*A Seminar Report On*

**Android Operating System**

*Submitted by*

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**IV Sem B.Tech (IT)**

*in partial fulfillment for the award of the degree*

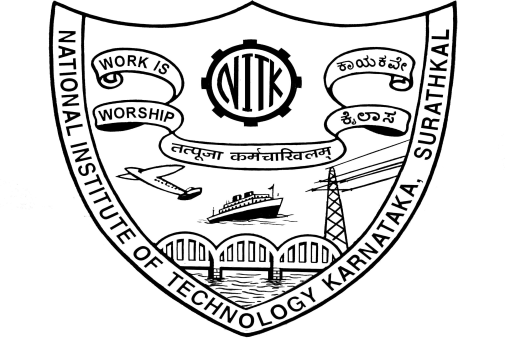
*of*

**Bachelor of Technology**

In

**Information Technology**

At



**Department of Information Technology**

**National Institute of Technology Karnataka, Surathkal**.

***April 2018***

**CERTIFICATE**

This is to certify that the seminar entitled **“Android Development”** has been presented by Nishant Kumar, a student of second year B.Tech (IT), Department of Information Technology, National Institute of Technology Karnataka, Surathkal, on 12th April 2018, during the even semester of the academic year 2017 - 2018, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Information Technology at NITK Surathkal.

Place: National Institute of Technology, Karnataka

Date: 12th April, ‘18. (Signature of the Examiner)

Preface

I have made this report file on the topic “**Android Development**”. I have

tried my best to elucidate all the relevant detail to the topic to be included in the

report, while in the beginning I have tried to give a general view about this topic. My efforts have ended on a successful note. I express my sincere gratitude to Dr. Dinesh Naik, for giving me this opportunity to present a Seminar on a technical topic. Without this, it wouldn’t have been possible to prepare a seminar on this topic.

**Introduction**

**Android** is a [mobile operating system](https://en.wikipedia.org/wiki/Mobile_operating_system) developed by [Google](https://en.wikipedia.org/wiki/Google), based on a modified version of the [Linux kernel](https://en.wikipedia.org/wiki/Linux_kernel) and other [open source](https://en.wikipedia.org/wiki/Open_source) software and designed primarily for [touchscreen](https://en.wikipedia.org/wiki/Touchscreen) mobile devices such as [smartphones](https://en.wikipedia.org/wiki/Smartphone) and [tablets](https://en.wikipedia.org/wiki/Tablet_computer). In addition, Google has further developed [Android TV](https://en.wikipedia.org/wiki/Android_TV) for televisions, [Android Auto](https://en.wikipedia.org/wiki/Android_Auto) for cars, and [Wear OS](https://en.wikipedia.org/wiki/Wear_OS) for wrist watches, each with a specialized user interface. Variants of Android are also used on [game consoles](https://en.wikipedia.org/wiki/Video_game_console), [digital cameras](https://en.wikipedia.org/wiki/Digital_camera), [PCs](https://en.wikipedia.org/wiki/Personal_computer) and other electronics.

Initially developed by Android Inc., which Google bought in 2005, Android was unveiled in 2007, with the [first commercial Android device](https://en.wikipedia.org/wiki/HTC_Dream) launched in September 2008. The operating system has since gone through multiple major releases, with the current version being [8.1 "Oreo"](https://en.wikipedia.org/wiki/Android_Oreo), released in December 2017. The core Android source code is known as Android Open Source Project (AOSP), and is primarily licensed under the [Apache License](https://en.wikipedia.org/wiki/Apache_License).

