

Personal Productivity Application

By

Patel Aksharkumar Babulal (120563107026)

Guided By

Asst. Prof. Maitrey Patel (HOD, CE)

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in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Engineering in

COMPUTER ENGINEERING

May 2015



Grow More Faculty of Engineering,
Berna, Himatnagar – 3830001
Gujarat

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Date:

Place: Himatnagar

Internal Guide
Asst. Prof. Maitrey Patel
Computer Engineering Department
GMFE, Himatnagar-383001

Head of the Department
Asst. Prof. Maitrey Patel
Computer Engineering Department
GMFE, Himatnagar-383001

Dr. Samir Patel

Principal

GMFE, Himatnagar-383001

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4. optimized for battery-powered mobile devices with limited memory and
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Submitted By:

Patel Aksharkumar Babulal (120563107026)

Supervised By:

**Asst. Prof. Maitrey Patel
Computer Engineering Department
GMFE, Himmatnagar**

ABSTRACT

All the people in the world want to improve their personal productivity to achieve something they are expecting from life. Most people works all the time figuring out what to work on and when to work. The reason is that we don't follow daily routine. As a result, we get less done everyday. So we need to set daily routine which helps us accomplish more everyday.

People want to do so many things at the same time and that is how they lose focus and direct effort in a wrong direction. So, for more focus and directed effort we need to set important goals. Goal setting helps in managing time better by narrowing down the number of tasks we are required to do.

Some of us develop the daily routine and set goals but we are not focusing how much we accomplish. We don't measure our efficiency everyday. So our daily routine and goal setting don't last longer more than a few days. All of us lack the motivation and inspiration to do the work we should be doing everyday. So we decided to develop a mobile app that helps us to improve the personal productivity by making better use of time and setting effective goals. The app will help us to develop daily routine in an easy way, set goals and measure our efficiency. The app would try to inspire the user and provide the recommendations while using it.

CHAPTER - 1

INTRODUCTION

1.1 OVERVIEW

The Personal Productivity Application is a mobile application aimed at improving the personal productivity of any user. Personal means belonging to particular user and Productivity simply means efficiency. So, the personal productivity would literally mean efficiency of a particular person. For improving the personal productivity, we are taking four things into considerations. They are routines, goals, progress and review. This mobile application would allow user to create effective routine for achieving goals. The user can also review the work completed and get the information about progress.

1.2 OBJECTIVES

- Make effective use of time everyday
- Get more done everyday
- Develop activities to be followed everyday
- Set goals to direct the effort in right direction
- Track what has been completed
- See the graphical information of progress made

1.3 SCOPE

The application is targeted all the users who are trying to improve their productivity at personal level and get more done everyday. The application will be very easy to use even for the person who is novice user to mobile phone. The application can be used by very broad set of people like students, businessmen, teachers, etc. It can also be used by developers as a simple project management system for a personal project.

1.4 TECHNOLOGY AND LITERATURE REVIEW

➤ Android

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear). The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Despite being primarily designed for touchscreen input, it also has been used in game consoles, digital cameras, regular PCs (e.g. the HP Slate 21) and other electronics.

Android is the most widely used mobile OS and, as of 2013, the highest selling OS overall. Android devices sell more than Windows, iOS, and Mac OS X devices combined, with sales in 2012, 2013 and 2014 close to the installed base of all PCs. As of July 2013 the Google Play store has had over 1 million Android apps published, and over 50 billion apps downloaded. A developer survey conducted in April–May 2013 found that 71% of mobile developers develop for Android. At Google I/O 2014, the company revealed that there were over 1 billion active monthly Android users, up from 538 million in June 2013.

Android's source code is released by Google under open source licenses, although most Android devices ultimately ship with a combination of open source and proprietary software. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance—a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices.

Android is popular with technology companies which require a ready-made, low-cost and customizable operating system for high-tech devices. Android's open nature has encouraged a large community of developers and enthusiasts to use the open-source code as a foundation for community-driven projects, which add new features for advanced users or bring Android to devices which were officially released running other operating systems. The operating system's success has made it a target for patent litigation as part of the so-called "smartphone wars" between technology companies.

Android powers million of devices around the world. It is the largest installed base of any mobile platform and growing fast—every day another million users power up their Android devices for the first time and start looking for apps, games, and other digital content.

Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly.

Global partnerships and large installed base

Building on the contributions of the open-source Linux community and more than 300 hardware, software, and carrier partners, Android has rapidly become the fastest-growing mobile OS.

Android's openness has made it a favorite for consumers and developers alike, driving strong growth in app consumption. Android users download more than 1.5 billion apps and games from Google Play each month.

With its partners, Android is continuously pushing the boundaries of hardware and software forward to bring new capabilities to users and developers. For developers, Android innovation lets you build powerful, differentiated applications that use the latest mobile technologies.

Powerful development framework

Android gives you everything you need to build best-in-class app experiences. It gives you a single application model that lets you deploy your apps broadly to hundreds of millions of users across a wide range of devices—from phones to tablets and beyond.

Android also gives you tools for creating apps that look great and take advantage of the hardware capabilities available on each device. It automatically adapts your UI to look its best on each device, while giving you as much control as you want over your UI on different device types.

For example, you can create a single app binary that's optimized for both phone and tablet form factors. You declare your UI in lightweight sets of XML resources, one set for parts of the UI that are common to all form factors and other sets for optimizations specific to phones or tablets. At runtime, Android applies the correct resource sets based on its screen size, density, locale, and so on.

To help you develop efficiently, the Android Developer Tools offer a full Java IDE with advanced features for developing, debugging, and packaging Android apps. Using the IDE, you can develop on any available Android device or create virtual devices that emulate any hardware configuration.

Features of Android

General

- **Messaging**
SMS and MMS are available forms of messaging, including threaded text messaging and Android Cloud To Device Messaging (C2DM) and now enhanced version of C2DM, Android Google Cloud Messaging (GCM) is also a part of Android Push Messaging service.

- **Web browser**

The web browser available in Android is based on the open-source Blink (previously WebKit) layout engine, coupled with Chrome's V8 JavaScript engine. The browser scores 100/100 on the Acid3 test on Android 4.0.

- **Voice based features**

Google search through voice has been available since initial release. Voice actions for calling, texting, navigation, etc. are supported on Android 2.2 onwards. As of Android 4.1, Google has expanded Vce Actions with ability to talk back and read answers from Google's Knowledge Graph when queried with specific commands. The ability to control hardware has not yet been implemented.

- **Multi-touch**

Android has native support for multi-touch which was initially made available in handsets such as the HTC Hero. The feature was originally disabled at the kernel level (possibly to avoid infringing Apple's patents on touch-screen technology at the time). Google has since released an update for the Nexus One and the Motorola Droid which enables multi-touch natively.

- **Multitasking**

Multitasking of applications, with unique handling of memory allocation, is available.

- **Screen capture**

Android supports capturing a screenshot by pressing the power and volume-down buttons at the same time. Prior to Android 4.0, the only methods of capturing a screenshot were through manufacturer and third-party customizations or otherwise by using a PC connection (DDMS developer's tool). These alternative methods are still available with the latest Android.

- **Video calling**

Android does not support native video calling, but some handsets have a customized version of the operating system that supports it, either via the UMTS network (like the Samsung Galaxy S) or over IP. Video calling through Google Talk is available in Android 2.3.4 and later. Gingerbread allows Nexus S to place Internet calls with a SIP account. This allows for enhanced VoIP dialing to other SIP accounts and even phone numbers. Skype 2.1 offers video calling in Android 2.3, including front camera support. Users with the Google+ Android app can video chat with other google+ users through hangouts.

- **Multiple language support**

Android supports multiple languages.

- **Accessibility**

Built in text to speech is provided by Talk back for people with low or no vision. Enhancements for people with hearing difficulties are available as are other aids.

Connectivity

- **Connectivity**

Android supports connectivity technologies including GSM/EDGE, Wi-Fi, Bluetooth, LTE, CDMA, EV-DO, UMTS, NFC, IDEN and WiMAX.

- **Bluetooth**

Supports voice dialing and sending contacts between phones, sending files (OPP), accessing the phone book (PBAP), A2DP and AVRCP. Keyboard, mouse and joystick (HID) support is available in Android 3.1+, and in earlier versions through manufacturer customizations and third-party applications.

- **Tethering**

Android supports tethering, which allows a phone to be used as a wireless/wired Wi-Fi hotspot. Before Android 2.2 this was supported by third-party applications or manufacturer customizations.

Media

- **Streaming media support**

RTP/RTSP streaming (3GPP PSS, ISMA), HTML progressive download (HTML5 <video> tag). Adobe Flash Streaming (RTMP) and HTTP Dynamic Streaming are supported by the Flash plugin. Apple HTTP Live Streaming is supported by RealPlayer for Android, and by the operating system since Android 3.0 (Honeycomb).

- **Media support**

Android supports the following audio/video/still media formats: WebM, H.263, H.264, AAC, HE-AAC (in 3GP or MP4 container), MPEG-4 SP, AMR, AMR-WB (in 3GP container), MP3, MIDI, Ogg Vorbis, FLAC, WAV, JPEG, PNG, GIF, BMP, WebP.

- **External storage**

Most Android devices include microSD slot and can read microSD cards formatted with FAT32, Ext3 or Ext4 file system. To allow use of high-capacity storage media such as USB flash drives and USB HDDs, many Android tablets also include USB 'A' receptacle. Storage formatted with FAT32 is handled by Linux Kernel VFAT driver, while 3rd party solutions are required to handle other popular file systems such as NTFS, HFS Plus and exFAT.

Hardware support

Android devices can include still/video cameras, touchscreens, GPS, accelerometers, gyroscopes, barometers, magnetometers, dedicated gaming controls, proximity and pressure sensors, thermometers, accelerated 2D bit blits (with hardware orientation, scaling, pixel format conversion) and accelerated 3D graphics.

Other

- **Java support**

While most Android applications are written in Java, there is no Java Virtual Machine in the platform and Java byte code is not executed. Java classes are compiled into Dalvik executables and run on Dalvik, a specialized virtual machine designed specifically for Android and optimized for battery-powered mobile devices with limited memory and CPU. J2ME support can be provided via third-party applications.

- **Handset layouts**

The platform works for various screen sizes from smartphone sizes and to tablet size, and can potentially connect to an external screen, e.g. through HDMI, or wirelessly with Miracast. Portrait and landscape orientations are supported and usually switching between by turning. A 2D graphics library, 3D graphics library based on OpenGL ES 2.0 specifications is used.

- **Storage**

SQLite, a lightweight relational database, is used for data storage purposes.

Software stack

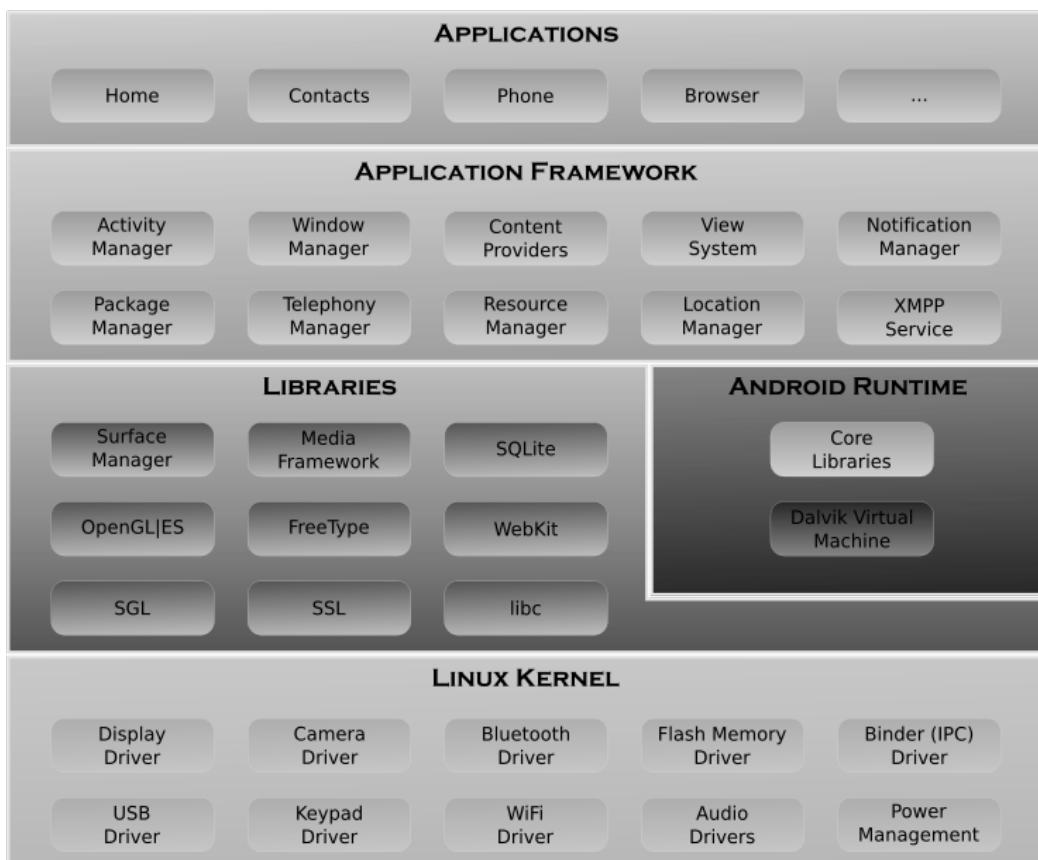


Fig. 1.1 Android Software Stack

On top of the Linux kernel, there are the middleware, libraries and APIs written in C, and application software running on an application framework which includes Java-compatible libraries based on Apache Harmony. Development of the Linux kernel continues independently of other Android's source code bases. Android uses the Dalvik virtual machine with just-in-time compilation (JIT) to run Dalvik "dex-code" (Dalvik Executable), which is usually translated from the Java bytecode. Android 4.4 also supports new experimental runtime, Android Runtime (ART), which is not enabled by default.

Android's standard C library, Bionic, was developed by Google specifically for Android, as a derivation of the BSD's standard C library code. Bionic itself has been designed with several major features specific to the Linux kernel. The main benefits of using Bionic instead of the GNU C Library (glibc) or uClibc are its different licensing model, smaller runtime footprint, and optimization for low-frequency CPUs.

Aiming for a more suitable licensing model, toward the end of 2012 Google switched the Bluetooth stack in Android from the GPL-licensed BlueZ to the Apache-licensed BlueDroid.

Android does not have a native X Window System by default, nor does it support the full set of standard GNU libraries. This made it difficult to port existing Linux applications or libraries to Android, until version r5 of the Android Native Development Kit brought support for applications written completely in C or C++. [138] Libraries written in C may also be used in Java application by injection of a small Java shim and usage of the JNI.

➤ **SQLite**

SQLite is a relational database management system contained in a C programming library. In contrast to other database management systems, SQLite is not implemented as a separate process that a client program running in another process accesses. Rather, it is part of the using program.

SQLite is ACID-compliant and implements most of the SQL standard, using a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity.

SQLite is a popular choice as embedded database for local/client storage in application software such as web browsers. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems, among others. SQLite has bindings to many programming languages.

The source code for SQLite is in the public domain.

Design

Unlike client-server database management systems, the SQLite engine has no standalone processes with which the application program communicates. Instead, the SQLite library is linked in and thus becomes an integral part of the application program. (In this, SQLite follows the precedent of Informix SE of c. 1984) The library can also be called dynamically. The application program uses SQLite's functionality through simple function

calls, which reduce latency in database access: function calls within a single process are more efficient than inter-process communication. SQLite stores the entire database (definitions, tables, indices, and the data itself) as a single cross-platform file on a host machine. It implements this simple design by locking the entire database file during writing. SQLite read operations can be multitasked, though writes can only be performed sequentially.

Features

SQLite implements most of the SQL-92 standard for SQL but it lacks some features. For example it has partial support for triggers, and it can't write to views (however it supports INSTEAD OF triggers that provide this functionality). While it supports complex queries, it still has limited ALTER TABLE support, as it can't modify or delete columns.

SQLite uses an unusual type system for an SQL-compatible DBMS; instead of assigning a type to a column as in most SQL database systems, types are assigned to individual values; in language terms it is dynamically typed. Moreover, it is weakly typed in some of the same ways that Perl is: one can insert a string into an integer column (although SQLite will try to convert the string to an integer first, if the column's preferred type is integer). This adds flexibility to columns, especially when bound to a dynamically typed scripting language. However, the technique is not portable to other SQL products. A common criticism is that SQLite's type system lacks the data integrity mechanism provided by statically typed columns in other products. The SQLite web site describes a "strict affinity" mode, but this feature has not yet been added. However, it can be implemented with constraints like CHECK(typeof(x)='integer').

Several computer processes or threads may access the same database concurrently. Several read accesses can be satisfied in parallel. A write access can only be satisfied if no other accesses are currently being serviced. Otherwise, the write access fails with an error code (or can automatically be retried until a configurable timeout expires). This concurrent access situation would change when dealing with temporary tables. This restriction is relaxed in version 3.7 when write-ahead logging (WAL) is turned on enabling concurrent reads and writes.

A standalone program called sqlite3 is provided that can be used to create a database, define tables within it, insert and change rows, run queries and manage an SQLite database file. This program is a single executable file on the host machine. It also serves as an example for writing applications that use the SQLite library.

SQLite full Unicode support is optional.

SQLite has automated regression testing prior to each release. Over 2 million tests are run as part of a release's verification. Starting with the August 10, 2009 release of SQLite 3.6.17, SQLite releases have 100% branch test coverage, one of the components of code coverage. The tests and test harnesses are proprietary.

As of version 3.8.2 it's possible to create tables without rowid.

Development

SQLite development stores revisions of its source code in Fossil, a distributed version

control system that is itself built upon an SQLite database.

1.4.1 Software Used:

➤ Android Studio:

Android Studio is the official IDE for Android application development, based on IntelliJ IDEA. On top of the capabilities you expect from IntelliJ, Android Studio offers:

- Flexible Gradle-based build system
- Build variants and multiple apk file generation
- Code templates to help you build common app features
- Rich layout editor with support for drag and drop theme editing
- lint tools to catch performance, usability, version compatibility, and other problems
- ProGuard and app-signing capabilities
- Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine
- And much more

➤ Literature Review

- Daily Routines makes us more productive

www.lifehack.org [1]

- Our daily routines can make a huge difference to how healthy, happy and productive we are.
- Remembering to track each activity is the hardest part.
- Instead of running around with a vague idea of what we want to accomplish, the right lifestyle routine can turn us into a productivity monster.

- Artists make the best use of time everyday

Daily Rituals: How Artists Work [2]

- Routine, in an intelligent man, is a sign of ambition.
- Artists followed regular practice to be more creative and productive.

