens the user can navigate too that can be seen in Figure 3.2.

Statistics will be able to change according to the dates selected. Default values will be the current week. User Will be able to see diagrams according to Quantity and days, Quantity and categories and others.as seen in the Figure 3.3.

Reminder view will contain details from the reminder created and the user can edit the reminder values. in Figure 3.4.

Reminder screen will show the current saved Reminder and if they are active or not. To activate one it will have a switch next to the name so it can be activated in any moment. The user will be able to erase and add from this view as seen in the Figure 3.5. It's named as output.dxf. We can open that file in LibreCAD directly from the command-line.

Expenses View is the main screen that will be showed. The user will be able to add expenses and see a total amount in Today, Week and Month. as shown in Figure 3.6.
This activity will provide necessary help to the user. One can also mail the maker (GURNOOR SINGH) for further queries as shown in Figure 3.7.
User will be able to add and delete categories from the Categories View 3.8.

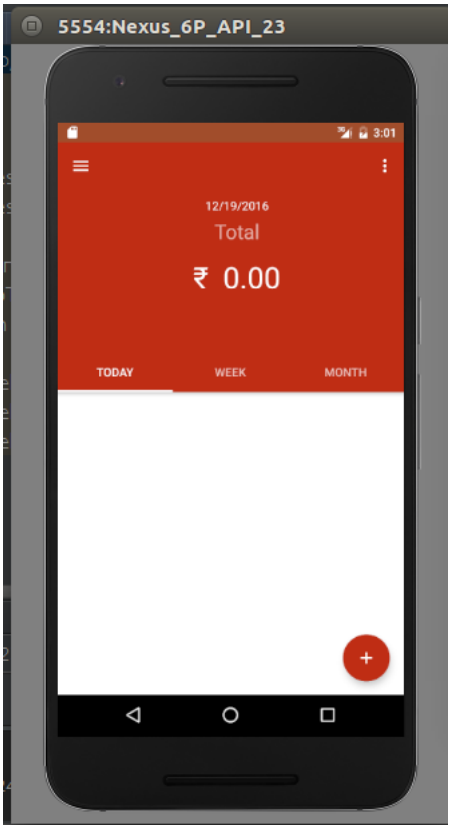

Figure 3.1: Screen 1

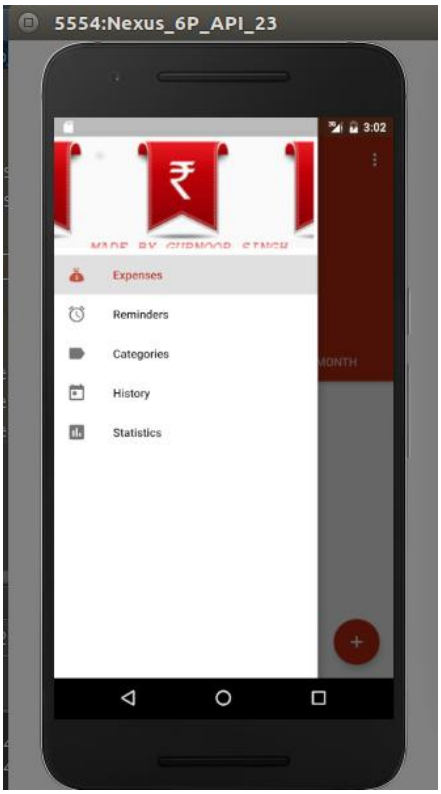

Figure 3.2: Screen 2

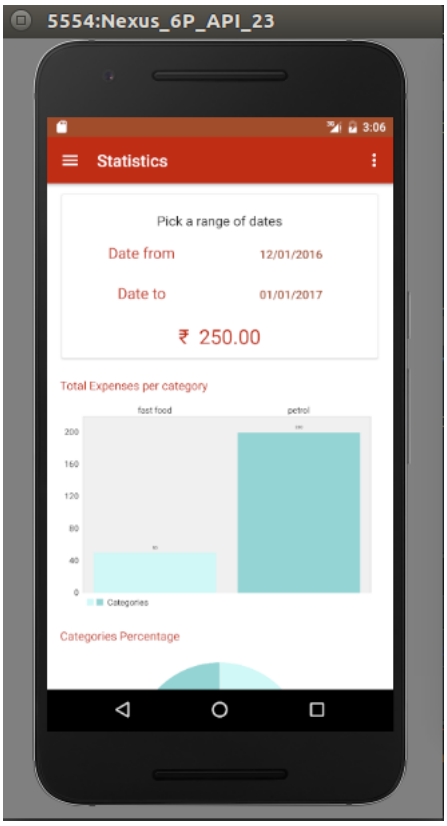

Figure 3.3: Screen 3

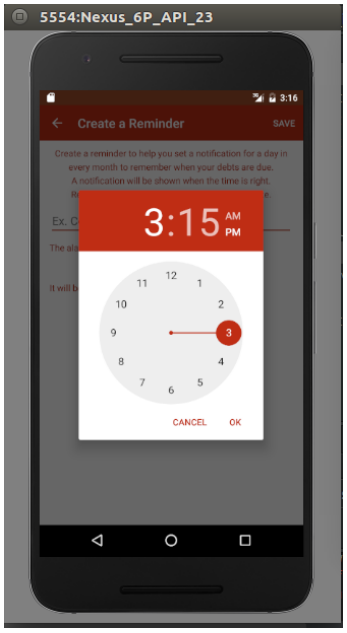

Figure 3.4: Screen 4

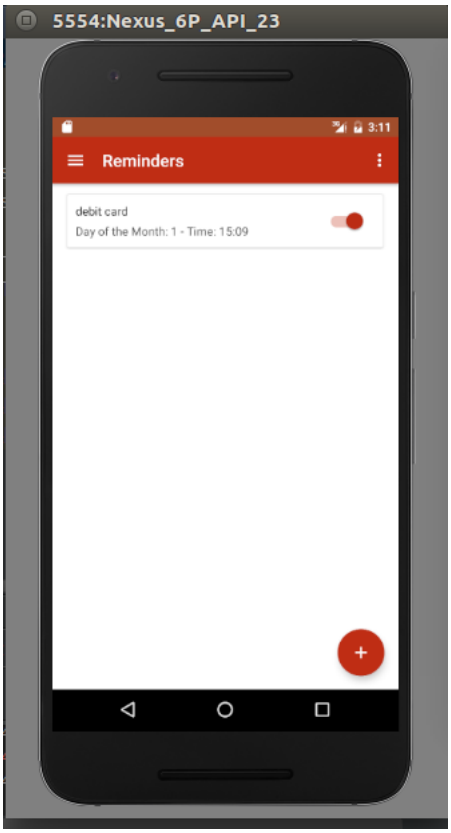

Figure 3.5: Screen 5

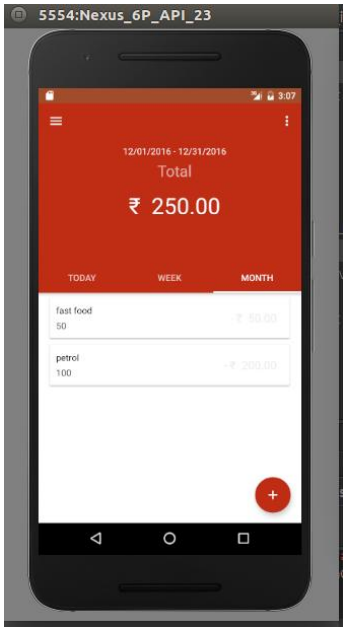

Figure 3.6: Screen 6

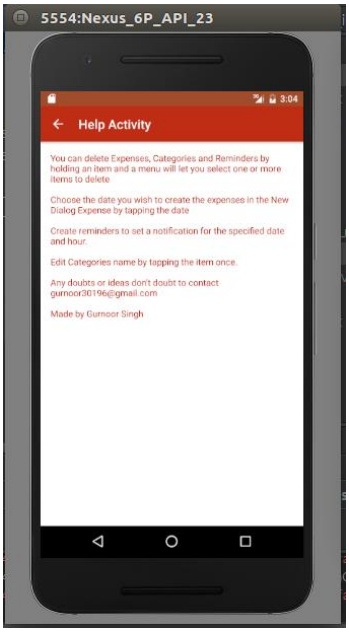

Figure 3.7: Screen 7

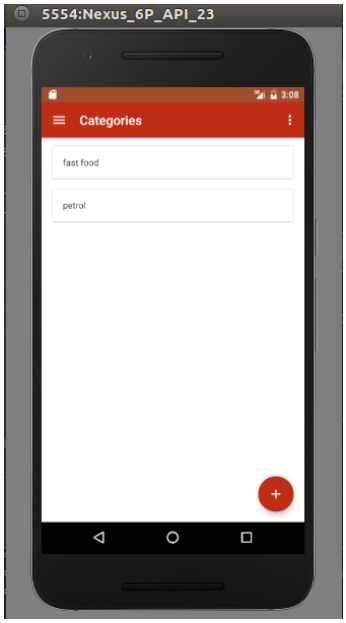

Figure 3.8: Screen 8

CHAPTER 4

IMPLEMENTATION ,TESTING AND MAINTENANCE

4.1 Introduction to Languages,IDEs,Tools and Technologies used for Implementation

4.2 Coding standards of Language used

