What this Image Conveys?

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- Android: Android is a comprehensive open source platform designed and developed for the mobile devices.

What are other Mobile platforms or Mobile Operating Systems?

Popular Mobile Operating Systems

Android OS (Google Inc.)
Bada (Samsung Electronics)
BlackBerry OS (Research In Motion)
iPhone OS / iOS (Apple)
MeeGo OS (Nokia and Intel)
Palm OS (Garnet OS)
Windows Mobile (Windows Phone 7)

Smartphone Market OS share

Period	Android	iOS	Windows Phone	Others
2015Q4	79.6%	18.7%	1.2%	0.5%
2016Q1	83.5%	15.4%	0.8%	0.4%
2016Q2	87.6%	11.7%	0.4%	0.3%
2016Q3	86.8%	12.5%	0.3%	0.4%

Source: IDC, Nov 2016

Android most popular framework in the world.

Question to Think

Why a separate Operating System was developed for Mobile phones ?

Why we have not used Desktop Operating System for Mobile Phones?

Course Description

"Mobile Application Development"

This course is designed as a basic introduction to ANDROID platform

- Covers some salient features of the platform to get you start on your Mobile APP development endeavor.

Student Introduction Card

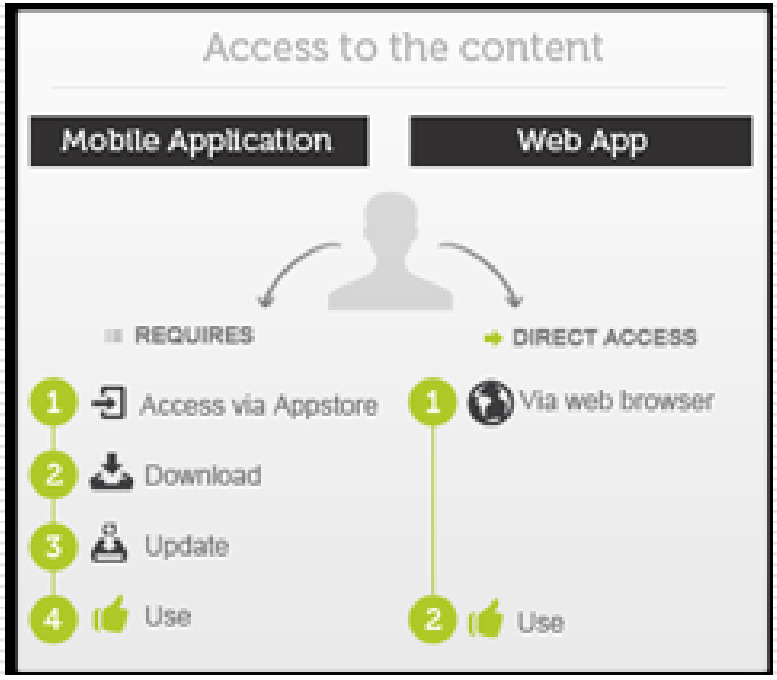
Fill your details in the Handouts given to you

Ok……Let us get started with “Mobile Application Development” Course

Questionnaire::

What is the difference between Mobile Application (or App) and Website (or Web App) ?

Difference between Mobile Application (or App) and Website (or Web App) ?



A mobile application must be downloaded either from an online store such as the app store or Google play. The application is then saved on the smartphone or the tablet, and in most cases it does not require an internet connection in order to work.	A mobile website is accessed through an internet browser, by typing in the website's URL in the navigation bar. his means that no download is needed. However an internet connection is required in order to gain access.