- Daily planning is essential for productivity

The Seven Habits of Highly Effective People [3]

- Daily planning is needed to accomplish important goals and activities
- Daily planning prioritizes the things and gets more done.

- Goal setting is important for accomplishing any target

www.lifehack.org [1]

- Setting a goal puts ourselves into the target as if we'd already accomplished it.
- Goal setting is one of the foremost weapons in the battle for self improvement.
- By having clear goals we can regularly check that the work we are busy with everyday is in alignment with our dreams.

1.5 FEATURES

- Better routine: User can create multiple routines. Routine can have multiple activities inside it.
- Effective goal setting; User can create multiple goals and tie them to specific activities to achieve them
- Day review: User can review the daily work and check off the completed activities.
- Progress tracking: User can see what progress has been done over a period of time. It would provide the user some graphical information which is very easy to comprehend.

1.6 PURPOSE

The purpose of developing this application is to provide the personal platform to improve personal productivity by making better use of time and setting effective goals. The application will help to review the work completed and see what progress has been made in the work. The application will focus mainly on four things which are routines, goals, progress and review.

CHAPTER - 2

PROJECT MANAGEMENT

2.1 PROJECT PLANNING

2.1.1 Concept:

Project management is the process and activity of planning, organizing, motivating, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems.

Success for project means:

- It must be completed.
- It must be completed within specific budget.
- It must be completed within allocated time.
- The customer must be satisfied.

2.1.2 Project Development Approach and Justification:

There are various models available in software but the processes model used for developing this project is the “Agile Development Model”.

Agile software development is a group of software development methods in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, evolutionary development, early delivery, continuous improvement and encourages rapid and flexible response to change.

The Agile Manifesto, which first laid out the underlying concepts of Agile development, introduced the term in 2001

The Agile Manifesto is based on 12 principles:

1. Customer satisfaction by rapid delivery of useful software
2. Welcome changing requirements, even late in development
3. Working software is delivered frequently (weeks rather than months)
4. Close, daily cooperation between business people and developers
5. Projects are built around motivated individuals, who should be trusted
6. Face-to-face conversation is the best form of communication (co-location)

7. Working software is the principal measure of progress
8. Sustainable development, able to maintain a constant pace
9. Continuous attention to technical excellence and good design
10. Simplicity—the art of maximizing the amount of work not done—is essential
11. Self-organizing teams
12. Regular adaptation to changing circumstances

There are many specific agile development methods. Most promote development, teamwork, collaboration, and process adaptability throughout the life-cycle of the project.

Iterative, incremental and evolutionary

Most agile methods break tasks into small increments with minimal planning and do not directly involve long-term planning. Iterations are short time frames (timeboxes) that typically last from one to four weeks. Each iteration involves a cross-functional team working in all functions: planning, requirements analysis, design, coding, unit testing, and acceptance testing. At the end of the iteration a working product is demonstrated to stakeholders. This minimizes overall risk and allows the project to adapt to changes quickly. An iteration might not add enough functionality to warrant a market release, but the goal is to have an available release (with minimal bugs) at the end of each iteration. Multiple iterations might be required to release a product or new features.

Efficient and face-to-face communication

No matter what development disciplines are required, each agile team will contain a customer representative, e.g. Product Owner in Scrum. This person is appointed by stakeholders to act on their behalf and makes a personal commitment to being available for developers to answer mid-iteration questions. At the end of each iteration, stakeholders and the customer representative review progress and re-evaluate priorities with a view to optimizing the return on investment (ROI) and ensuring alignment with customer needs and company goals.

In agile software development, an information radiator is a (normally large) physical display located prominently in an office, where passers-by can see it. It presents an up-to-date summary of the status of a software project or other product. The name was coined by Alistair Cockburn, and described in his 2002 book Agile Software Development. A build light indicator may be used to inform a team about the current status of their project.

Very short feedback loop and adaptation cycle

A common characteristic of agile development are daily status meetings or "stand-ups", e.g. Daily Scrum (Meeting). In a brief session, team members report to each other what they did the previous day, what they intend to do today, and what their roadblocks are.

Quality focus

Specific tools and techniques, such as continuous integration, automated unit testing, pair programming, test-driven development, design patterns, domain-driven design, code refactoring and other techniques are often used to improve quality and enhance project agility.

2.1.3 Milestones and Deliverables

Milestones:

When planning for the project a series of milestones are established. These milestones are end-point for software activity. At each milestone in our project some formal output for project generated. It may be in form of report.

Some milestones in our project are discussed as below:

- Requirements Gathering and study API
- Requirement of various functionality for GUI
- Creating Procedural Design
- Standard System Flow Diagram
- Designing of GUI Form
- Add functionality Coding and Implementation
- Unit Testing combined with validations, flow of contents
- System Testing

Deliverables:

A deliverable is a project report that is delivered to use. It is usually delivered at the end of some major phase such as specification and design.

2.2 PROJECT SCHEDULING

In project management, a **schedule** is a listing of a project's milestones, activities, and deliverables, usually with intended start and finish dates. Those items are often estimated in terms of resource allocation, budget and duration, linked by dependencies and scheduled events.

Project scheduling is an activity that distributes estimated efforts across the planned duration by allocating the effort to specific software engineering tasks. Scheduling the project task is an important project planning activity. It involves deciding which tasks would be taken up and when. Based on the planned duration of required tests and collection of resources to complete those tasks projected, completion date is calculated. We have prepared Gantt chart which is shown as below.

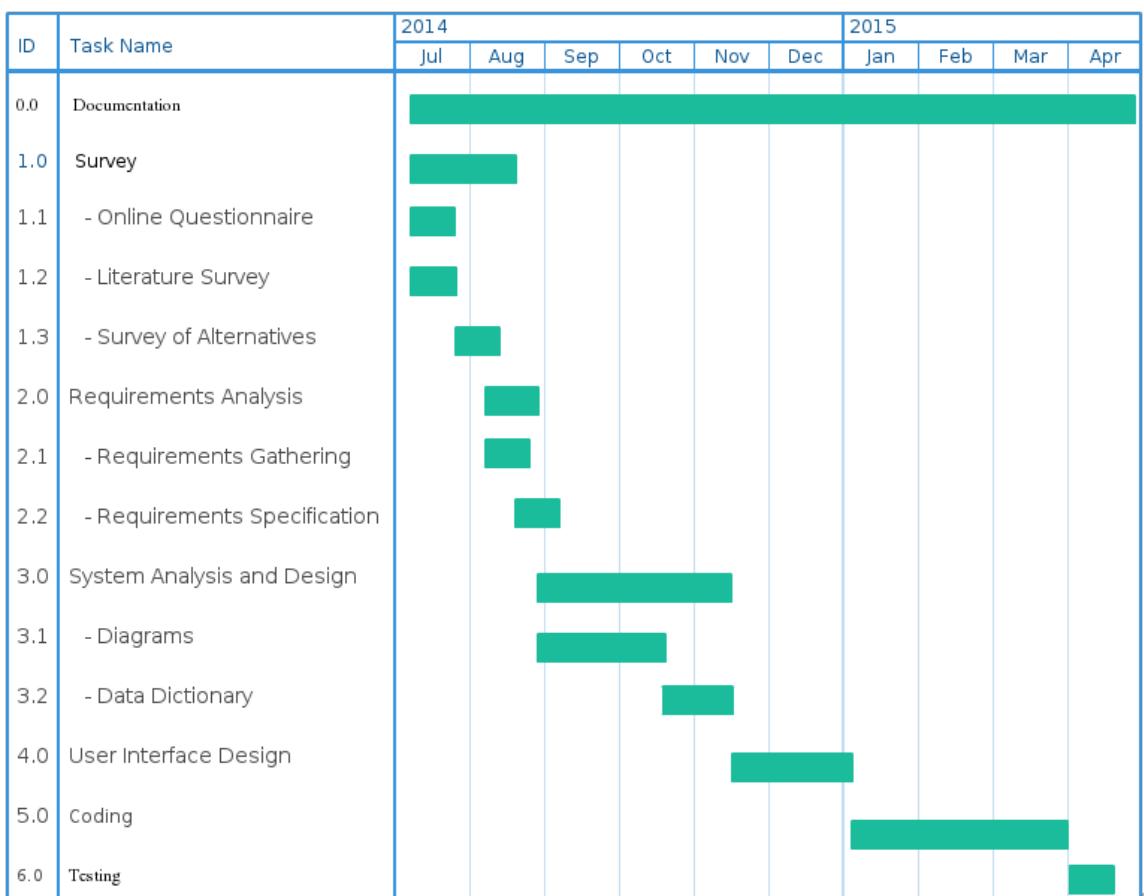


Fig. 2.1 Gantt Chart

2.3 RISK MANAGEMENT

Risk management is the identification, assessment, and prioritization of risks (defined in ISO 31000 as the effect of uncertainty on objectives) followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities.

Risks can come from uncertainty in financial markets, threats from project failures (at any phase in design, development, production, or sustainment life-cycles), legal liabilities, credit risk, accidents, natural causes and disasters as well as deliberate attack from an adversary, or events of uncertain or unpredictable root-cause. Several risk management standards have been developed including the Project Management Institute, the National Institute of Standards and Technology, actuarial societies, and ISO standards. Methods, definitions and goals vary widely according to whether the risk management method is in the context of project management, security, engineering, industrial processes, financial portfolios, actuarial assessments, or public health and safety.

Principles of risk management

The International Organization for Standardization (ISO) identifies the following principles of risk management:

Risk management should:

- create value – resources expended to mitigate risk should be less than the consequence of inaction, the gain should exceed the pain
- be an integral part of organizational processes
- be part of decision making process
- explicitly address uncertainty and assumptions
- be systematic and structured process
- be based on the best available information
- be tailorable
- take human factors into account
- be transparent and inclusive
- be dynamic, iterative and responsive to change
- be capable of continual improvement and enhancement
- be continually or periodically re-assessed

There are some important techniques in this Risk Management:

- Risk identification
- Risk analysis
- Risk planning

2.3.1 Risk Identification

It is process of identifying potential risks. Risks are about events that, when triggered, cause problems or benefits. Hence, risk identification can start with the source of our problems and those of our competitors (benefit), or with the problem itself.

- Source analysis - Risk sources may be internal or external to the system that is the target of risk management (use mitigation instead of management since by its own definition risk deals with factors of decision-making that cannot be managed).

Examples of risk sources are: stakeholders of a project, employees of a company or the weather over an airport.

- Problem analysis- Risks are related to identified threats. For example: the threat of losing money, the threat of abuse of confidential information or the threat of human errors, accidents and casualties. The threats may exist with various entities, most important with shareholders, customers and legislative bodies such as the government.

2.3.1 Risk Analysis:

- Project Risk: Project risk concern various forms of budgetary, schedule, personal, resource, and customer-related problems, an important project task is schedule slippage.
- Technological Risk: Technical risk concern potential design, implementation, interfacing , testing and maintained problem .most technical risk occur due to insufficient knowledge about the product .in other words most technical risk occur because a problem is found to be difficult to solve than previously thought.
- Business Risk: Business risk include risk of building an excellent product that no one wants, losing budgetary or personal commitments , etc.

2.3.2 Risk Planning:

Here is how we deal with all the above said risks:

- Project Risk: We have gathered the required resources for project and designed the schedule which very flexible as we are following agile software development model.
- Technological Risk: First of all we learnt the Android Technology well in order to avoid any kind of misunderstanding and misinterpretation in terms of this technology.

- Business Risk: We asked several questions to users to get their opinions about the how they manage time and become productive.

2.4 ESTIMATION

2.4.1 Effort Estimation:

- Effort estimation was done by keeping in the mind importance of all the two modules of the whole project.
- The major part of this project was training and leave module.
- The next important thing is time attendance management of the Users.
- In a way, system provides various functions for analysis the User's performance in the organization related to their work.

2.4.2 Cost Analysis:

The Business model followed here to develop the application aims at cost effective budget. The targeted application aims at the common man who neither is techno savvy nor will be interested to buy expensive applications. The cost effectiveness of the application was the important factor which had to take care of throughout the application development. The application uses some of the best Open Source resources currently used in this era for development. These not only cuts down the cost but also helps in being portable.

CHAPTER - 3

SYSTEM REQUIREMENTS

3.1 USER CHARACTERISTICS

- Any user wanting to make the best possible of time can use this application.
- The user has to create the routine for achieving intended goals.
- The user has to review the completed work daily.

3.2 HARDWARE AND SOFTWARE CHARACTERISTICS

HARDWARE REQUIREMENTS:

- A mobile phone or tablet capable of running android operating system.
- 256 MB RAM
- 20 MB Free Space

SOFTWARE REQUIREMENTS:

- Android 2.3 or higher
- Internet Connectivity

3.3 CONSTRAINTS

3.3.1 User Interface:

The User-Interface is with a Mobile application with GUI interaction only in English language. There can be multiple users of the application at a time. When the project is run for the first time, the patient needs to register with the application, after logging to the system, the project successfully commences.

3.3.2 Communications Interfaces:

The Mobile application has a communication via Internet. System users can have an interaction to the application from anywhere in the world with the Internet connectivity

and sufficient privileges to access the mobile application as a authenticate user.

3.3.3 Hardware Interface:

The mobile application with Internet connectivity works best on Android 2.3 OS or later, 20mb free space to run the application.

3.3.4 Software Interface:

The application will be interacting after development with android operating system to develop a system with above mentioned requirements in stipulated period of around 5 months is a major time constraints. In this time frame is all software engineering activities are to be done including testing.

3.3.5 General Constraint:

The only constraint coming in the way from system users to use this specific application is that the knowledge of English language and with working knowledge of navigating the mobile application. System Administrator can have the higher level rights for the application which gives the Privileges to the admin to edit/delete/create user and alteration in the database.

CHAPTER - 4

SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM:

As current systems we studied following systems:

- **Pen and Paper:**

Most people use pen and paper for designing their schedules and goal setting. It is very easy but very inefficient too.

- **To-do Application:**

This is one of the most popular productivity application out there. It is simple and easy to use for most people, but it provides too basic functionalities.

- **Calendar Application:**

This is very popular for spanning the schedule over several but it cannot be used effectively for designing the routine for single day.

- **Project Management System:**

This is very heavy on features and resources. It is mainly focused on team work for large projects and cannot be used for designing routines.

4.2 PROBLEMS AND WEAKNESSES OF CURRENT SYSTEM

Limitations of Pen and Paper:

- It cannot provide the recommendation to user.
- Modifying the information is not easy.
- It is not easy to manage.
- It does not remind about anything.
- It is not able to track the progress.
- All the work have to be performed manually.
- It is not environment friendly option.

Limitations of To-do Application:

- It cannot provide the recommendation to user.
- It has not direct feature to create routine.
- It cannot track the progress of any task.
- It cannot review the completed work daily.
- It provides only very basic features.
- It does not impose any time limit on any task.
- It does not provide any visual information.

Limitations of Calendar Application:

- It cannot provide the recommendation to user.
- Copying a routine is not easy.
- It cannot track the progress.
- It does not provide day review feature.
- It is not focused on a single day.
- It is little complex for novice user.
- It does not provide the functionality of templates.

Limitations of Project Management Application:

- It cannot provide the recommendation to user.
- It does not have functionality of managing the routines.
- It is not focused on single day.
- It is generally not used for personal productivity.
- It is generally focused on team productivity.
- It is very much complex for beginners.
- It is less flexible.

4.3 REQUIREMENTS FOR NEW SYSTEM:

This application is targeted any user who wants to improve the personal productivity by making better use of time and setting effective goals. The application intends to provide easy to use functionality even for beginners. To improve the personal productivity, the application is considering four aspects: routines, goals, progress, review.

Functional Requirements:

- Create routine easily.
- Create new routine by modifying the existing one.

- Associate activities of routine to goals to be achieved.
- Track the work progress.
- Review the completed work.

Non-functional requirements:

- Privacy of user's data
- Memory and Space efficiency
- Free and open source database management system suitable for mobile apps
- Mobile and tablet support
- Old version support (Android 2.3 or later)
- The system must be scalable enough to be able to add any additional functionality even after the application is developed once
- An error message is a control to make you aware that security has been circumvented or controls have been broken.

4.4 FEASIBILITY STUDY

- **Technical Feasibility**

This project is implemented using Android SDK that provided by Google. As it was easily available in any smart phone (featured android OS). It is very popular technology used by smart phones.

- **Schedule Feasibility**

Another important feature to be considered during the feasibility study was the time limit: 8 months. The main concern during the schedule feasibility was to cover the wide range of applications and facilities to be provided with the Application during such a short period of time.

- **Operational Feasibility**

This application may also be used by persons who don't have in depth knowledge of the application developed. Care was taken so that the application is user-friendly to the maximum.

- **Economic Feasibility**

This feasibility is of the utmost importance when implementing or developing website. As Android SDK and SQLite Server are very easy for implementation, definitely project is economic.

- **Implementation Feasibility**

This application is developed in Eclipse (with Android SDK) /SQLite and is to be implemented in the same environment only. However to implement the application the user doesn't need to have a complete knowledge of the technical features of this android OS. As a result the implementation of the software won't pose any

serious problems.

4.5 REQUIREMENT VALIDATION

- Requirements validation is concerned with showing that the requirements actually define the system which the user wants
- If any field is compulsory and if that one is left blank then an error message will be displayed on that field.
- The system validate the all standard input form validations required to be done in name, date, time , etc.

Some of them described here:

1. Required data filed can't filled blank there is an alert for it.
2. Display date and time must be in specific format.
3. Task must be written in specific formats.
4. User must select only one routine.
5. Name must be character not in digits.

4.6 FUNCTIONS OF SYSTEM

4.6.1 Use Case Diagram:

- Represent overall Scenario of the system.
- A scenario is nothing but a sequence Steps declaring an interaction between User and System.