Android is also associated with a suite of [proprietary software](https://en.wikipedia.org/wiki/Proprietary_software) developed by Google, including core apps for services such as [Gmail](https://en.wikipedia.org/wiki/Gmail) and [Google Search](https://en.wikipedia.org/wiki/Google_Search_(mobile_app)), as well as the [application store](https://en.wikipedia.org/wiki/Application_store) and [digital distribution](https://en.wikipedia.org/wiki/Digital_distribution) platform [Google Play](https://en.wikipedia.org/wiki/Google_Play), and associated [development platform](https://en.wikipedia.org/wiki/Google_Play_Services). These apps are licensed by manufacturers of Android devices certified under standards imposed by Google, but AOSP has been used as the basis of competing Android ecosystems, such as [Amazon.com](https://en.wikipedia.org/wiki/Amazon.com)'s [Fire OS](https://en.wikipedia.org/wiki/Fire_OS), which utilize its own equivalents to these [Google Mobile Services](https://en.wikipedia.org/wiki/Google_Mobile_Services).

**What is Android**

Android is an operating system for Mobile phones. I will explain more about this in the later part of this article. Lot of advances can be seen these days in the field of smartphones. As the number of users is increasing day by day, facilities are also increasing. Starting with simple phones which were made just to make and receive calls. Now we have phones which can even access GPS, GPRS, Wifi, NFC. and lot of other cool and advanced features which you cannot even imagine. So in this Mobile world of this complication. Android is one of those operating system platforms which made it easy for manufacturers to design top class phones.

**Advantages**

1. Android can Run Multiple Apps at the Same Time.

2. Android keeps information visible on your home screen.Android has is a customizable home screen which keeps active widgets right at your fingertips, always accessible and always visible without having to launch an app location first.

3. Android has a better application market compared to Apple’s App because Apple’s App store has over 180,000 applications, while the Android Marketplace has only just broken the 50,000 mark

4. Android gives you better notifications compared to iPhone because iPhone has some trouble with notifications. Because it’s restricted to pop-up notifications, it can only handle one at a time.

6. Android is Hardware independent.

7. Android lets you install custom ROMs.

8. You can change your settings faster in Android. iPhone users are stuck digging around in the system settings every time they want to use the internet or a Bluetooth device. Android lets you use widgets to manage your settings directly from your home screen.

9. Android does Google and Social Integration but The iPhone can do this only through use of third party apps, and is nowhere near as seamless to use as the Android alternative.

10. Android gives you more options to fit your budget. Of course these are lower end Android devices, but they are still comparable in performance to the iPhone 3GS.

**Disadvantages**

1. Wasteful Batteries, This is because the OS is a lot of "process" in the background causing the battery quickly drains.

2. Sometimes slow device company issued an official version of Android your own.

3. Android Market is less control of the manager, sometimes there are malware.

4. As direct service providers, users sometimes very difficult to connect with the Google.

5. Sometimes there are ads: because it is easy and free, sometimes often a lot of advertising. In appearance it does not interfere with the performance of the application itself, as it sometimes is in the top or bottom of the application.

6. Connected to the Internet: Android can be said is in need of an active internet connection. At least there should be a GPRS internet connection in your area, so that the device is ready to go online to suit our needs.

**Applications in Android**

Android initially came into existence with the sure fire idea that developments are given the power and freedom to create enthralling Mobile applications while taking advantage of everything that the mobile handset has to offer. Android is built on open Linux Kernel. This particular software for Mobile Application is made to be open source, thereby giving the opportunity to the developers to introduce and incorporate any technological advancement. Build on custom virtual machine android gives its users the addition usage and application power, to initiate an interactive and efficient application and operational Software for your phone. Google’s mobile operating device, the android is its awesome creation in the definitive creation of Software Applications for the mobile phone arena it also facilitates the g-juice in your mobile thus initiating a whole new world of Mobile Technology experience by its customers. Around in the year 2007, Google announced its Android Operating System and Open Handset Alliance with these two major contributions to the mobile industry that ultimately changed our experience with mobile interface.