Android Overview

- A software stack for mobile devices
- Developed and managed by Open Handset Alliance
- Open-Sourced under Apache License

History

- Started by Andy Rubin in 2003
- Bought by Google in 2005
- Open Handset Alliance in 2007
- First android phone in 2008
- Flagship devices – Nexus in 2010
- Free APP store – Google Play

Android Platform versions

Android
1.6
Donut

Android
2.0
Eclair

Android
2.2
Froyo

Android
2.3
Gingerbread

Android
3.0
Honeycomb

Android
4.0
Ice Cream
Sandwich

Android
4.1
Jelly Bean

Android
4.4
KitKat

Android
5.0
Lolipop

Android
6.0
Marshmallow

Android
7.0
Nougat

Android Platform versions (Contd…)

Code name	Version number	Initial release date	API level
Alpha	1.0	September 23, 2008	1
Beta	1.1	February 9, 2009	2
Cupcake	1.5	April 27, 2009	3
Donut	1.6	September 15, 2009	4
Eclair	2.0 – 2.1	October 26, 2009	5–7
Froyo	2.2 – 2.2.3	May 20, 2010	8
Gingerbread	2.3 – 2.3.7	December 6, 2010	9–10
Honeycomb	3.0 – 3.2.6	February 22, 2011	11–13
Ice Cream Sandwich	4.0 – 4.0.4	October 18, 2011	14–15
Jelly Bean	4.1 – 4.3.1	July 9, 2012	16–18
KitKat	4.4 – 4.4.4	October 31, 2013	19
Lollipop	5.0 – 5.1.1	November 12, 2014	21–22
Marshmallow	6.0 – 6.0.1	October 5, 2015	23
Nougat	**7.0 – 7.1.1**	**August 22, 2016**	**24–25**

Android Platform versions (Contd…)

Version	Codename	API	Distribution
2.2	Froyo	8	0.1%
2.3.3 - 2.3.7	Gingerbread	10	1.2%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	1.2%
4.1.x	Jelly Bean	16	4.5%
4.2.x		17	6.4%
4.3		18	1.9%
4.4	KitKat	19	24.0%
5.0	Lollipop	21	10.8%
5.1		22	23.2%
6.0	Marshmallow	23	26.3%
7.0	Nougat	24	0.4%

What is API level ?
API Level is an integer value that uniquely identifies the framework

Tradeoff between **API level** and **Distribution**

- Higher API level means support of More Functionality but less number of devices
- Lower API level means Less functionality Support.

- *Data collected during a 7-day period ending on December 5, 2016. Any versions with less than 0.1% distribution are not shown*

Question

The Android platform consists of

- a software stack
- hardware platform only
- hardware platform and software stack
- none of the above

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- **a software stack**
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Android Devices

Android in Action

- http://www.youtube.com/watch?v=8cMHRvV9bg4
- http://www.youtube.com/watch?v=jXfJORIEwfs

Are you Ready for Mobile APP Development ?

Are you Ready for APP Development ?