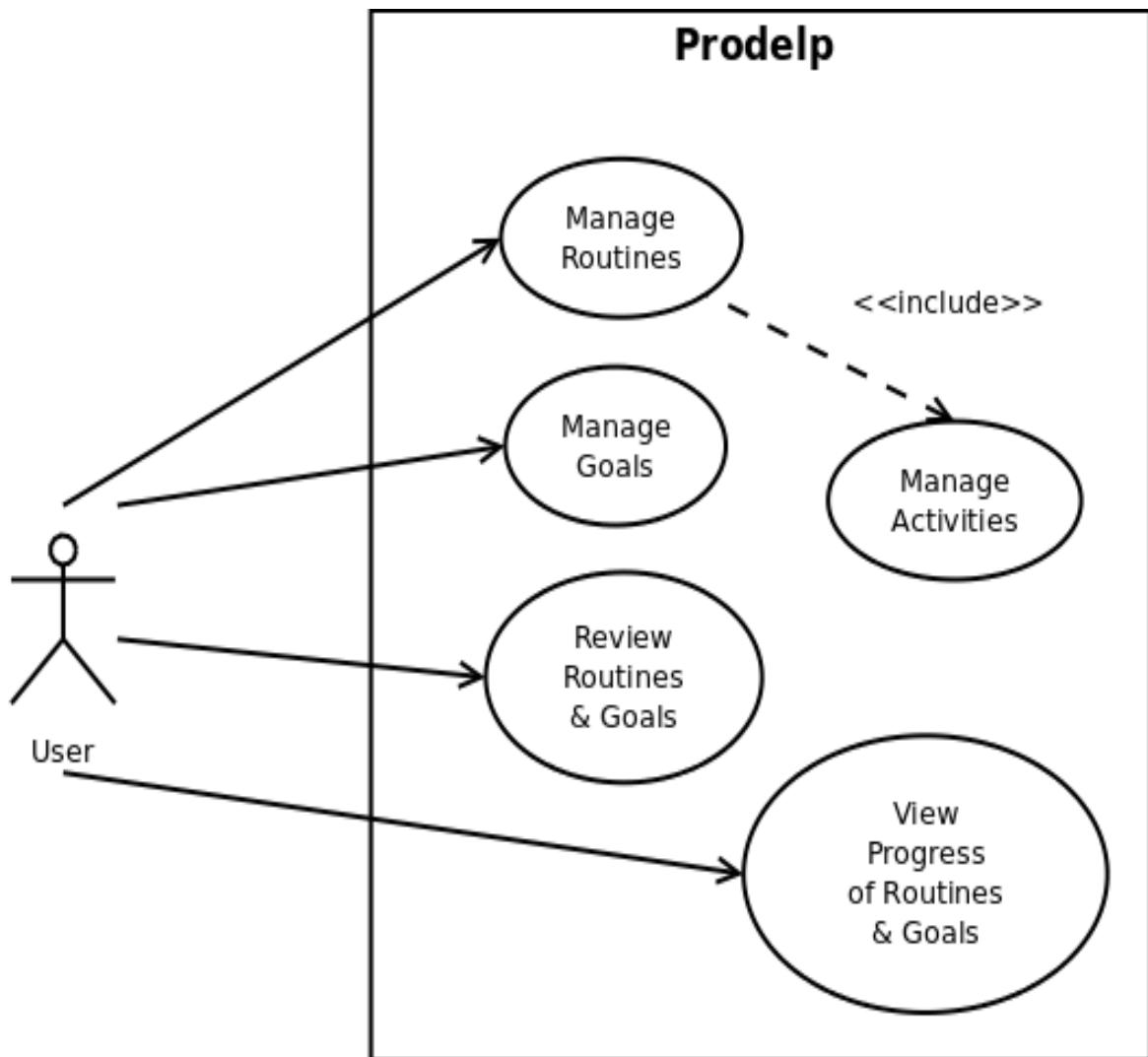


Fig. 4.1 Use Case Diagram

4.6.2 Sequence Diagram:

- It shows how objects interact with the other objects.

Sequence Diagram for Manage Routines:

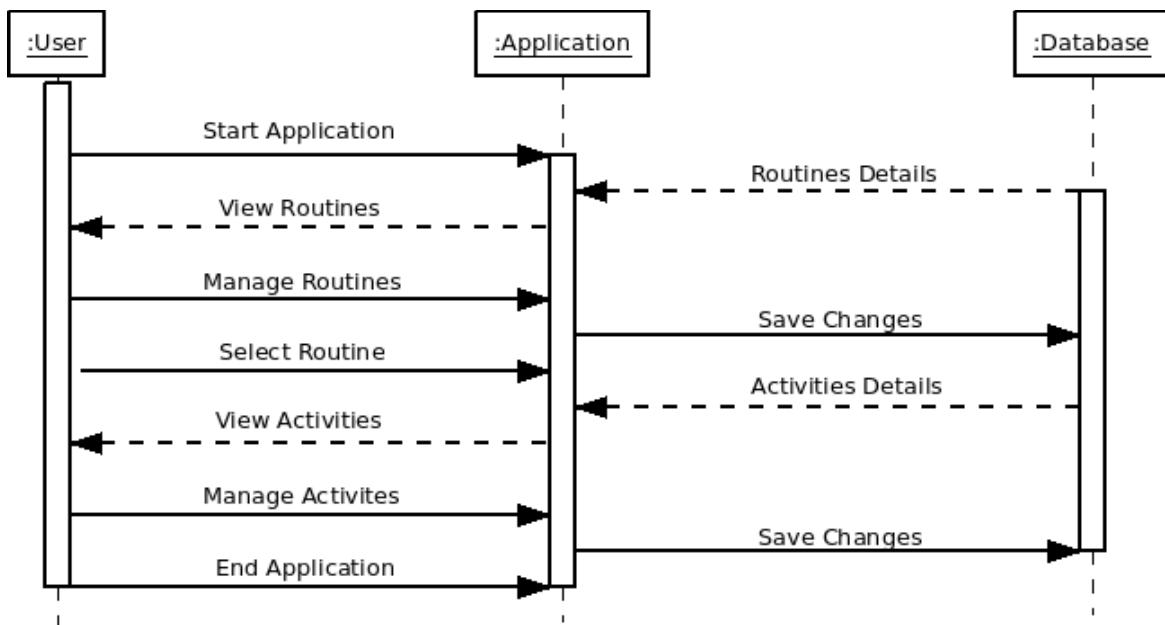


Fig. 4.2 Sequence Diagram for Manage Routines

Sequence Diagram for Manage Goals:

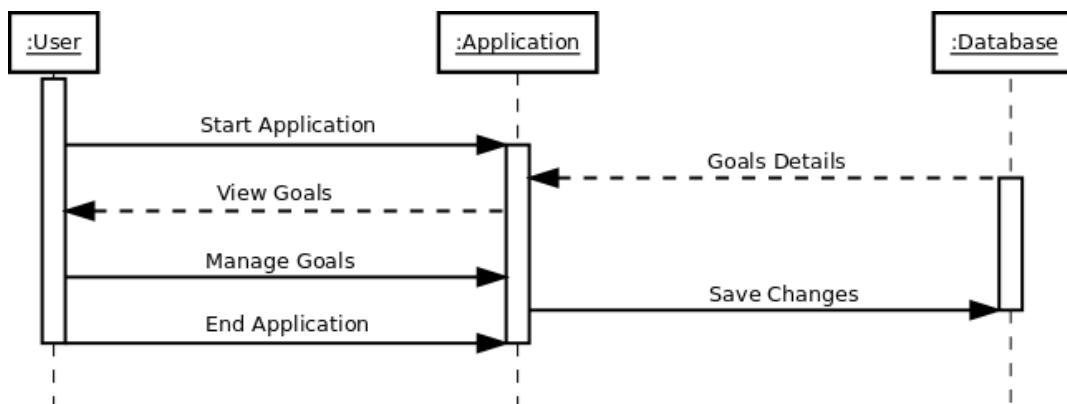


Fig. 4.3 Sequence Diagram for Manage Goals

Sequence Diagram for Review Routines and Goals:

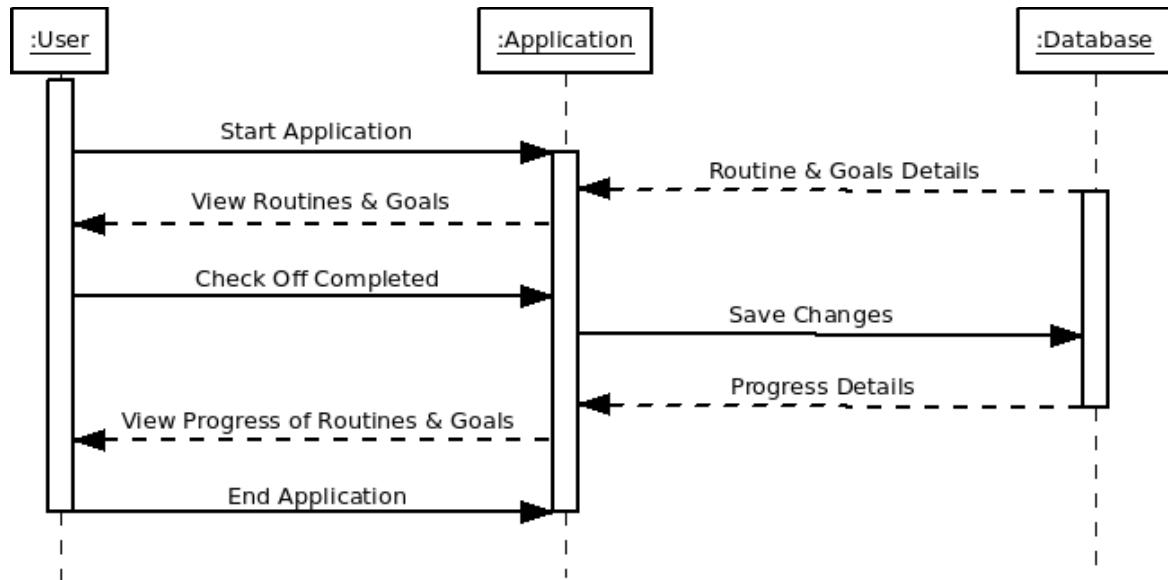


Fig. 4.4 Sequence Diagram for Review Routines and Goals

Sequence Diagram for View Progress of Routines and Goals:

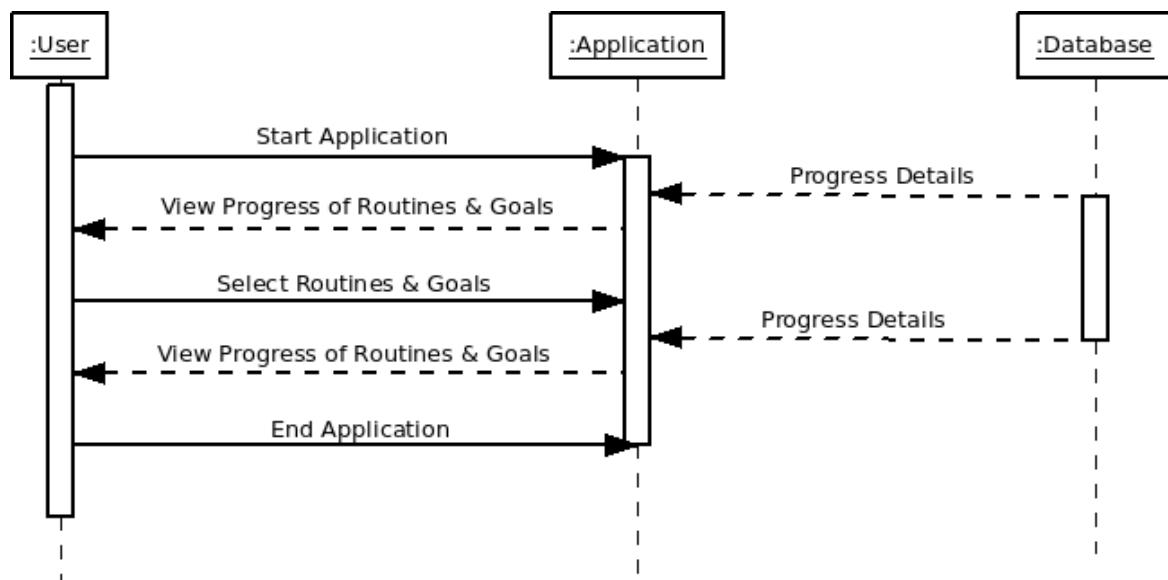


Fig. 4.5 Sequence Diagram for View Progress of Routines and Goals

4.7 DATA MODELLING

4.7.1 Class Diagram:

- Used to capture a Static view of system.
- Represent how to put various objects together.

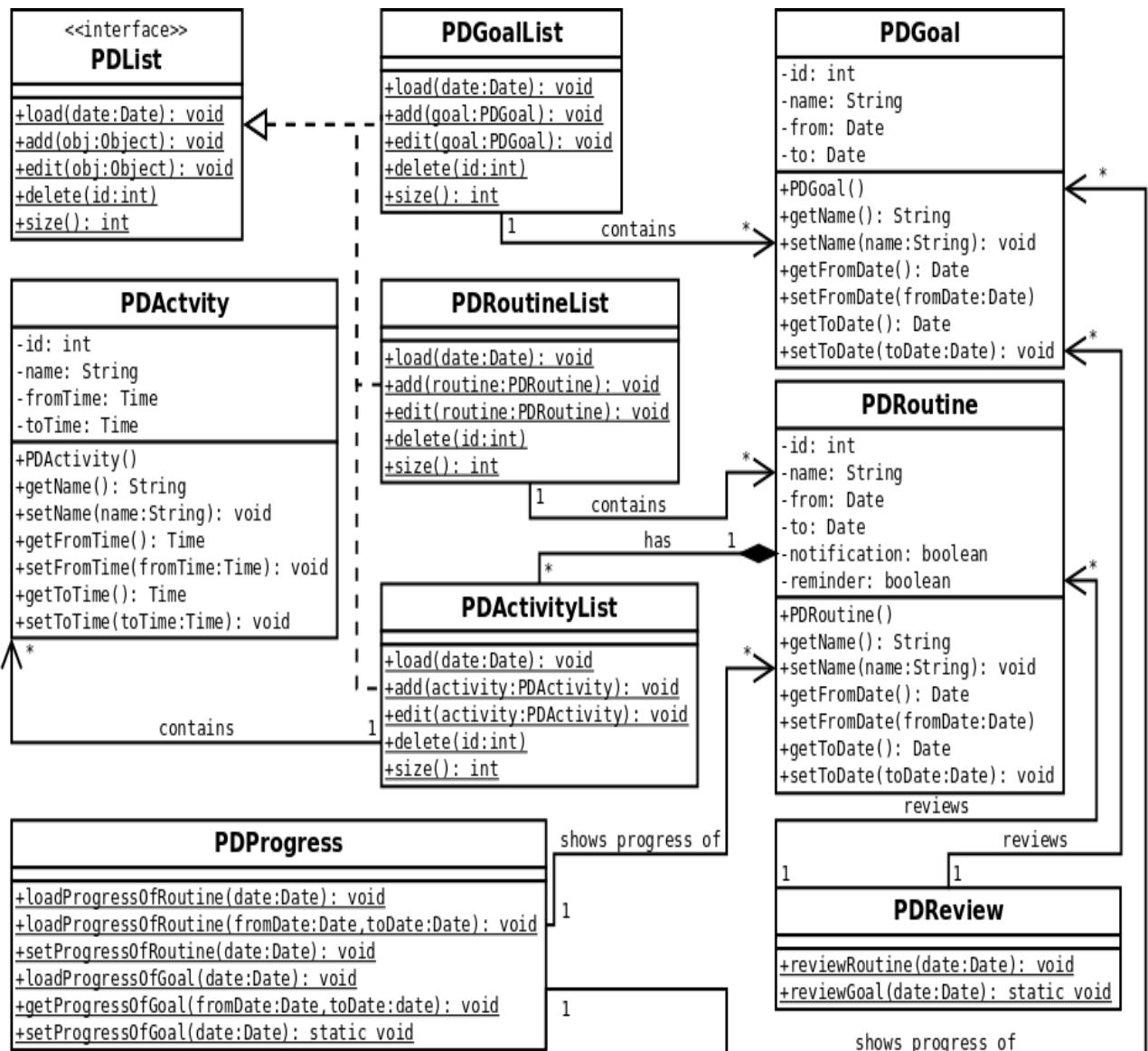


Fig. 4.6 Class Diagram

4.7.2 Activity Diagram:

Activity diagrams are graphical representations of work flows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the overall flow of control.

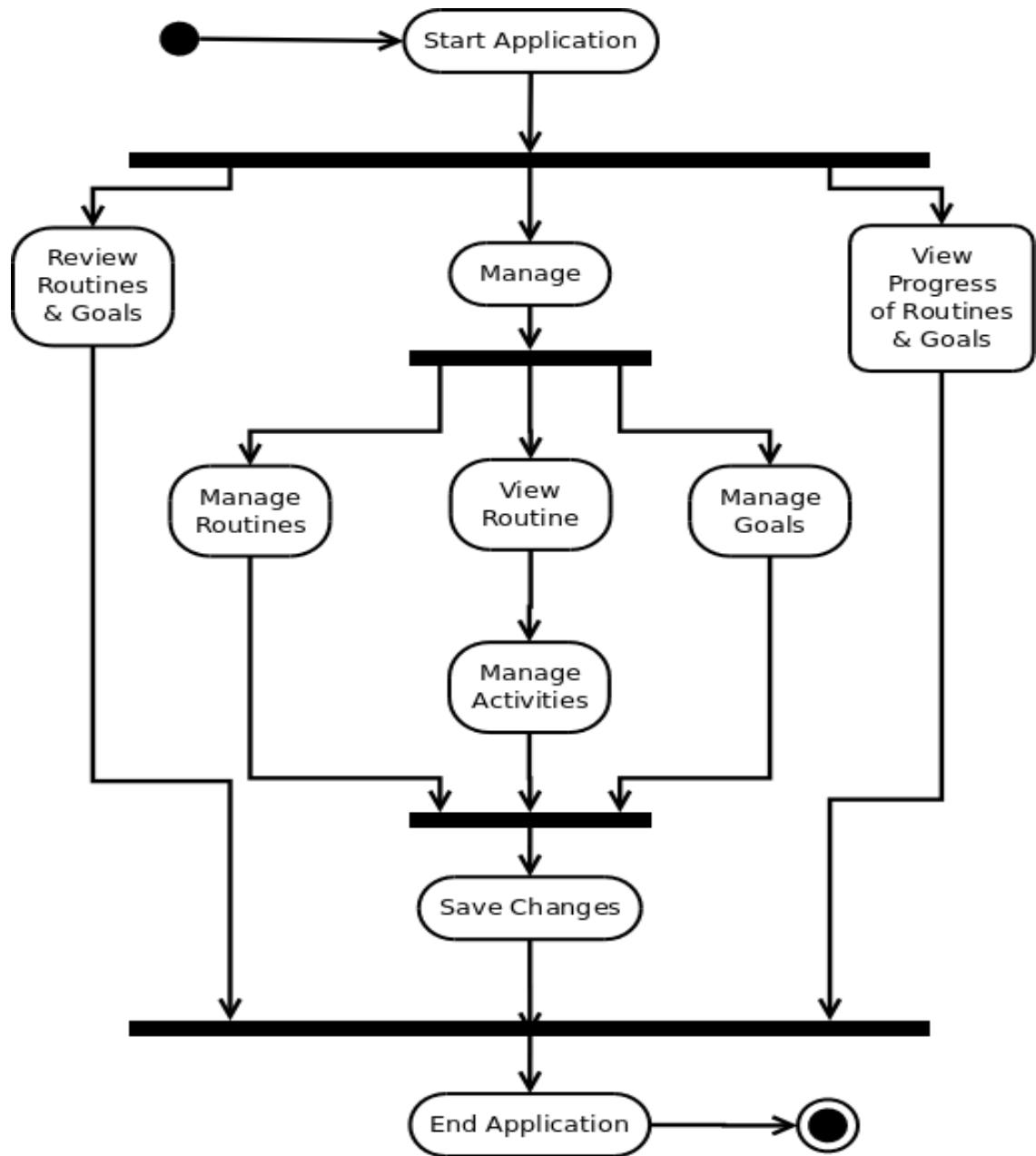


Fig. 4.7 Activity Diagram

4.8 FUNCTION AND BEHAVIOUR MODELLING

DFD Diagram:

- Used to model the information and function domain.
- Greater level helps the analyst to perform functional decomposition.