5 best application in 2018 by Android Authority:

1. Google Drive Suite

Google Drive is a cloud storage solution available on Android where all new users get 15GB for free permanently upon signing up. You can, of course, buy more if needed. What makes Google Drive so special are the suite of Android apps that are attached to it. They include Google Docs, Google Sheets, Google Slides, Google Photos, Gmail, Google Calendar, and Google Keep. Between the office apps, the Photos app (which allows unlimited photo and video backup), and Keep for note taking, you have apps for practically anything you need to do in terms of productivity. Some of the features of these apps include live collaboration, deep sharing features, and compatibility with Microsoft Office documents. Microsoft Office has a similar setup with OneDrive and Office. However, Google's solution is just easier to use.

2. Weather

1Weather is arguably the best weather app out there. It features a simple, pagination design that shows you the current weather, forecast for up to 12 weeks, a radar, and other fun stats. Along with that, you’ll get a fairly decent set of lightly customizable widgets and the standard stuff like severe weather notifications and a radar so you can see the storms approaching. Perhaps its best feature is its minimal design which just shows you the weather (and fun facts, if you want). The free version has all of the features. The $1.99 charge removes ads, but it doesn't add anything. Most will also likely enjoy the range of weather fun facts the app offers as well. Other great weather apps include Dark Sky, Weather Underground, and Today Weather.

3. Google Maps

Google Maps virtually owns the navigation apps scene and it remains of the best Android apps ever. It gets frequent, almost weekly updates that seem to only add to its incredibly generous list of existing features. Aside from the very basics, Google Maps gives you access to places of interest, traffic data, directions to things like rest stops or gas stations, and they even let you have offline maps now (albeit temporarily). If you add to that the Waze experience, which includes tons of its own features, and you won’t need another navigation app. Ever.

4. Google Music Play and Youtube

We don't typically recommend streaming services to people. Everyone has their preferences and saying that one is better than another is a matter of opinion at this point. Except for Google Play Music. The app can read both your local files and the music you like online. Additionally, you can upload tens of thousands of songs to the service for free. YouTube is kind of a given. There's more content there than a human person can watch in several lifetimes. That includes music videos, educational videos, news videos, reviews, video game let's plays, and a whole lot more. There is a single subscription that covers both services. It's a fantastic deal. Word is that YouTube is working on their own streaming service. We'll keep this list updated when that happens.

5. Google Assistant

Google Assistant is one of the most powerful Android apps. It also works on most Android devices. You simply download the app and then enable it. From there, you can ask it whatever you want. It also supports a variety of commands. You can control lights, ask about population control, and it can even do simple math problems for you. There are a variety of products like Google, Bose QC II Bluetooth headphones, Home and Chromecast that extent the functionality even further. There is also a second Google Assistant app for those who want a quick launch icon on the home screen. The hardware stuff costs money, but Google Assistant is free. Amazon Alexa is another excellent app in this space, but it doesn't support flagship devices in the way we'd like to see.

**MARKET SHARE**

Research company Canalys estimated in the second quarter of 2009, that Android had a 2.8% share of worldwide [smartphone](https://en.wikipedia.org/wiki/Smartphone) shipments. By May 2010, Android had a 10% worldwide smartphone market share, overtaking [Windows Mobile](https://en.wikipedia.org/wiki/Windows_Mobile), whilst in the US Android held a 28% share, overtaking [iPhone OS](https://en.wikipedia.org/wiki/IPhone_OS).By the fourth quarter of 2010, its worldwide share had grown to 33% of the market becoming the top-selling smartphone platform,[[281]](https://en.wikipedia.org/wiki/Android_(operating_system)#cite_note-canalysQ42010-281) overtaking [Symbian](https://en.wikipedia.org/wiki/Symbian). In the US it became the top-selling platform in April 2011, overtaking [BlackBerry OS](https://en.wikipedia.org/wiki/BlackBerry_OS) with a 31.2% smartphone share, according to *comScore*.