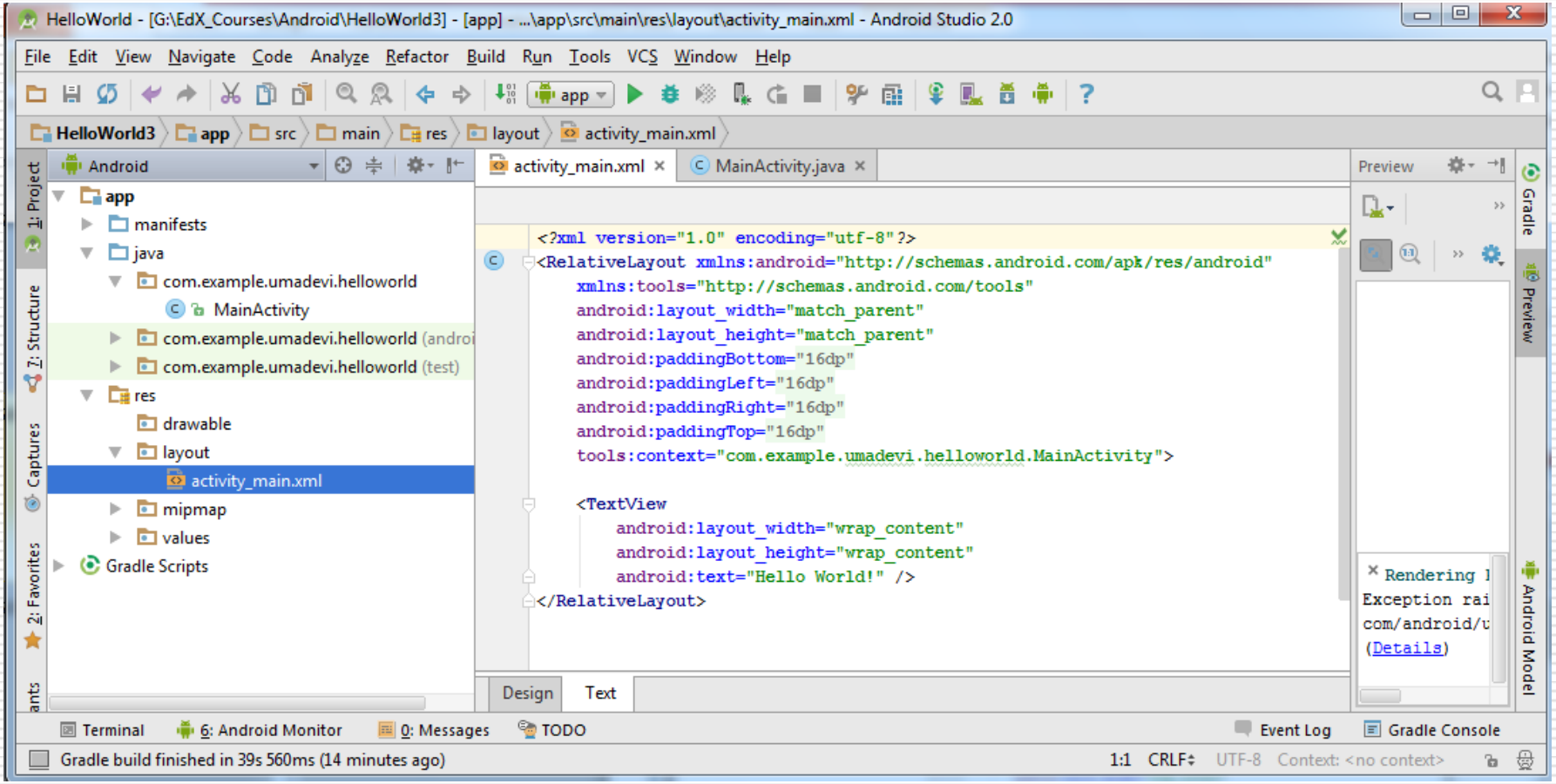
- **Android Studio** is the official integrated development environment (IDE) for **Android** platform development

Android Application

- Android Applications are written in Java
- The compiled Java code (along with any data and resource files required by the application) is bundled by the aapt tool into an Android package (.apk)