4.8.1 Data Flow Diagrams:

Context Level DFD

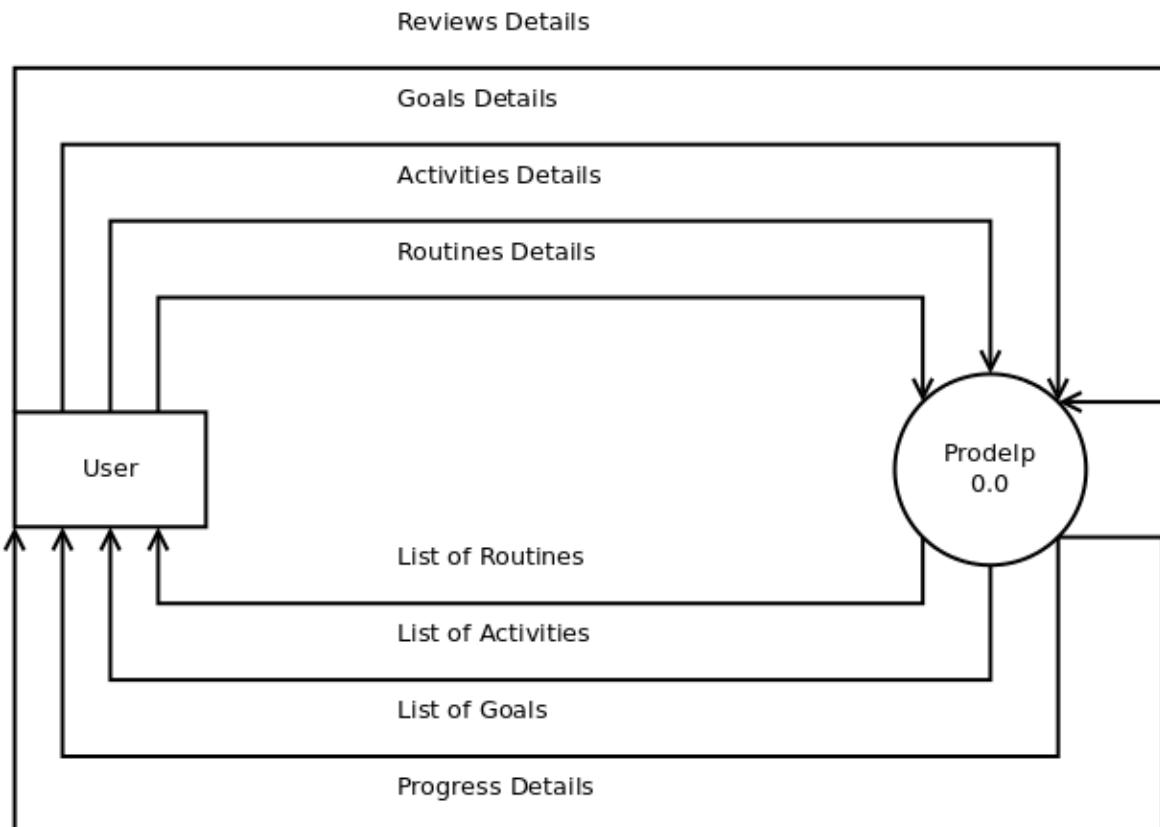


Fig. 4.8 Context Level DFD

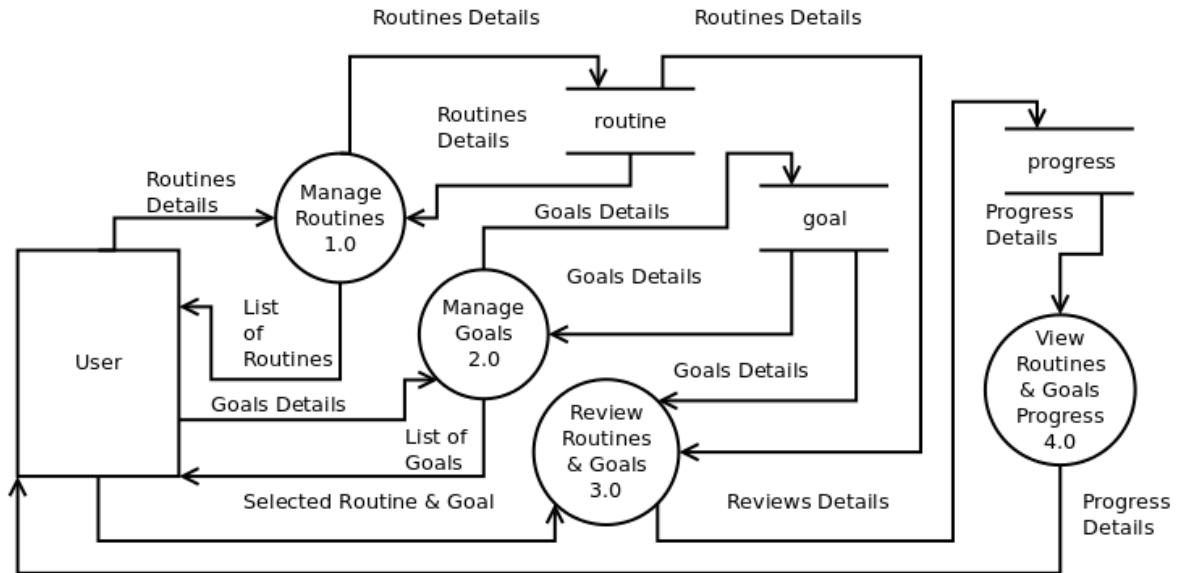
First Level DFD

Fig. 4.9 First Level DFD

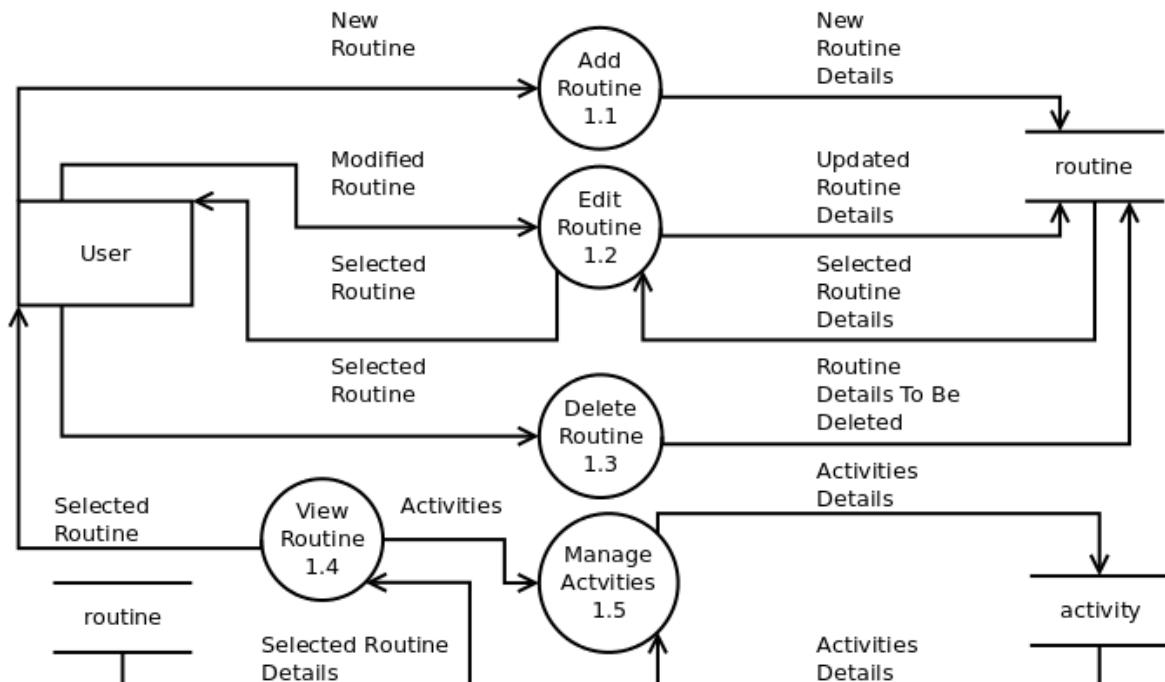
Second Level DFD of Manage Routines

Fig. 4.10 Second Level DFD of Manage Routines

Second Level DFD of Manage Goals

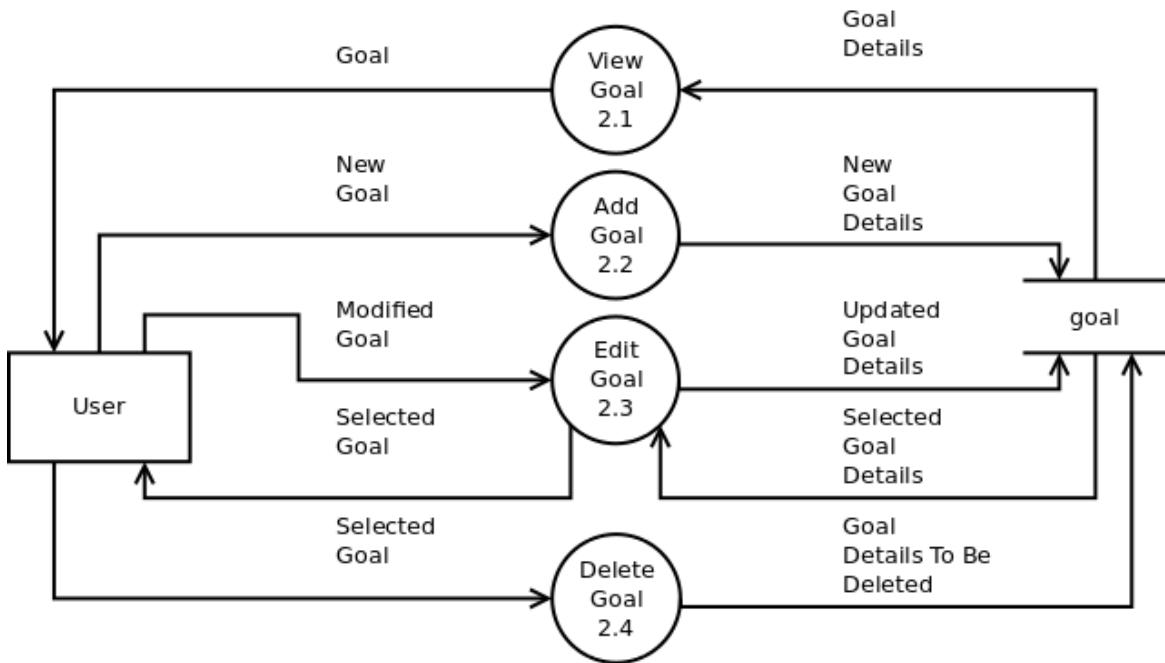


Fig. 4.11 Second Level DFD of Manage Goals

Third Level DFD of Manage Activities

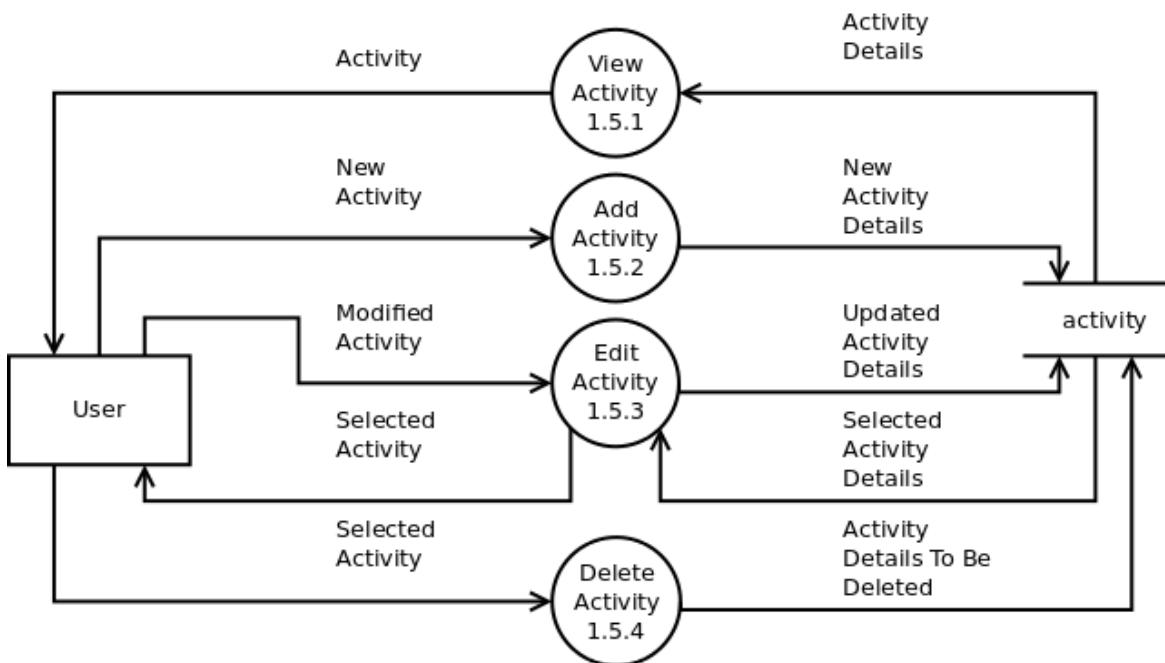


Fig. 4.12 Third Level DFD of Manage Activities

4.9 MAIN FUNCTIONS OF NEW SYSTEM

- **Routines:**

This module allows the user to view, add, edit and delete the routine. The user can create multiple routines for different days.

- **Activities:**

This module allows the user to view, add, edit and delete the activities of selected routine. Activities cannot exist without the routine.

- **Goals:**

This module allows the user to view, add, edit and delete the goals that need to be achieved by following defined routine.

- **Review**

This module is used for reviewing the day's work and user can check off what has been completed in specific routine for specific day.

- **Progress**

This module can be used for view the user's progress of efficiency for a day or over a period of several days.

4.10 SELECTION OF HARDWARE AND SOFTWARE JUSTIFICATION

- **Hardware:**

Hardware	Requirement	Justification
Android-based Mobile Phone	Android 4.0.3 or higher	Android 4.0.3 is an incremental release of the Android 4.x (Ice Cream Sandwich) platform family. This release includes new features for users and developers, API changes, and various bug fixes. There are only 6.8% device running older releases than 4.0.3. So we are targeting to support around 93% android mobile phones around the world.

- **Software**

Software	Requirement	Justification
Front End	Java and XML	Java is used for writing the logic and XML is used for designing the user interface for the application in android.
Back End	SQLite	SQLite is lightweight database suitable for small application such as mobile application.

Table 4.1 Selection of Hardware and Software Justification

CHAPTER - 5

SYSTEM DESIGN

5.1 DATABASE DESIGN

5.1.1 Table and Relationship:

➤ Data Dictionary

Routine Table:

Field Name	Data Type	Not Null	Primary Key	Foreign Key	Reference Table	Description
r_id	INTEGER	Y	Y	--	--	Unique ID of Routine
r_name	TEXT	N	N	--	--	Name of Routine
r_fromDate	TEXT	N	N	--	--	Routine Start Date
r_toDate	TEXT	N	N	--	--	Routine End Date

Table 5.1 Routine Table

Activity Table:

Field Name	Data Type	Not Null	Primary Key	Foreign Key	Reference Table	Description
a_id	INTEGER	Y	Y	--	--	Unique ID of Activity
a_name	TEXT	N	N	--	--	Name of Activity
a_fromTime	TEXT	N	N	--	--	Activity Start Time
a_toTime	TEXT	N	N	--	--	Activity End Time
r_id	INTEGER	Y	N	Y	routine	Routine ID

Table 5.2 Activity Table

Goal Table:

Field Name	Data Type	Not Null	Primary Key	Foreign Key	Reference Table	Description
g_id	INTEGER	Y	Y	--	--	Unique ID of Goal
g_name	TEXT	N	N	--	--	Name of Goal
g_fromDate	TEXT	N	N	--	--	Goal Start Date
g_toDate	TEXT	N	N	--	--	Goal End Date

Table 5.3 Goal Table

Progress Table:

Field Name	Data Type	Not Null	Primary Key	Foreign Key	Reference Table	Description
p_id	INTEGER	Y	Y	--	--	Unique ID of Progress
p_date	TEXT	N	N	--	--	Date of Review
p_rate	TEXT	N	N	--	--	Calculated Progress Percentage

Table 5.4 Progress Table

5.1.2 Logical Description of Data:

5.1.2.1 E-R Diagrams:

- Used to represent Relationship pair can be represented graphically.
- Used in Database application but most commonly used in Data Design.

