

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.

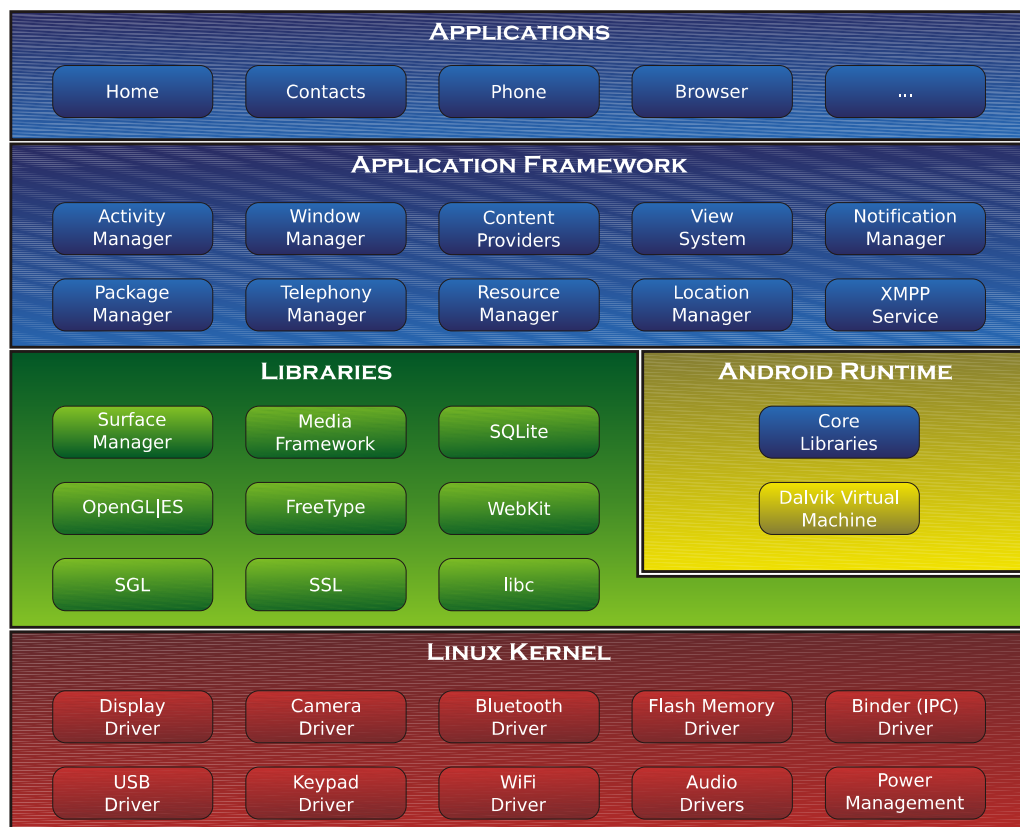
Software stack

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; Use 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 the developing this application is to provide the personal platform to improve the personal 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.