4.3 Project Scheduling using various tools such as PERT,GANTT charts,Open PROJ etc.

4.4 Testing Techniques and Test Plans

CHAPTER 5

RESULTS AND DISCUSSIONS

5.1 User Interface Representation (Of Respective Project)

5.1.1 Brief Description of Various Modules of the system

5.2 Snapshots of system with brief detail of each

5.3 Back Ends Representation (Database to be used)

5.3.1 Snapshots of Database Tables with brief description

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

Earlier user records are maintained in a diary which leads to the wastage of paper.Thus makes the system not ecofriendly. It .After working on the Android money management we would like to conclude that with the help of this app,maintainence of user money records becomes simple and easier.

6.2 Future Scope

The app uses android technology which has evergreen scope. The app obviously has a bright future scope as there is test which includes different level and type of questions .. Moreover in Future, one can see his/her earlier records regarding the payments and extra diets. The platform used is android. Nowadays Android has become very popular which is an open-source, Linux-based operating system mainly designed by Google for smart-phones and tablets.

Many mobile Apps development industries are considering Android Application Development as one of the best business opportunities, for this they need to hire a lot of knowledgeable mobile application developer in future. This adds a big sign of scope of mobile Apps in future.

In the current job market of mobile application development, the need for inventive App developers is huge and still increasing. Android Apps development can also be taken up as a part time job. You can create your own applications at home and submit it to the Google Play store which can be downloaded by smart-phone users.

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