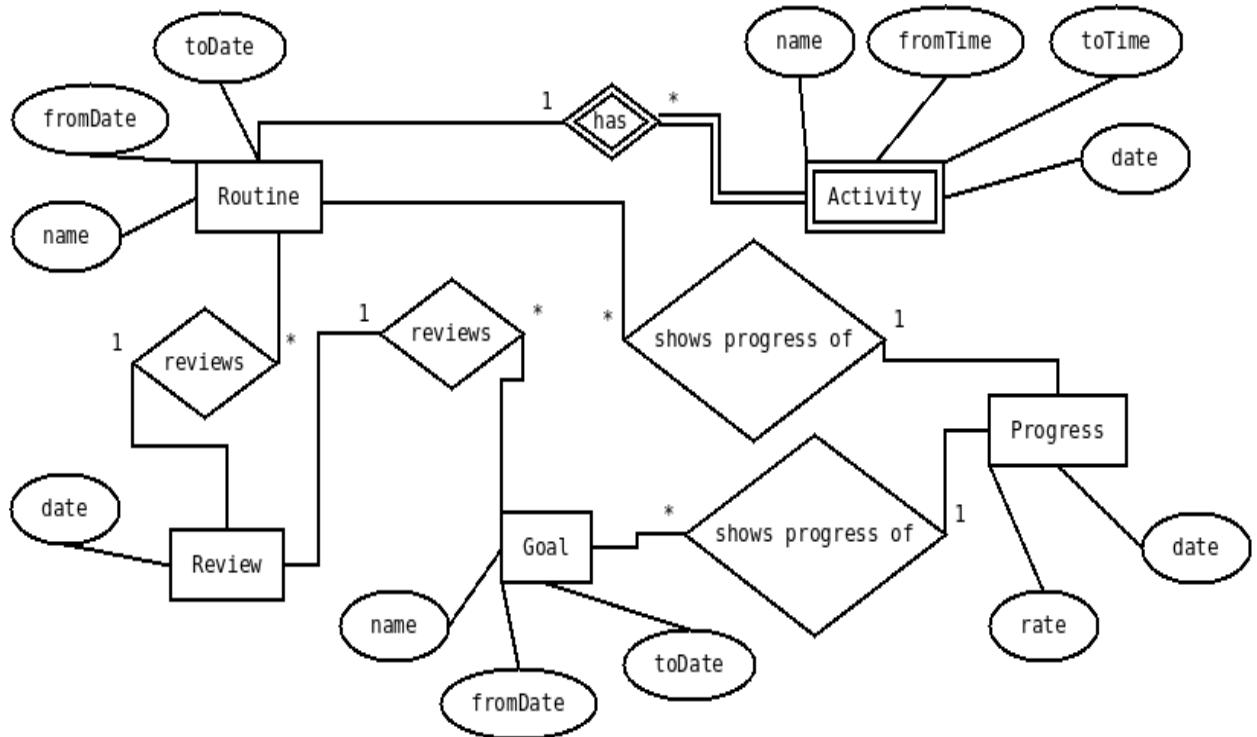


Fig. 5.1 E-R Diagram

5.2 ACCESS CONTROL AND SECURITY

The user is only one who uses the application on his mobile for his personal purpose. The application does not require user to log into system. Therefore, there are no any access control mechanisms are defined in the application.

The application provides the adequate level of security to make sure that user's private date is not compromised by means of network operations in the application. The application takes the advantage of security features already available in Android Platform.

5.3 SYSTEM ARCHITECTURE DESIGN

Model-View-Controller (MVC) is a software architecture architectural pattern. The model is the data, the view is the window on the screen, and the controller is the glue between the two taking the data and presenting that to the view .

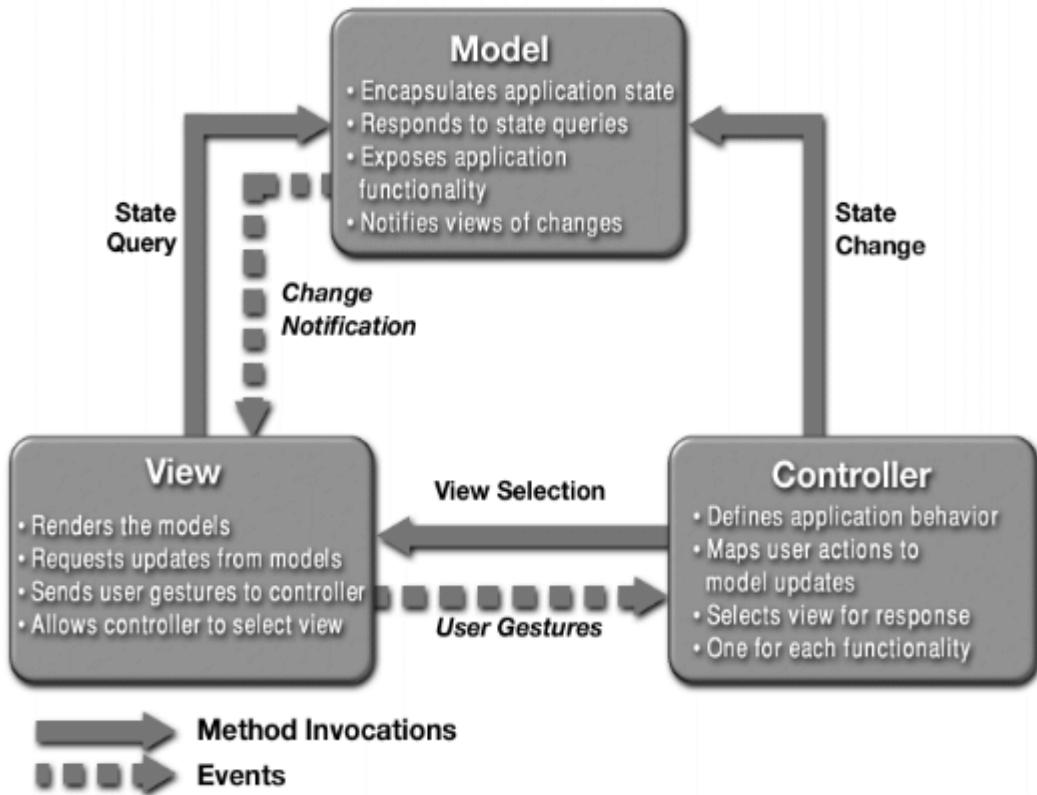


Fig. 5.2 MVC Architecture

- **Model**

- Manages the app data and state
- Not concerned with UI or presentation
- Often persists somewhere
- Same model should be reusable, unchanged in different interfaces

- **View**

- Present the Model to the user in an appropriate interface
- Allows user to manipulate data
- Does not store any data except to cache state
- Easily reusable & configurable to display different data

- **Controller**

- Intermediary between Model & View
- Updates the view when the model changes
- Updates the model when the user manipulates the view
- Typically where the app logic lives

Model View Controller (MVC) Pattern in Android architecture

Models: Content Providers.

Data Managers that are the recommended form of inter-application data sharing.

Views: Activities.

This is the application's primary user interface component. Every individual screen of an Android application is derived from the Activity Java class (**android.app.Activity**). They are containers for Views (**android.view.View**).

Controllers: Services.

These are background components that behave like UNIX daemons and Windows services. They run invisibly and perform ongoing unattended processing.

5.4 OBSERVATION MATRIX CANVAS

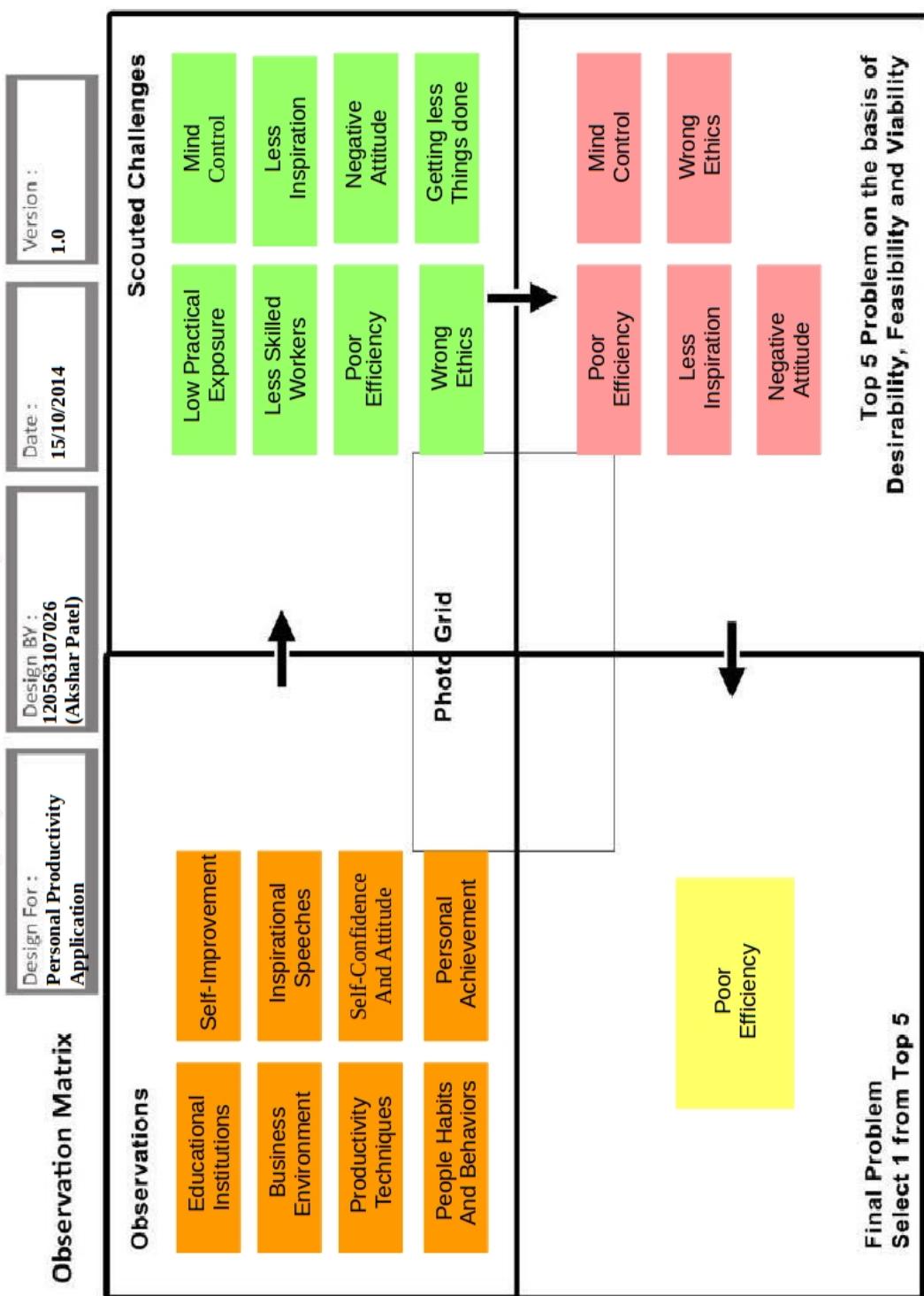


Fig. 5.3 Observation Matrix Canvas

Observations:

In observations part, we have to view users and their behavior in the context of their lives.

In our project we took observation from the followings:

- Educational Institutions
- Business Environment
- Productivity Techniques
- People Habits and Behaviors
- Self-Improvement
- Inspirational Speeches
- Self-Confidence and Attitude
- Personal Achievements

Scouted Challenges:

By making the observation as in Observations part, we can identify what are the challenges users are facing.

In our project we listed our following challenges:

- Low Practical Exposure
- Less-skilled Workers
- Poor Efficiency
- Wrong Ethics
- Mind Control
- Less Inspiration
- Negative Attitude
- Getting less things done

Top 5 Problems:

In this part, from the listed challenges we identify the top 5 important problems to be solved.

In our project, we identified top 5 problems which are as follows:

- Poor Efficiency
- Wrong Ethics
- Mind Control
- Less Inspiration
- Negative Attitude

Final Problem:

In this part, from the top 5 problems, we identify the most important problem to be solved first.

In our project, we identified the most important problem to be Poor Efficiency.

As poor efficiency of any person can lead to many different problems such as low self-esteem , poor performance, less desire for work, less inspiration, getting less things done and many other problems. So solving this problem is very important. Although, the problem of poor efficiency seems very small but if it can be solved in a proper way, it can make dramatic changes in personal life of any person.

5.5 IDEATION CANVAS

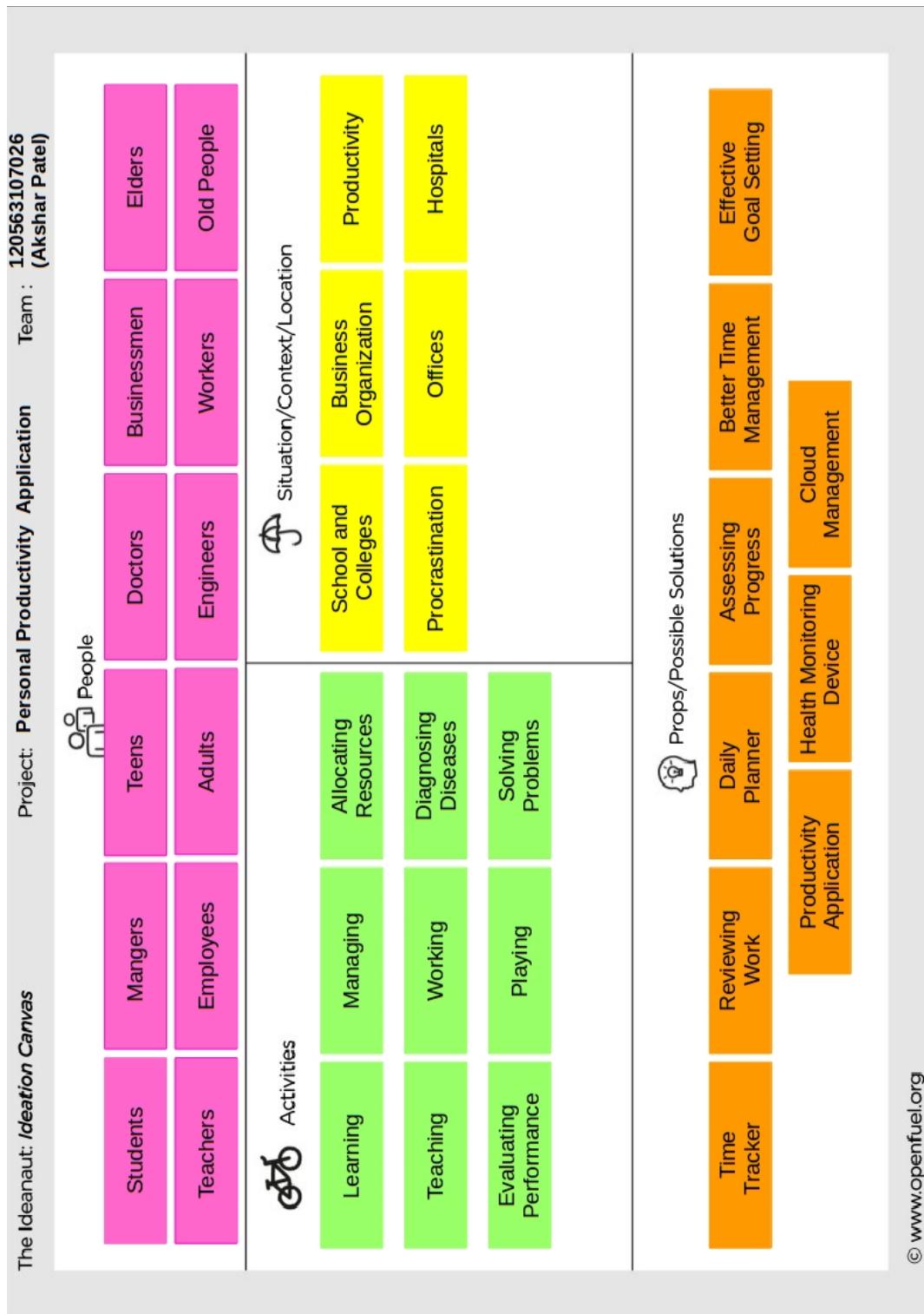


Fig. 5.4 Ideation Canvas

People:

In this part, we define the different people for whom we are interested to solve the problems. We can segment them into various groups on the basis of their profession e.g. Teachers, doctors, athletes. Similarly segment them on the basis of their age, income and other characteristics.

In our project, we have considered following people:

- Students
- Teachers
- Managers
- Employees
- Teens
- Adults
- Doctors
- Engineers
- Businessmen
- Workers
- Elders
- Old People

Activities:

In this part, we write down whatever every segment of people do. We make the list, as long as possible- for example teachers: teach, take attendance, prepare class notes, prepare presentations, grade students, evaluate answer sheets and prepare question papers. Similarly; Shoppers, window shop, compare prices, visit stores, return defective goods, claim warranty etc.

In our project, we defined following activities:

- Learning
- Teaching
- Working
- Playing
- Allocating Resources
- Diagnosing Diseases
- Solving Problems
- Managing

Situation/Context/Location:

Every above mentioned activity can be done in a different situation, location or context. For shopping- prices can be compared online or offline. The location for shopping can be a mall with many available brands or a street shop. Sometimes we could be buying clothes for ourselves and at times for gifting – which depicts different contexts. For a teacher – evaluation can be of either subjective or objective papers. At other times it could be of project reports. Evaluation can be either paper/document based or for continuous class behavior which depicts different contexts.

In our project, we considered following situations/contexts/locations:

- School and Colleges
- Business Organization
- Productivity
- Procrastination
- Offices
- Hospitals

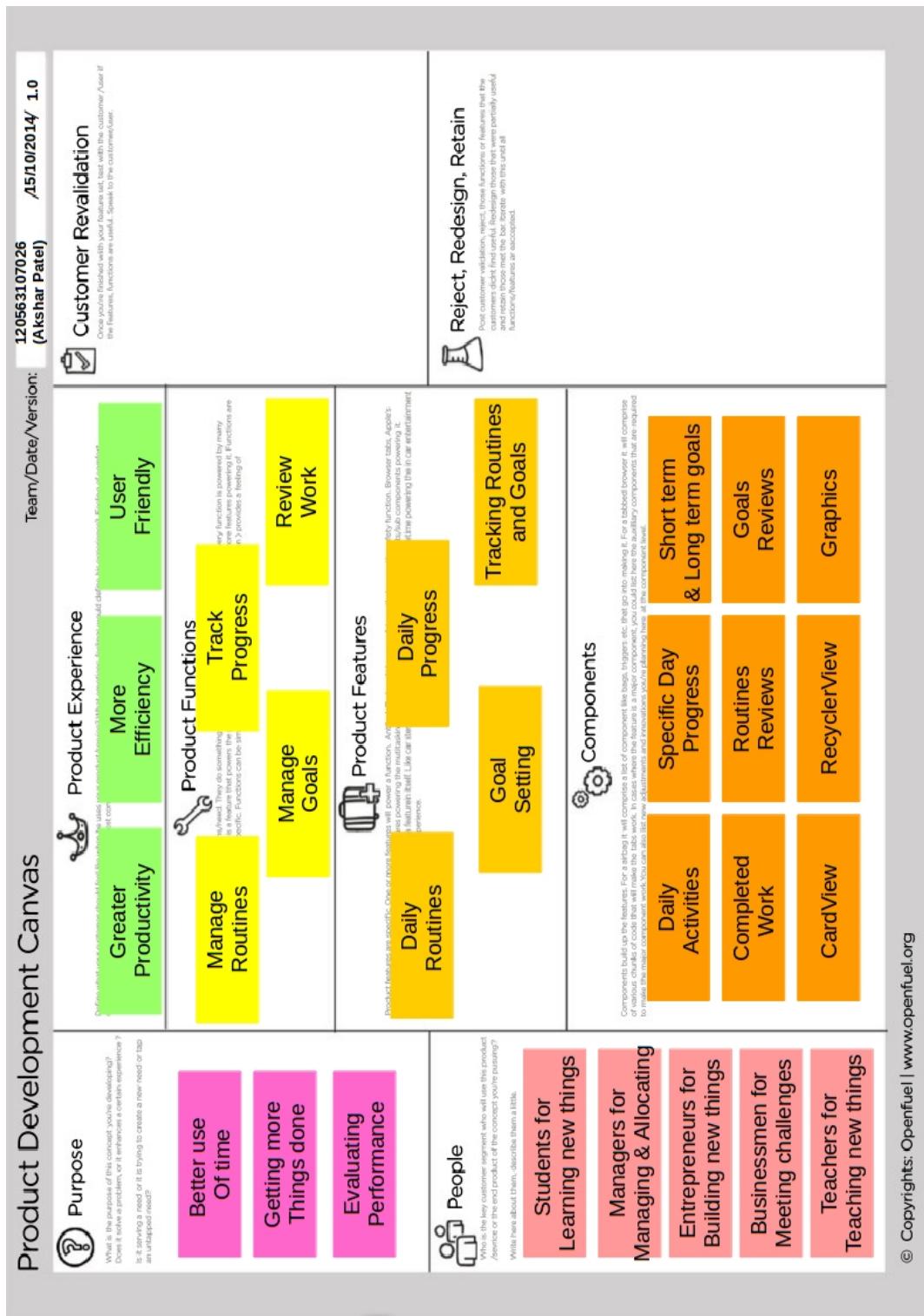
Props/Possible Solutions:

In this part we note down the objects, technologies or solutions which may be possible outcomes to our idea/challenge. The prop need not be related as it's always randomness that helps in finding new ideas. Consider an example where we are thinking about teachers and throw in a random solution like chemical reagent. Here as mentioned above the randomness in ideas can be implemented. Adding up People: Teacher > Activity: Evaluation > Situation: Subjective answer sheets; to the chemical reagent gives us a special pen based on acidity that makes the teacher comments tamper proof.