By the third quarter of 2011, [Gartner](https://en.wikipedia.org/wiki/Gartner) estimated that more than half (52.5%) of the smartphone sales belonged to Android. By the third quarter of 2012 Android had a 75% share of the global smartphone market according to the research firm IDC.

In July 2011, Google said that 550,000 Android devices were being activated every day, up from 400,000 per day in May, and more than 100 million devices had been activated with 4.4% growth per week. In September 2012, 500 million devices had been activated with 1.3 million activations per day. In May 2013, at [Google I/O](https://en.wikipedia.org/wiki/Google_I/O), Sundar Pichai announced that 900 million Android devices had been activated.

Android market share varies by location. In July 2012, "mobile subscribers aged 13+" in the United States using Android were up to 52%, and rose to 90% in China. During the third quarter of 2012, Android's worldwide smartphone shipment market share was 75%, with 750 million devices activated in total. In April 2013 Android had 1.5 million activations per day.

**CONCLUSION**

Android has been criticized for not being all open-source software despite what was announced by Google. Parts of the SDK are proprietary and closed source, and some believe this is so that Google can control the platform. Software installed by end-users must be written in Java, and will not have access to lower level device APIs. This provides end-users with less control over their phone's functionality than other free and open source phone platforms, such as OpenMoko. With all upcoming applications and mobile services Google Android is stepping into the next level of Mobile Internet. Android participates in many of the successful open source projects. That is, architect the solution for participation and the developers will not only come but will play we’ll together. This is notable contrast with Apple and other companies, where such architecture of participation is clearly belated.

**Code**

Code for an SOCKET PROGRAMMING CHAT APP : Client Side

**MainActivity.java**

package com.androidsrc.client;

import java.io.ByteArrayOutputStream;

import java.io.IOException;

import java.io.InputStream;

import java.net.Socket;

import java.net.UnknownHostException;

import android.os.AsyncTask;

import android.widget.TextView;

public class Client extends AsyncTask<Void, Void, Void> {

String dstAddress;

int dstPort;

String response = "";

TextView textResponse;

Client(String addr, int port,TextView textResponse) {

dstAddress = addr;

dstPort = port;

this.textResponse=textResponse;

}

@Override

protected Void doInBackground(Void... arg0) {

Socket socket = null;

try {

socket = new Socket(dstAddress, dstPort);

ByteArrayOutputStream byteArrayOutputStream = new ByteArrayOutputStream(

1024);

byte[] buffer = new byte[1024];

int bytesRead;

InputStream inputStream = socket.getInputStream();

while ((bytesRead = inputStream.read(buffer)) != -1) {

byteArrayOutputStream.write(buffer, 0, bytesRead);

response += byteArrayOutputStream.toString("UTF-8");

}

} catch (UnknownHostException e) {

e.printStackTrace();

response = "UnknownHostException: " + e.toString();

} catch (IOException e) {

e.printStackTrace();

response = "IOException: " + e.toString();

} finally {

if (socket != null) {

try {

socket.close();

} catch (IOException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

}

return null;

}

@Override

protected void onPostExecute(Void result) {

textResponse.setText(response);

super.onPostExecute(result);

}

}

**activity\_main.xml**

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

tools:context="com.androidsrc.client.MainActivity">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Hotel Owner"

android:layout\_gravity="center"

android:layout\_marginTop="80dp"/>

<com.google.android.gms.common.SignInButton

android:id="@+id/sign\_in\_button1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="center"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="User"

android:layout\_gravity="center"

android:layout\_marginTop="80dp" />

<com.google.android.gms.common.SignInButton

android:id="@+id/sign\_in\_button2"

android:layout\_gravity="center"/>

</LinearLayout>

**References**

1. https://en.wikipedia.org/wiki/Android\_(operating\_system)

2. https://www.android.com/

3. https://developer.android.com/studio/index.html

4. https://www.openhandsetalliance.com/android\_overview.html

5.https://android-developers.googleblog.com/2018/03/previewing-android-p.html