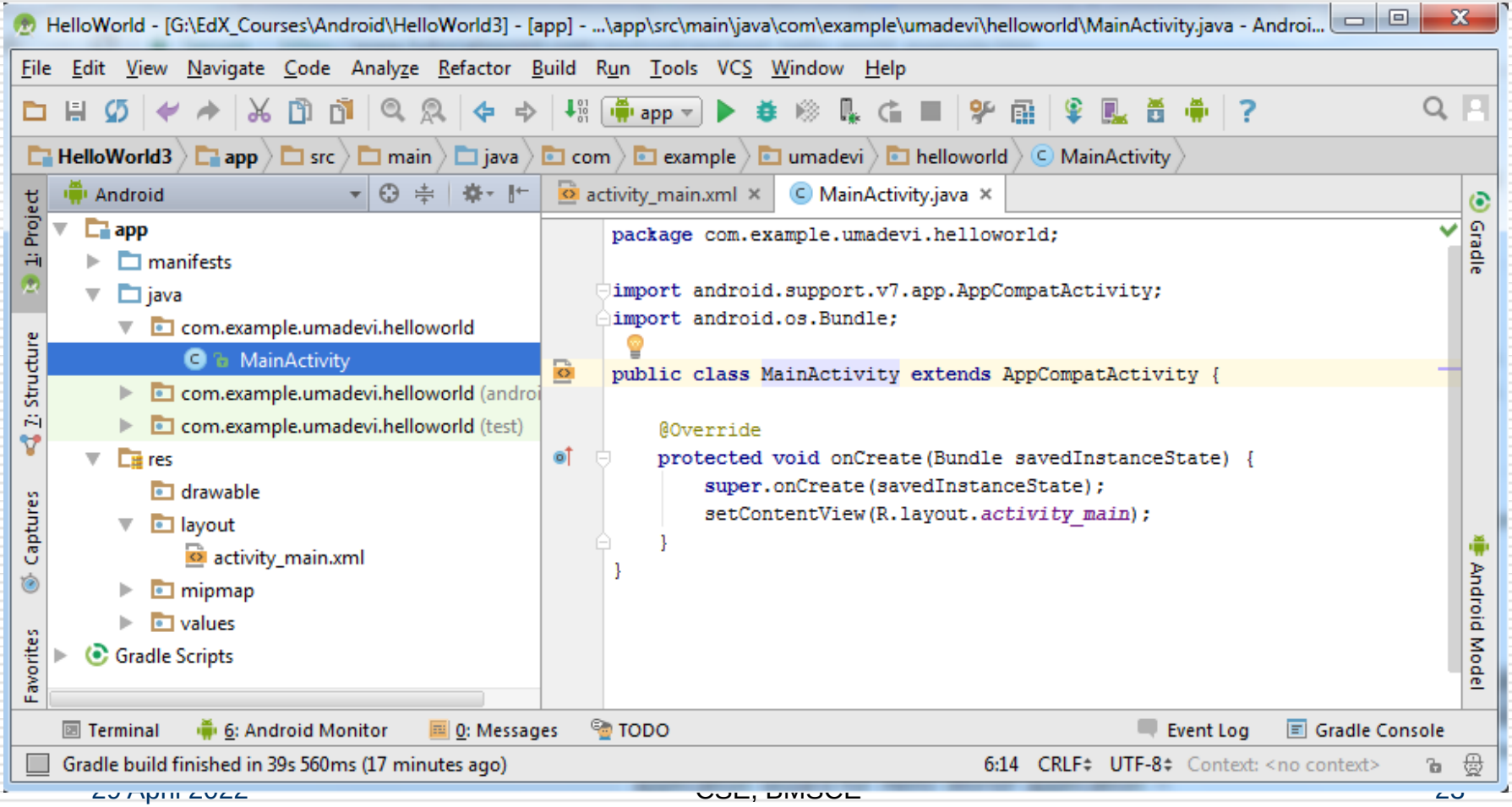
App Fundamentals: “Hello World” App

- The **activity_main.xml** is a layout file available in *res/layout* directory, that is referenced by your application when building its interface. You will modify this file very frequently to change the layout of your application.



App Fundamentals: “Hello World” App

- The main activity code is a Java file **MainActivity.java**. This is the actual application file which ultimately gets converted to a Dalvik executable and runs your application.