In our project, we identified following props:

- Time Tracker
- Reviewing Work
- Daily Planner
- Assessing Progress
- Better Time Management
- Effective Goal Setting
- Cloud Management
- Health Monitoring Device

5.6 PRODUCT DEVELOPMENT CANVAS



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Fig. 5.5 Product Development Canvas

Purpose:

The section would answer the following questions: What is the broad purpose of our product? What problem sector we want to target broadly or specifically? For e.g. we may want to target transport sector or we may want to come up with options for Healthier foods. If we already have a specific purpose, then go ahead with it. Like solving the problem of measuring footfalls in a retail store or measuring consumer interest in specific products on retail shelves.

The main purposes of our project are as follows:

- Better use of Time
- Getting More Things Done
- Evaluating Performance

People:

In this part, we make the segment more focused. We note down the kind of people we have in mind while developing the product and also the people for whom we are resolving the problem.

In our project, we focused on following people:

- Students for Learning new things
- Managers for Managing and Allocating
- Entrepreneurs for Building new things
- Businessmen for Meeting challenges
- Teachers for Teaching new things

Product Experience:

In this part, we focus in depth on how the customer feels for our product/service concept. We mention every kind of experience we would want our user to feel, enjoy or avail. we also make a list of all user problems you want to address and how user feels about each of his problems.

In our project, we want the user have following experiences:

- Greater Productivity
- More Efficiency
- User Friendly

Product Functions:

In this part, we define the product functions deliver the product experience. We convert the product experience into functions for our product/service. What functions our product should perform to meet the customer experience we have just identified in product

experience? Mostly the user experience/needs will be our product functions. e.g. if we want our users to feel comfortable & maintain right body posture while sitting on a chair, function provided must be comfortable sitting and healthy posture. If we are developing software, user requirement for faster experience would mean that faster working will be a function of our product.

In our project, we have identified following major product functions:

- Manage Routines
- Track Progress
- Manage Goals
- Review Work

Product Features/Components:

Features power the product functions. We find product features that will deliver the product functions we have identified. For a comfortable chair, ergonomic design would be one feature; footrest or armrest could be more. And how about a mobile or a cup holder? Multiple product features could lead to the same function. Features could also be components. Like arm-rest, neck rest or footrest. A faster algorithm could be a feature powering the speed performance of software.

In our project, we have found out following features:

- Daily Routines
- Goal Setting
- Daily Progress
- Tracking Routines and Goals

In our project, we have following major components:

- Daily Activities
- Completed Work
- CardView
- RecyclerView
- Graphics
- Specific Day Progress
- Routines Reviews
- Goals Reviews
- Short term and long term goals

CHAPTER - 6

IMPLEMENTATION AND TESTING

6.1 IMPLEMENTATION ENVIRONMENT

The application is a mobile application for android. So it does not require any specific implementation environment. It requires only android operating system based mobile phone with android version 4.0.3 or higher. The Internet connectivity is optional and application works just fine even without the Internet. Internet is required only if the user wants to have the feature of auto recommendations.

6.2 SECURITY FEATURES

There are not any special security required for application. The application accesses Internet only after having the permission from user while installing the application and it does not violet any security rules as defined Google for Android Platform application development.

6.3 CODING STANDARDS

Where coding conventions have been specifically designed to produce high-quality code, and have then been formally adopted, they then become coding standards. Specific styles, irrespective of whether they are commonly adopted, do not automatically produce good quality code. It is only if they are designed to produce good quality code that they actually result in good quality code being produced, i.e., they must be very logical in every aspect of their design - every aspect justified and resulting in quality code being produced.

Good procedures, good methodology and good coding standards can be used to drive a project such that the quality is maximized and the overall development time and development and maintenance cost is minimized.

6.3 TESTING

Testing involves operation of a system or application under controlled conditions and evaluating the results. The controlled conditions should include both normal and abnormal conditions. Testing should intentionally attempt to make things go wrong to determine if things happen when they don't happen when they should. It is oriented to "detection".

When a system is developed, it hopes that it performs properly. In practice, however some errors always occur. The main purpose of testing an information system is to find the errors and correct them.

- To ensure system will perform as per specification
- Ensure system meets the user requirement
- Verify if control function as intended
- To make sure incorrect inputs, incorrect processing and incorrect outputs (if any)
- will be detected during operation
- Should include both computer based and manual operation

The different types of testing are.

1. Unit Testing

The first level of testing is called as Unit testing. Here the different modules are tested and the specifications produced during design for the modules .Unit Testing is essential for verification of the goal and to test the internal logic of the modules .Unit testing was conducted to the different modules of the project. Errors were noted down and corrected down immediately and the program clarity as increased. The testing was carried out during the programming stage itself. In this step each module is found to be working satisfactory as regard to the expected output from the module.

2. Integration Testing

The second level of testing includes integration testing. It is a systematic testing of constructing structure. At the same time tests are conducted to uncover errors associated with the interface. It need not be the case, that software whose modules when run individually and showing perfect results will also perfect results when run as a whole. The individual modules are tested again and the results are verified. The goal is to see if the modules can be integrated between modules. Poor interfacing may result in data being lost across an interface causing serious problems. This testing activity can be considered as testing the design and emphasizes on testing modules interactions.

3. Validation Testing

The next level of testing is validation testing. Here the entire software is tested. The reference document for this process is the requirement and the goal is to see if the software

meets its requirements. The requirement document reflects and determines whether the software functions the user expected. At the culmination of the integration testing, software is completely assembled as a package, interfacing and corrected and a final series of software test and validation test begins. The proposed system under construction has been tested by Using validation testing and found to be working satisfactory.

4. Output testing

The output of the software should be acceptable to the system user. The output requirements are defined during the system analysis .Testing of the software system id done against the output requirements and the output testing was completed with success.

5. User acceptance system

An acceptance test has the objective of selling the user on the validity and reliability of the system. It verifies that the systems procedures operate to system specification and make the integrity of vital data is maintained.

6. Performance Testing

This project is a system-based project, and the modules are interdependent with the other modules, so the testing cannot be done module by module. So the unit testing is not possible in the case of this driver. So this system is checked only with their performance to check their quality. In case of the Unit testing the initialization module is first tested. Since read module and the write module is interdependent the performance testing is done only after the final phase of coding.

6.1 USER INTERFACE DESING

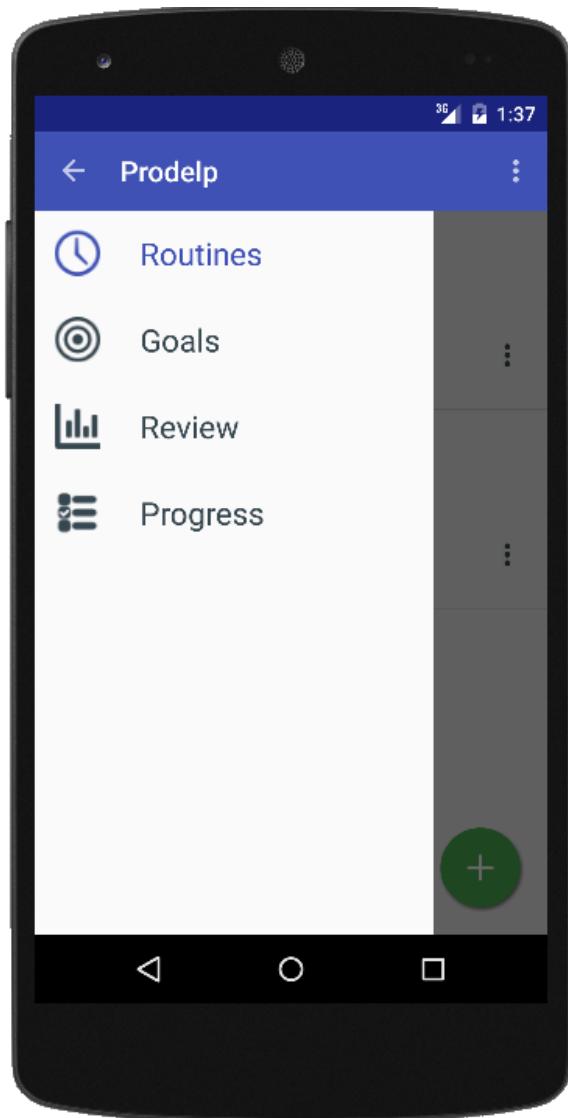


Fig. 6.1 Navigation Drawer Screen

Description: It is used to navigate through different modules.

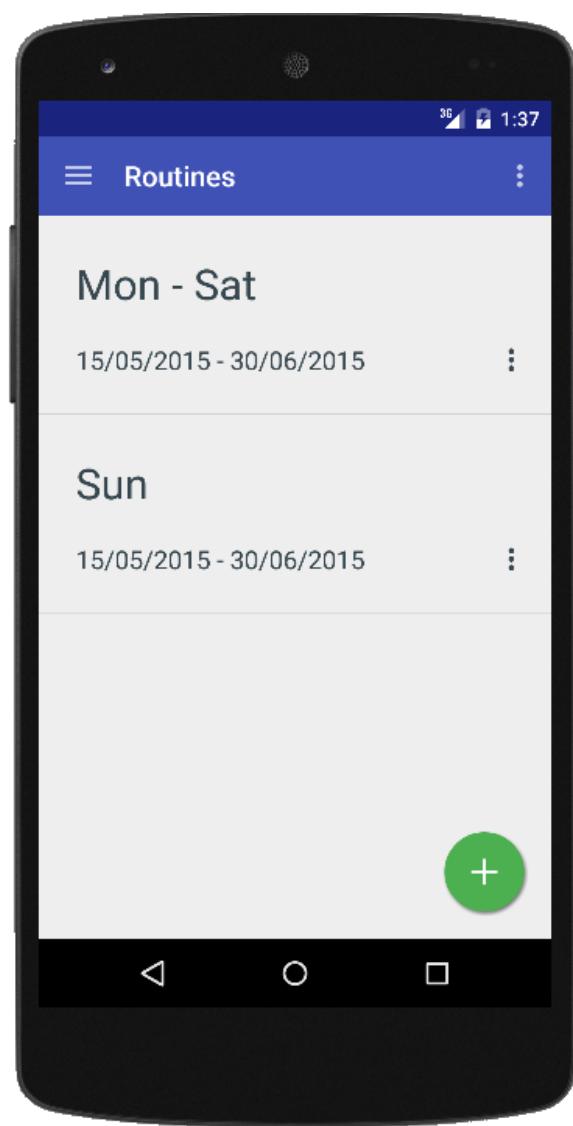


Fig. 6.2 Routines Screen

Description: It is used to view and manage routines.

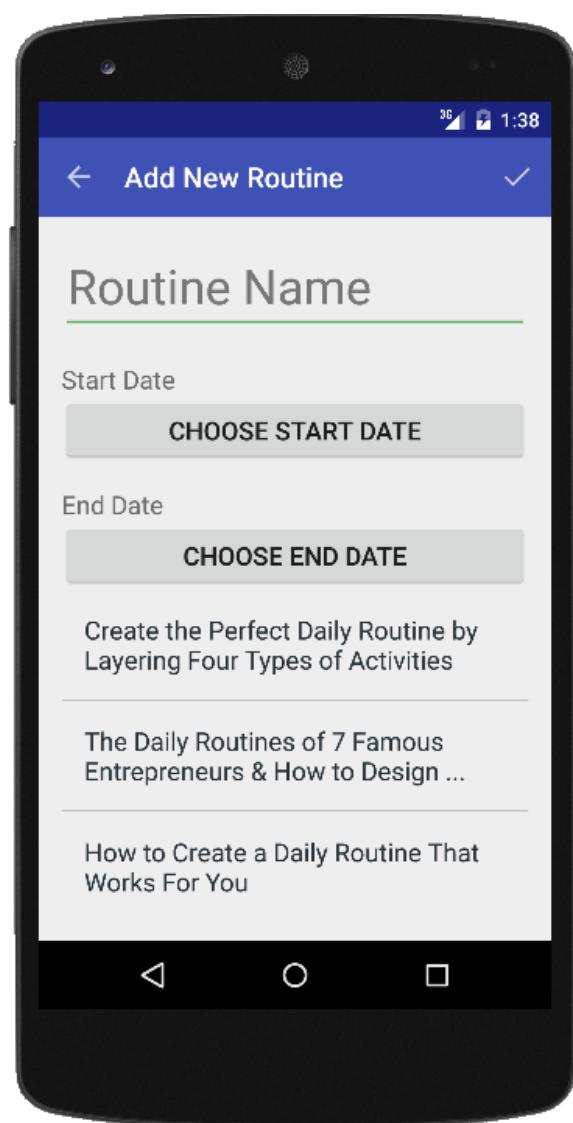


Fig. 6.3 Add New Routine Screen

Description: It is used to add new routine



Fig. 6.4 Add New Routine Date Picker Screen

Description: It is used to pick the dates for routine.

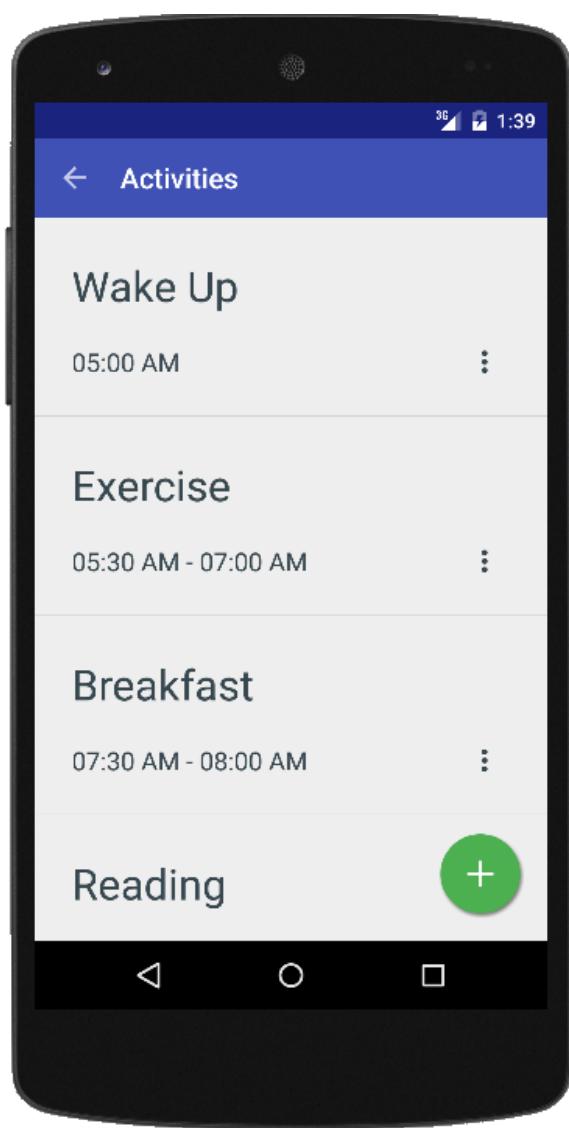


Fig. 6.5 Activities Screen

Description: It is used to view and manage activities.

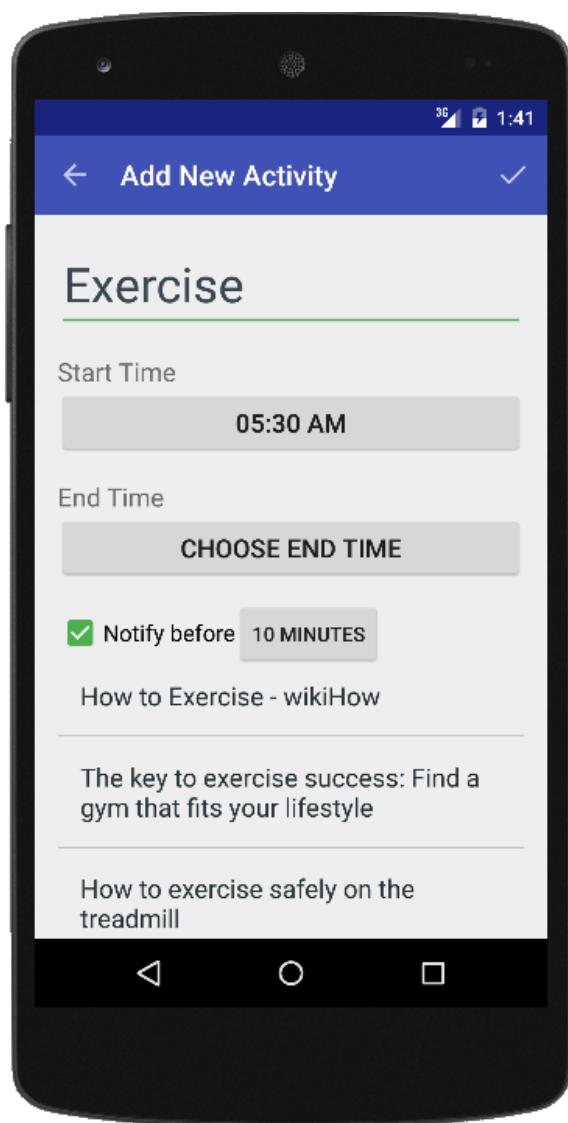


Fig. 6.6 Add New Activity Screen

Description: It is used to add new activity.

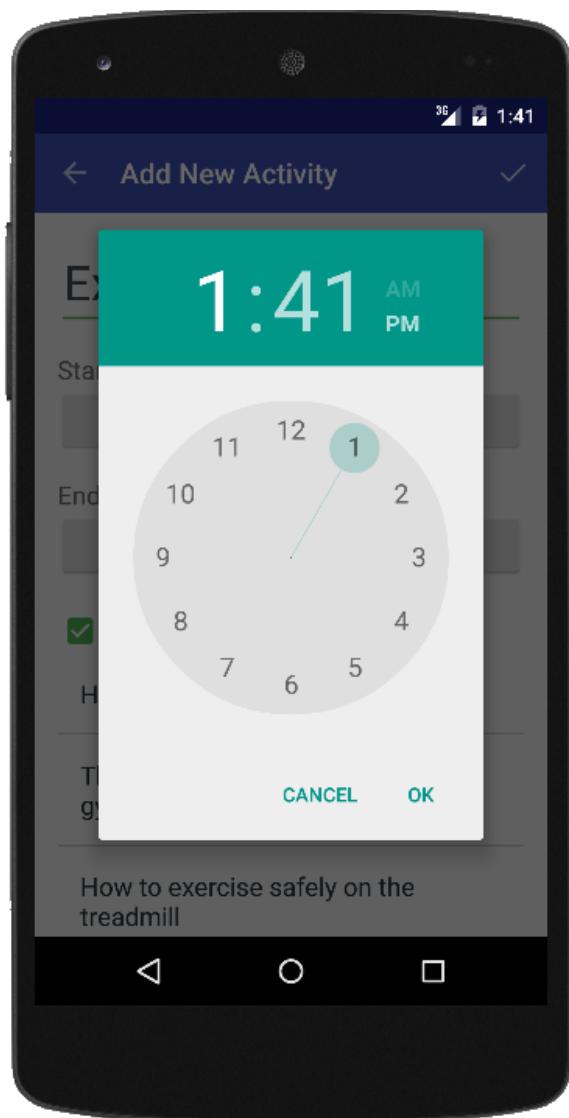


Fig. 6.7 Add New Activity Time Picker Screen

Description: It is used to pick time for activity.

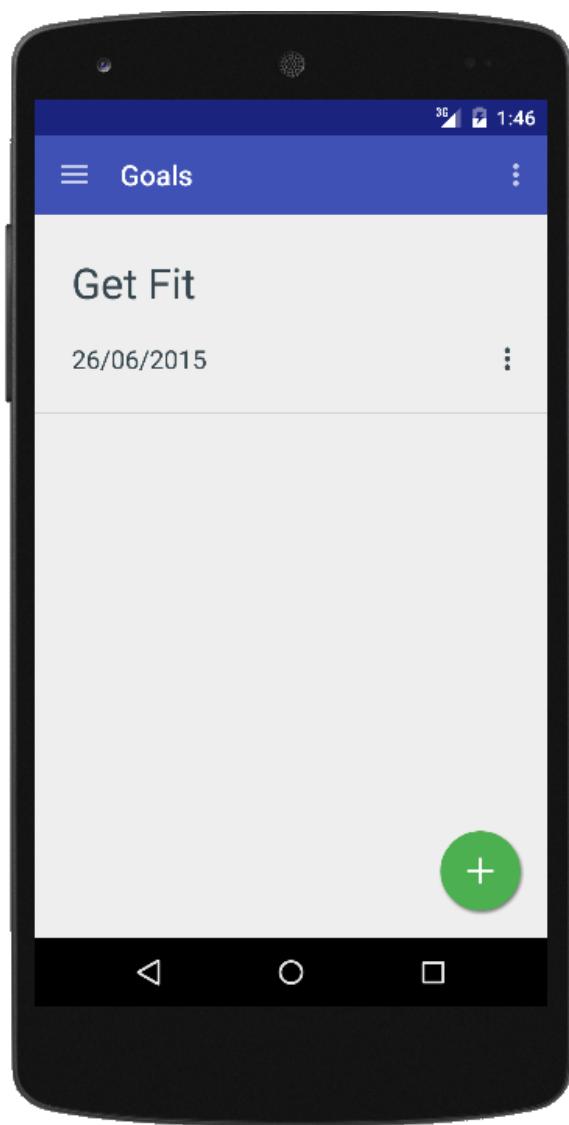


Fig. 6.8 Goals Screen

Description: It is used to view and manage goals.

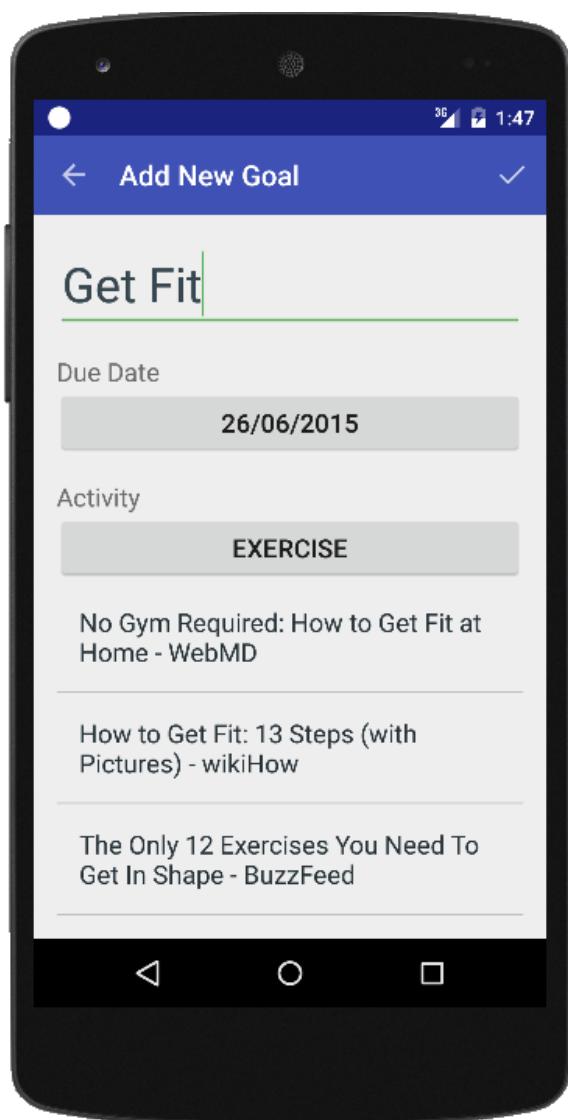


Fig. 6.9 Add Goal Screen

Description: It is used to add new goal.

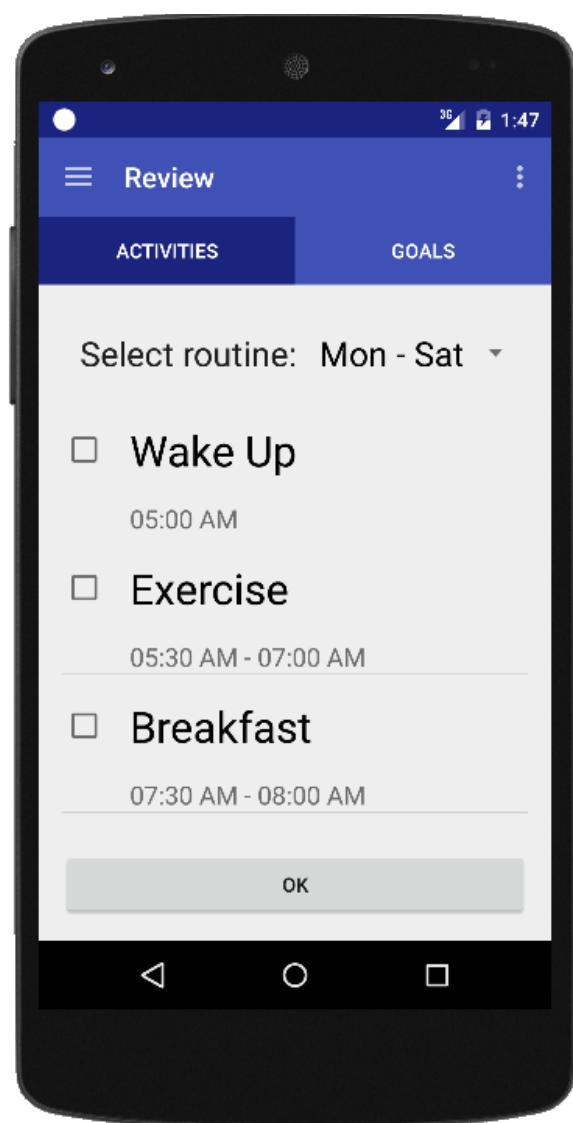


Fig. 6.10 Review

Description: It is used to review the activities.

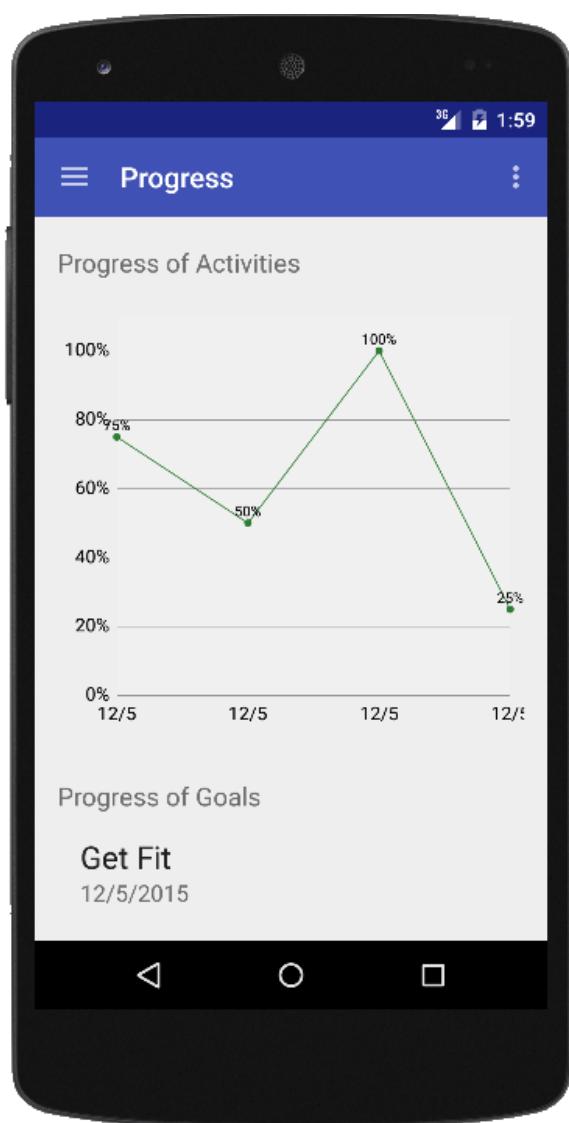


Fig. 6.11 Progress Screen

Description: It is used to view the progress.

LIMITATIONS AND FUTURE WORK

LIMITATIONS

- Internet connectivity required for auto recommendations.
- Single date and time format.
- All the data is stored locally.
- No templates feature.
- Supports only Android 4.0.3 or higher.
- No official support for tablets.

FUTURE WORK

- Limited off-line auto recommendations.
- More formats for data and time.
- Cloud storage support.
- Templates feature.
- Foot steps tracking by using sensors.
- Geo-fencing notifications.
- Calorie tracking and nutritions recommendations.
- SMS and Email Notifications.
- More screen-sizes support.
- Smart watches support.

CONCLUSION

CONCLUSION

We have asked set of questions to user about their time management and goal setting strategies. We have studied the articles and books related to productivity.

We studies the alternatives for system being developed and identified the new requirements for new system. Requirements have been gathered from alternatives, users, on-line articles, books on productivity.

We identified the major important requirements to be developed as the functions in the system. We have also identified the non-functional requirements concerning the privacy and security.

The system has been analyzed and various diagrams of system design have been prepared. We have designed the data dictionary and user interface design for the system

The core functionality of Routines, Activities, and Goals modules has been completed. Auto recommendations feature has been implemented for routines,activities and goals module. Notifications on activity start has been completed.

We have made something that is not just another application but has the potential to completely transform the life of user by having the control of time and making the best possible use of it.

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GTU Innovation Council

Patent Drafting Exercise (PDE)

FORM 1
THE PATENTS ACT 1970
(39 OF 1970)
&
THE PATENTS RULES, 2003
APPLICATION FOR GRANT OF PATENT

(FOR OFFICE USE ONLY)

Application No:
Filing Date:
Amount of Fee paid:
CBR No: _____

1. Applicant(s) :

ID	Name	Nationality	Address	Mobile No.	Email
1	Aksharkumar Babulal Patel	Indian	Computer Engineering , Faculty Of Engineering, Grow More Foundation Group Of Institutions,Berna, Himmatnagar , Gujarat Technologycal University.	9428644551	akshar26@gmail.com

2. Inventor(s):

ID	Name	Nationality	Address	Mobile No.	Email
1	Aksharkumar Babulal Patel	Indian	Computer Engineering , Faculty Of Engineering, Grow More Foundation Group Of Institutions,Berna, Himmatnagar , Gujarat Technologycal University.	9428644551	akshar26@gmail.com

3. Title of Invention/Project:

Personal Productivity Application

4. Address for correspondence of applicant/authorized patent agent in india

Name: Aksharkumar Babulal Patel

Address: Computer Engineering , Faculty Of Engineering, Grow More Foundation Group Of Institutions,Berna, Himmatnagar , Gujarat Technological University.

Mobile: 9428644551

Email ID: akshar26@gmail.com

5. Priority particulars of the application(S) filed in convention country

Country	Application No.	Filing Date	Name of the Applicant	Title of the Invention
N/A	N/A	N/A	N/A	N/A

6. Particulars for filing patent co-operation treaty (pct) national phase Application

International application number	International filing date as allotted by the receiving office
N/A	N/A

7. Particulars for filing divisional application

Original(First) Application Number	Date of filing of Original (first) application
N/A	N/A

8. Particulars for filing patent of addition

Original(First) Application Number	Date of filing of Original (first) application
N/A	N/A

9. DECLARATIONS:

(i) Declaration by the inventor(s)

I/We, the above named inventor(s) is/are true & first inventor(s) for this invention and declare that the applicant(s).

herein is/are my/our assignee or legal representative.

Date : 2 - May - 2015

Name _____

Signature & Date

1 Aksharkumar Babulal Patel

(ii) Declaration by the applicant(s) in the convention country

I/We, the applicant (s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.applicant(s)

(iii) Declaration by the applicant(s)

I/We, the applicant(s) hereby declare(s) that:-

Note : This is just a mock Patent Drafting Exercise (PDE) for semester 8, BE students of GTU. These documents are not to be submitted with any patent office.

- I am/We in possession of the above mentioned invention.
- The provisional/complete specification relating to the invention is filed with this application.
- The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- There is no lawful ground of objection to the grant of the patent to me/us.
- I am/we are the assignee or the legal representative of true & first inventors.
- The application or each of the application, particulars of each are given in the para 5 was the first application in the convention country/countries in respect of my/our invention.
- The application or each of the application, particulars of each are given in the para 5 was the first application in the convention country/countries in respect of my/our invention.
- I/we claim the priority from the above mentioned applications(s) filed in the convention country/countries & state that no application for protection in respect of invention had been made in a convention country before that date by me/us or by any person
- My/Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in para 6
- The application is divided out of my/our application(s) particulars of which are given in para 7 and pray that this application may be treated as deemed to have been filed on _____ under section 16 of the Act.
- The said invention is an improvement in or modification of the invention particulars of which are given in para 8.

10. Following are the attachments with the application:

- (a) Provisional specification/Complete specification
- (b) Complete specification (In confirmation with the international application) / as amended before International Preliminary Examination Authority (IPEA), as applicable (2 copies). No. of pages.. claims.....
- (c) Drawings (In confirmation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies). No. of sheets....
- (d) Priority documents
- (e) Translations of priority documents/specification/international search reports
- (f) Statement and undertaking on Form 3
- (g) Power of Authority
- (h) Declaration of inventorship on Form 5
- (i) Sequence listing in electronic Form
- (j) Fees Rs.XXX in Cash /Cheque/Bank Draft bearing No.XXX Date: XXX or Bank.

I/We hereby declare that to the best of my /our knowledge, information and belief the facts and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 2 day of May , 2015

Name

Signature & Date

1 Aksharkumar Babulal
Patel



FORM 2
THE PATENTS ACT, 1970
(39 OF 1970)
&
THE PATENTS RULES, 2003
PROVISIONAL SPECIFICATION

1. Title of the project/invention :

Personal Productivity Application



2. Applicant(s) :

Aksharkumar Babulal Patel , (Indian)

Address :Computer Engineering , Faculty Of Engineering, Grow More Foundation Group Of Institutions,Berna, Himmatnagar , Gujarat Technologycal University.

3. Preamble to the description :

The following specification describes the invention.

4. Description :**a. Field of Application / Project / Invention :**

Daily Productivity Improvement

b. Prior Art / Background of the Invention / References :

The project deals with improving the productivity of any user at personal level. It gives much better control than to-do lists or pen and paper. It provides much effective goal setting by binding the activity of daily routine with specific goal. It is much more simpler than calendar applications as well.

c. Summary of the Invention/Project :

The project requires user to create a routine comprising the sequence of list of activities. The user need define the start date and end date for a routine. The user need define start time and end time for each activity. The project has auto recommendation feature which will recommend to do any activity efficiently and provide more information about any activity. The user can create some goal and bind it to the activity. The user can also review and track the progress of activities and goals.

d. Objects of the Invention/Project :

- Make effective use of time everyday
- Get more done everyday
- Develop activities to be followed everyday
- Set goals to direct the effort in right direction
- Track what has been completed
- See the graphical information of progress made

e. Drawing(s) :**f. Description of the Invention**

The project is aimed at improving the personal productivity of any user by designing the daily routine and setting effective goals. The user can also review and track the progress. The project contains four modules.

First module is routines module. In this module, the user is required to create first the routine comprising the list of activities each of them having start time and end time. The routine must have start date and end date.

Second module is Goals module. In this module, the user is required to create goals and bind a goal with some activity in daily routine. So binding a goal with an activity ensures that the user is making some progress toward a goal everyday and stops the problem of procrastination.

Third module is Review module. In this module, the user can review and check out what has been completed in activities and goals.