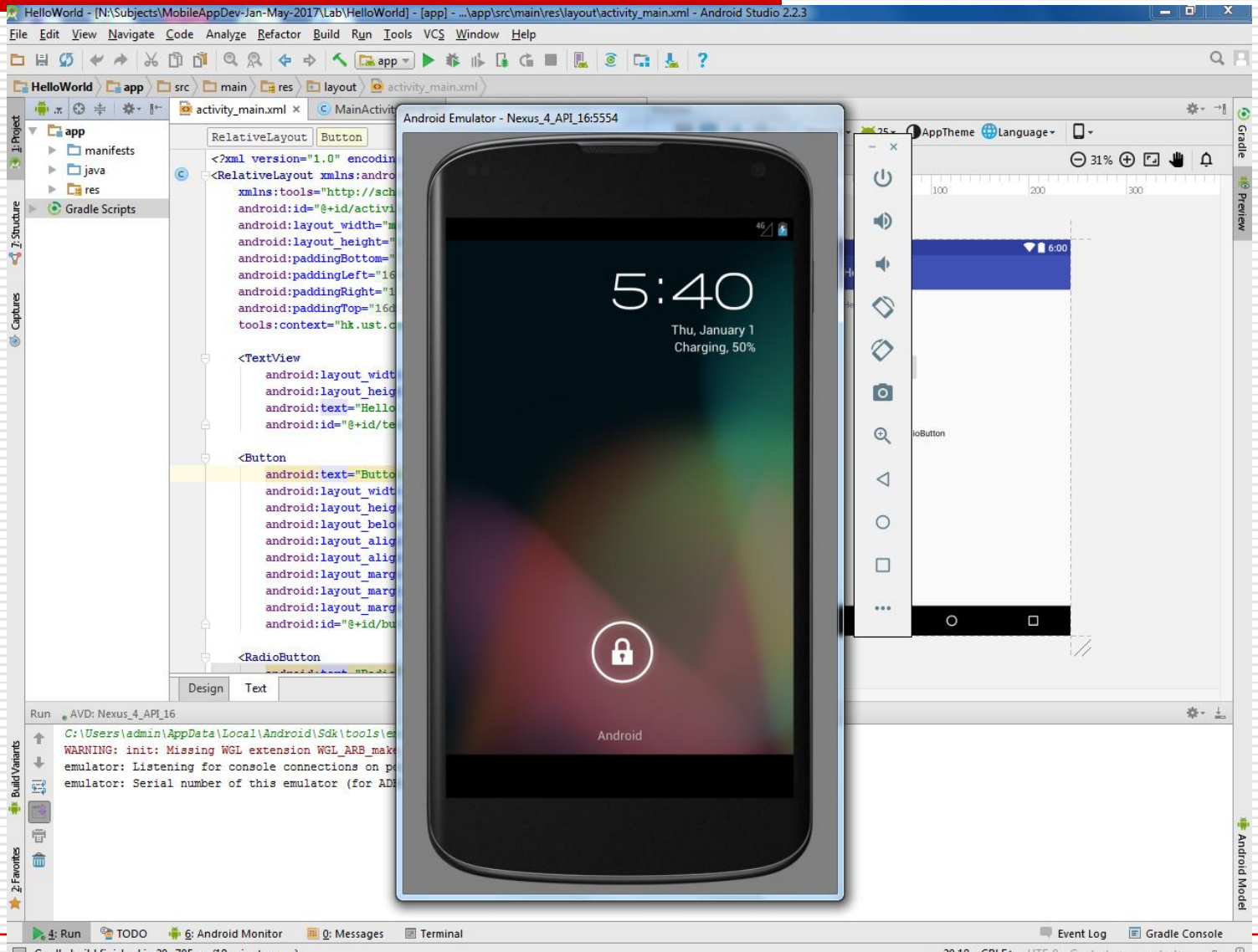


App Fundamentals: “Hello World” App

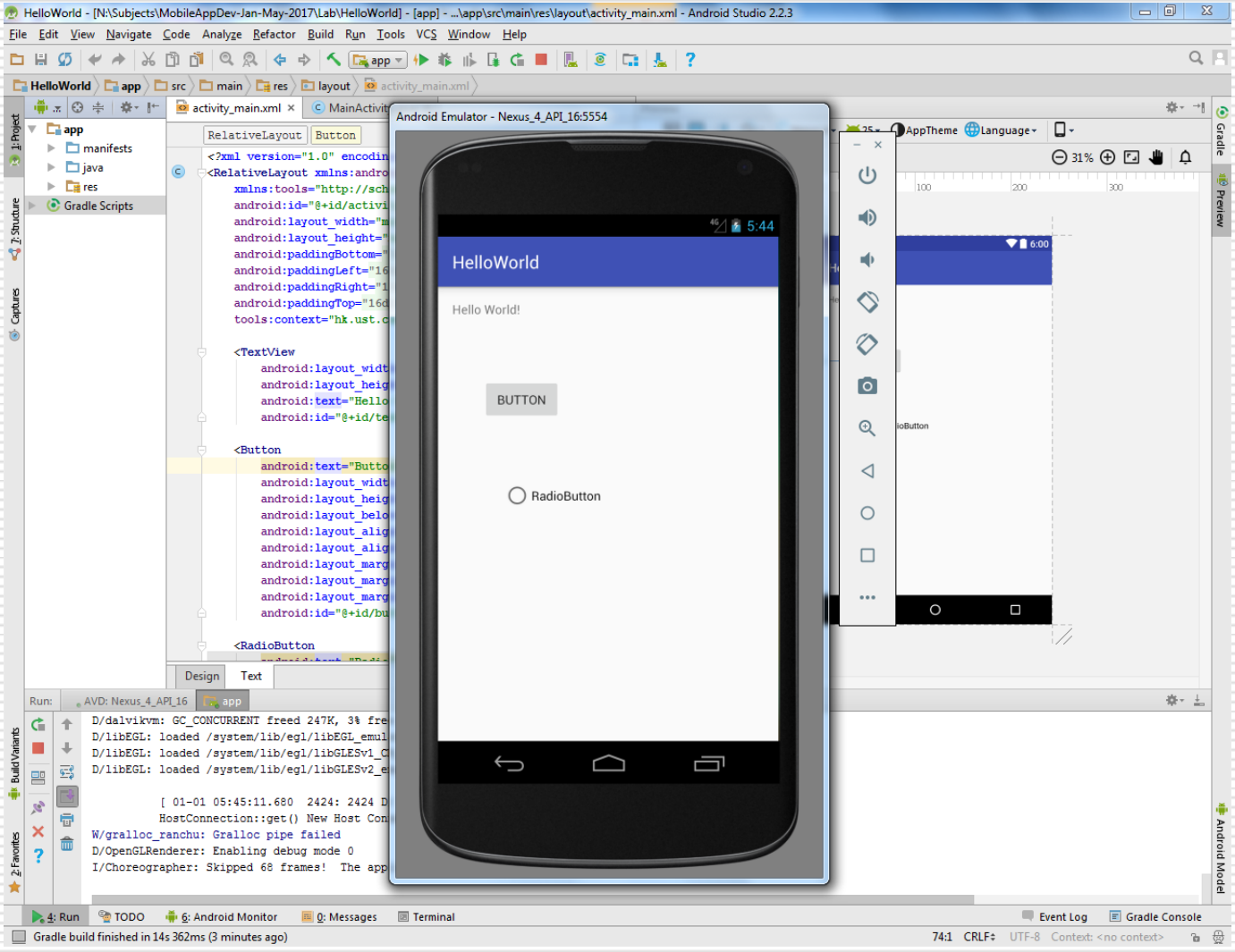
- The main activity code is a Java file **MainActivity.java**. This is the actual application file which ultimately gets converted to a Dalvik executable and runs your application.

```
package com.example.umadevi.helloworld;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

Android Studio: Emulator



Android Studio: Emulator (Contd…)



Question

Android applications are written in

- Java and C++
- Java
- C++
- Python

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- Java and C++
- **Java**
- C++
- Python

Question

What should be carried under self study component of Mobile Application Development?

When is your First-Lab Internals Scheduled ?

Day 1:Assignment

Downloading and Installing Android Studio on your Laptops

Visit the Website

http://web.stanford.edu/class/cs193a/android-studio.shtml