Fourth module is Progress module. In this module, the user can view the progress after making the reviews of activities and goals.

g. Examples

h. Unique Features of the Project

Auto recommendation: It will recommend a user with more information about routine, activity and goal on how to do it better and improve everyday.

Better routine: User can create multiple routines. Routine can have multiple activities inside it.

Effective goal setting; User can create multiple goals and tie them to specific activities to achieve them

Day review: User can review the daily work and check off the completed activities.

Progress tracking: User can see what progress has been done over a period of time. It would provide the user some graphical information which is very easy to comprehend.

5. Date & Signature :

Date : 2 - May - 2015

Sign and Date
Aksharkumar Babulal
Patel

6. Abstract of the project / invention :

All the people in the world want to improve their personal productivity to achieve something they are expecting from life. Most people works all the time figuring out what to work on and when to work. The reason is that we don't follow daily routine. As a result, we get less done everyday. So we need to set daily routine which helps us accomplish more everyday.

People want to do so many things at the same time and that is how they lose focus and direct effort in a wrong direction. So, for more focus and directed effort we need to set important goals. Goal setting helps in managing time better by narrowing down the number of tasks we are required to do.

Some of us develop the daily routine and set goals but we are not focusing how much we accomplish. We don't measure our efficiency everyday. So our daily routine and goal setting don't last longer more than a few days. All of us lack the motivation and inspiration to do the work we should be doing everyday. So we decided to develop a mobile app that helps us to improve the personal productivity by making better use of time and setting effective goals. The app will help us to develop daily routine in an easy way, set goals and measure our efficiency. The app would try to inspire the user and provide the recommendations.

Drawing Attachments :



Note : This is just a mock Patent Drafting Exercise (PDE) for semester 8, BE students of GTU.
These documents are not to be submitted with any patent office.

FORM 3
THE PATENTS ACT, 1970
(39 OF 1970)
&
THE PATENTS RULES, 2003
STATEMENT AND UNDERTAKING UNDER SECTION 8

1. Declaration :

I/We, Aksharkumar Babulal Patel ,

2. Name, Address and Nationality of the joint Applicant :

Aksharkumar Babulal Patel (Indian)
Address : Computer Engineering , Faculty Of Engineering, Grow M
Foundation Group Of Institutions,Berna, Himmatnagar , Gujarat
Technologycal University.

Here by declare:

- (i) that I/We have not made any application for the same/substantially the same invention outside India.
- (ii) that the right in the application(s) has/have been assigned to,

Name of the Country	Date of Application	Application Number	Status of the Application	Date of Publication	Date of Grant
N/A	N/A	N/A	N/A	N/A	N/A

- (iii) that I/We undertake that up to the date of grant of patent by the Controller , I/We would keep him inform in writing the details regarding corresponding application(s) for patents filed outside India within 3 months from the date of filing of such application.

Dated this 2 day of May , 2015.

3. Signature of Applicants :

 Sign and Date
 Aksharkumar Babulal
 Patel

To
 The Controller of Patent
 The Patent Office, at Mumbai.

Periodic Progress Report : First PPR

Project Personal Productivity Application

:

Status : Reviewed (Freeze)

What Progress you have made in the Project ?

Implemented Navigation Drawer for App Developed the Database Architecture with Content Providers Completed Basic Functionality of Routines and Activities Modules

What challenge you have faced ?

Supporting Material Design for App Developing and Using Content Providers

What support you need ?

Better UX Design and Coding Guidelines

Which literature you have referred ?

Official Android Documentation LifeHack Website

Comment by Internal Guide :

Progress is good and do the given changes in time and verify it.

Periodic Progress Report : Second PPR

Project Personal Productivity Application

:

Status : Reviewed (Freeze)

What Progress you have made in the Project ?

Implemented Routines and Activities Module.

What challenge you have faced ?

Making ListView smoothly scrollable and Handling configuration changes.

What support you need ?

Best practices for implementing ListView in android.

Which literature you have referred ?

Online tutorials and Official android documentation.

Comment by Internal Guide :

Progress is satisfactory .Work hard to complete the project.

Periodic Progress Report : Third PPR

Project Personal Productivity Application

:

Status : Reviewed (Freeze)

What Progress you have made in the Project ?

Implemented Goals and Review for Activities Module

What challenge you have faced ?

Implementing custom tabs for Review Module and Foreign key support in database using content providers.

What support you need ?

Best practices for implementing tabs in android and using content providers with foreign key.

Which literature you have referred ?

Online tutorials and Official android documentation.

Comment by Internal Guide :

Work done is satisfactory and up to the mark. Kindly complete given changes.

Periodic Progress Report : Fourth PPR

Project Personal Productivity Application

:

Status : Reviewed (Freeze)

What Progress you have made in the Project ?

Implemented Review for Goals and Progress Module

What challenge you have faced ?

Implementing responsive design for graph view with smooth scrolling.

What support you need ?

Any good libraries for implementing GraphView in android.

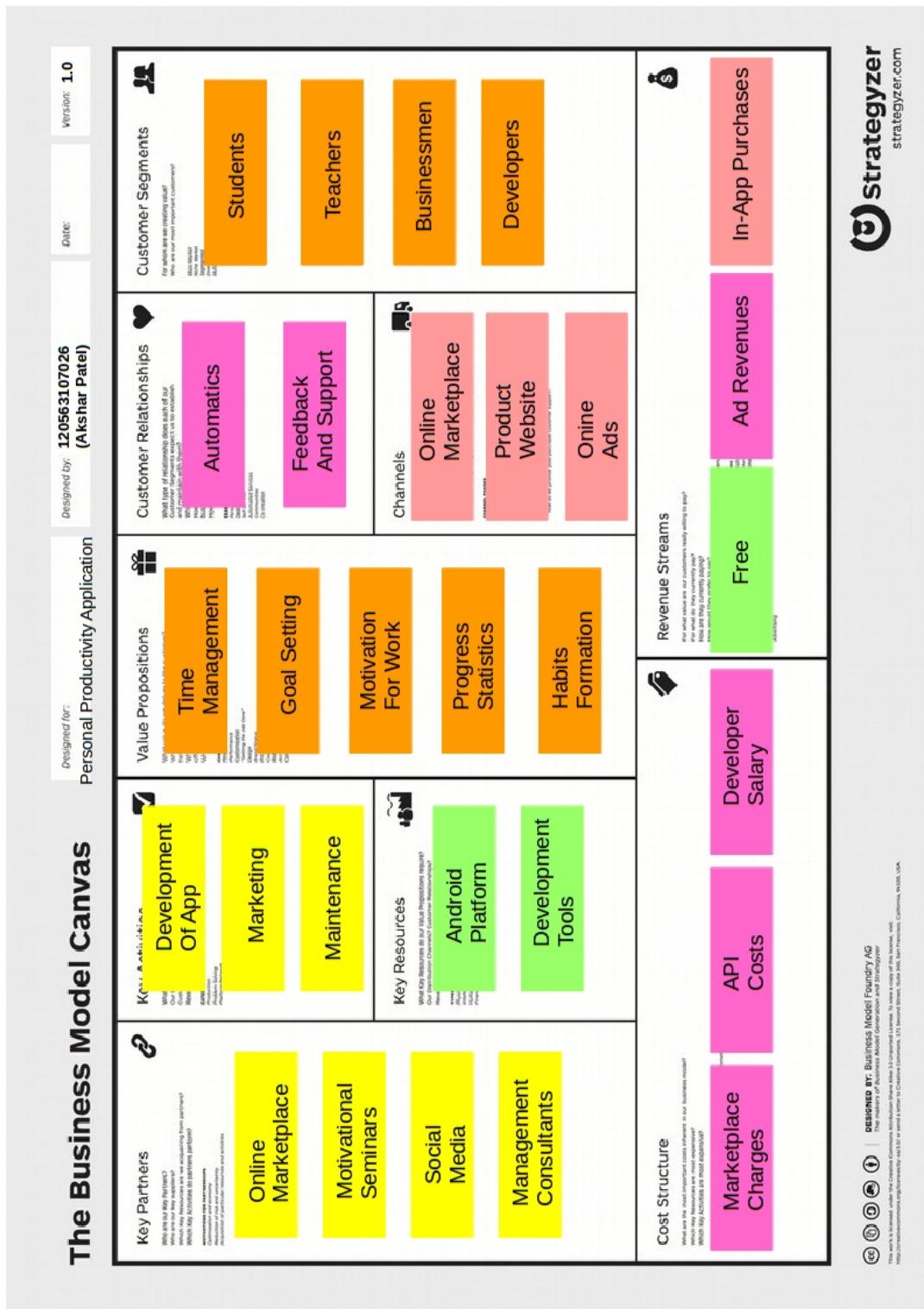
Which literature you have referred ?

Office Android Documentation, Online tutorials and moocs.

Comment by Internal Guide :

Good work. Project is completed and do the given changes in Project Report.

BUSINESS MODEL CANVAS



A BMC Report On Personal Productivity Application

By

Patel Akshar B. (120563107026)

Guided By

Prof. Maitrey Patel (MTech CE)

A BMC Report Submitted to
Gujarat Technological University
In Partial Fulfillment of the
Requirements for the Degree of Bachelor of Engineering
In Computer Engineering

MAY 2015



Grow More Faculty of Engineering
Himatnagar– 3830001
Gujarat

CERTIFICATE

I here by certify that I am the sole author of this Canvas Report and that neither any part of this Canvas Report nor the whole of the Canvas Report has been submitted for a degree to any other University or Institution.

I certify that,to the best of my knowledge, my Canvas Report does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in my Canvas Report, published or otherwise, are fully acknowledged in accordance with the standard referencing practices.

I declare that this is a true copy of my Canvas Report, including any final revisions, as approved by my Canvas Report review committee.

Date:

Place: Himatnagar

Patel Akshar B. (120563107026)

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CHAPTER - 1

INTRODUCTION

1.1 What Canvas Activity?

Managing projects in effective ways is important for all industries and is also the main focus of a number of academic initiatives. The Project Canvas is a convenient tool for communicating within the project team, for decision making, and is thereby also a way of managing progress in the appropriate manner. Unforeseen obstacles are always a part of the project management process, and they can affect resources, time and quality. Therefore, the success of a project is closely linked to the team's ability to plan, adjust and react to changing circumstances. Project Canvas is created in order to help all members of a team obtain a clear overview of a project.

1.2 What is BMC ?

The Business Model Canvas is a strategic management and lean startup template for developing new or documenting existing business models. It is a visual chart with elements describing a firm's or product's value proposition, infrastructure, customers, and finances. It assists firms in aligning their activities by illustrating potential trade-offs.

Formal descriptions of the business become the building blocks for its activities. Many different business conceptualizations exist; Osterwalder's work and thesis propose a single reference model based on the similarities of a wide range of business model conceptualizations. With his business model design template, an enterprise can easily describe their business model.

The Business Model Canvas is used to validate the market significance of products and services, taken up for the project in this case. Technology projects are often solutions or processes that solve a technical problem. The Business Model Canvas can be printed out on a large surface so groups of people can jointly start sketching and discussing business model elements with post-it note notes or board markers. It is a hands-on tool that fosters understanding, discussion, creativity, and analysis. The Business Model Canvas is also available in web-based software format.

CHAPTER - 2

BMC

2.1 Customer Segments

To build an effective business model, a company must identify which customers it tries to serve. Various sets of customers can be segmented based on the different needs and attributes to ensure appropriate implementation of corporate strategy meets the characteristics of selected group of clients. The different types of customer segments include:

- Mass Market: There is no specific segmentation for a company that follows the Mass Market element as the organization displays a wide view of potential clients. e.g. Car
- Niche Market: Customer segmentation based on specialized needs and characteristics of its clients. e.g. Rolex
- Segmented: A company applies additional segmentation within existing customer segment. In the segmented situation, the business may further distinguish its clients based on gender, age, and/or income.
- Diversify: A business serves multiple customer segments with different needs and characteristics.
- Multi-Sided Platform / Market: For a smooth day-to-day business operation, some companies will serve mutually dependent customer segment. A credit card company will provide services to credit card holders while simultaneously assisting merchants who accept those credit cards.

Personal Productivity Application can be used by anyone who want to improve their daily productivity by controlling how they spend their time everyday. We have divided customer segments into four parts:

- Students: It can be used by students for making better use of time daily.
- Teachers: It can be used by teachers for managing their time effectively.
- Businessmen: It can be used by businessman for getting more things done in less time.
- Developers: It can be used by developers as simple project management tool.

2.1 Customer Relationships

To ensure the survival and success of any businesses, companies must identify the type of relationship they want to create with their customer segments. Various forms of customer relationships include:

- Personal Assistance: Assistance in a form of employee-customer interaction. Such assistance is performed either during sales, after sales, and/or both.
- Dedicated Personal Assistance: The most intimate and hands on personal assistance where a sales representative is assigned to handle all the needs and questions of a special set of clients.
- Self Service: The type of relationship that translates from the indirect interaction between the company and the clients. Here, an organization provides the tools needed for the customers to serve themselves easily and effectively.
- Automated Services: A system similar to self-service but more personalized as it has the ability to identify individual customers and his/her preferences. An example of this would be Amazon.com making book suggestion based on the characteristics of the previous book purchased.
- Communities: Creating a community allows for a direct interaction among different clients and the company. The community platform produces a scenario where knowledge can be shared and problems are solved between different clients.
- Co-creation: A personal relationship is created through the customer's direct input in the final outcome of the company's products/services.

As we are developing the mobile application and distributing it through online marketplace, the relationship with customer is usually automatic. Another way to interact with customers is through feedback and support from customers.

2.3 Channels

A company can deliver its value proposition to its targeted customers through different channels. Effective channels will distribute a company's value proposition in ways that are fast, efficient and cost effective. An organization can reach its clients either through its own channels (store front), partner channels (major distributors), or a combination of both.

There are 5 main aspects of channel.

2.3.1 Awareness

It can be done by spreading awareness into people that this particular product/software is available in the market.

2.3.2 Evaluation

It means to evaluate how the customers get to know about the product.

2.3.3 Purchase

It means how much customer purchases by the channel that we are using.

2.3.4 Delivery

It means how the product is going to be delivered to the customer.

2.3.5 After-Sale

It means to provide after sale service to the customer via our channel.

For providing value proposition of our product, we are using following channels:

- Online Marketplace: We will be distributing our product through online applications market such as Goole Play Store.
- Product Website: We will have dedicated website for our product and customer can directly download the product from website.
- Online Ads: We will be distributing the product through online ad agencies such as Google AdWords.

2.4 Value Propositions

The collection of products and services a business offers to meet the needs of its customers. According to Osterwalder, (2004), a company's value proposition is what distinguishes itself from its competitors. The value proposition provides value through various elements such as newness, performance, customization, "getting the job done", design, brand/status, price, cost reduction, risk reduction, accessibility, and convenience/usability.

The value propositions may be:

- Quantitative- price and efficiency
- Qualitative- overall customer experience and outcome

As the value propositions, we will be providing following features in our application:

- Time Management
- Goal Setting
- Motivation for doing work efficiently
- Habits formulation

2.5 Key Activities

The most important activities in executing a company's value proposition. An example would be creating an efficient supply chain to drive down costs.

The key activities in our project are :

- Development of Application: We have to develop an application to provide value proposition of our product.
- Marketing: We must have some effective marketing strategies to make our product to stand out from big crowd.
- Maintenance: As there might be some bugs in our application we are required to resolve the bugs as soon as possible and provide good user experience.

2.6 Key Resources

The resources that are necessary to create value for the customer. They are considered an asset to a company, which are needed in order to sustain and support the business. These resources could be human, financial, physical and intellectual.

As we are developing mobile application, major resources are logical as follows:

- Android Platform: We are using Android Platform developed by Google.
- Development Tools: We are using various tools for the development for application which are available from Google as a part of Android Development Toolkit.

2.6 Key Partners

In order to optimize operations and reduce risks of a business model, organization usually cultivate buyer-supplier relationships so they can focus on their core activity. Complementary business alliances also can be considered through joint ventures, strategic alliances between competitors or non-competitors.

The product is being developed as the final year project in Bachelor of Engineering, we don't have any official partners but we are looking forward to create effective partner

network from followings:

- Online Marketplace: We can have our product displayed in featured products list in marketplace.
- Motivation Seminar: We can take help from some motivation seminar to publish our product by providing sponsorship.
- Social Media: We can we advertise our product by using social media platforms.
- Management Consultants: We can contact some management consultancy to effectively market our product and to help us with management functions.

2.7 Cost Structure

This describes the most important monetary consequences while operating under different business models. A company's DOC.

- Classes of Business Structures:
 - Cost-Driven - This business model focuses on minimizing all costs and having no frills. e.g. SouthWest
 - Value-Driven - Less concerned with cost, this business model focuses on creating value for their products and services. e.g. Louis Vuitton, Rolex
- Characteristics of Cost Structures:
 - Fixed Costs - Costs are unchanged across different applications. e.g. salary, rent
 - Variable Costs - These costs vary depending on the amount of production of goods or services. e.g. music festivals
 - Economies of Scale - Costs go down as the amount of good are ordered or produced.
 - Economies of Scope - Costs go down due to incorporating other businesses which have a direct relation to the original product.

In our project major costs include:

- Marketplace Charges: We have to pay some fee to online marketplace for having our application in it.
- API Charges: We will be using some proprietary APIs for prodving some functionalities. So we have to pay for API usage.
- Developers Salary: If we plan to hire some developer so as to divide the workload and achieve more throughput, we have to pay him/her decent salary.

2.8 Revenue Streams

The way a company makes income from each customer segment. Several ways to generate a revenue stream:

- Asset Sale - (the most common type) Selling ownership rights to a physical good.
e.g. Wal-Mart
- Usage Fee - Money generated from the use of a particular service e.g. UPS
- Subscription Fees - Revenue generated by selling a continuous service. e.g. Netflix
- Lending/Leasing/Renting - Giving exclusive right to an asset for a particular period of time. e.g. Leasing a Car
- Licensing - Revenue generated from charging for the use of a protected intellectual property.
- Brokerage Fees - Revenue generated from an intermediate service between 2 parties. e.g. Broker selling a house for commission
- Advertising - Revenue generated from charging fees for product advertising.

In our project, we have planned to generate revenue using following streams:

- Free: we plan to provide basic functionality for free and charge for extra features.
- Ads: We will have ads in our application and charge for ad-free version.
- In-app Purchase: We will have In-app purchase functionality so as to provide seamless experience for having extra features.

CHAPTER - 3

CONCLUSION

We have completed the business development canvas for Personal Productivity Application. We have understood that why business development canvas is very important for any startup for developing business model.

We have learned that business development canvas is very effective strategic management and entrepreneurial tool. It allows us to describe, design, challenge, invent, and pivot your business model.

CHAPTER - 4

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