

eSkills: Technology Playground – Android and Apps

Learning outcomes

At the end of the course you will:



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Part A – Android

What is Android, open-source and why use it?

Android is the name of the mobile operating system made by American company; Google. It is "open" in a variety of ways. For one thing, the Android operating system is based on code from the "Android Open Source Project," or AOSP. It's open-source, so people can take that source code and create custom operating systems from it. CyanogenMod is a custom ROM based on this code, for example. Amazon's Fire OS, used on the Kindle Fire and Fire Phone, is also based on this open-source Android code.

The following graph indicates the fast and significant growth of Android devices within the Smartphone Market from 2005, to 2013:



What does an Android device look like?

Android phones come in many different shapes, colours and sizes. Some have super-fast processors, some have powerful cameras and a few have hardware QWERTY keyboards. Furthermore, any handset maker is free to make an Android phone if they want to. As well as the aforementioned Motorola, HTC, Samsung and Sony, Acer, Alcatel, Asus, Huawei, LG and ZTE have all made Android phones (and tablets) too. However, on August 2014, Google acquired Motorola, in an attempt to model Apple's control over software and hardware in their iPhone.

Examples of Android operated devices/appliances

There are various Android phones and devices Brands include:

• Nexus, Motorola, Galaxy, HTC etc





Smart watch

Android operated camera

Examples of Android powered appliances



Android operated Washing machine



Android operated Microwave

Android Versions:

Google is constantly working on new versions of the Android software. These releases are infrequent; at the moment they normally come out every six months or so, but Google is looking to slow this down to once a year. The following graph displays the different android operating systems that have currently been deployed:



Do you notice any patterns?

When does your phone get an update?

Typically, the first devices to receive updates are Google affiliated devices. Later on, each manufacturer tweaks and develops these updates for their own devices. Sometimes, when the device has been in the market for long enough, they might choose not to provide an update and remain on a specific version of Android. This is due to associated financial costs, consumer encouragements to upgrade to the next device and hardware limitations.

What is the software architecture of an android device?

A typical software stack for a mobile device includes the following compartments:

An operating system

Managing the core interactions between hardware: mostly communication amongst them.

- **Middleware** Handles the communication between the operating system and applications.
- Key Applications Essentially what makes human life more systematic and hence easier.

Unlike iPhones, Android uses Linux to provide core system services, namely:

• Security

Insuring that applications are executing their designated tasks and are not deviating towards other activities.

Memory management

Memory is always finite and hence needs to be managed efficiently and effectively.

- Process management Ensuring all processes are executed accordingly; no crashes, sharing of hardware, ... etc.
- **Power management** Much like memory, energy must be effectively and efficiently managed.
- Hardware drivers Necessary software for hardware mechanisms to communicate with other software processes.

The following graph provides an overview of how the Android system is layered:



Part B – Mobile Applications

What are they?

Any application that runs on a mobile device. These include, first Web applications which are usually coded in HTML, JavaScript, Flash, server-side components, etc. This type of mobile applications run in a web browser. Second, Native applications. These are compiled binaries for the device, and often make use of web services. However, unlike the first, native application do not run within a web browser and instead have their own processes.

Where can they be found?

For Android devices these can be found chiefly on Google Play, or downloaded and executed at your own risk from websites directly.

What applications will we be covering in this course?

For this course we will be looking at the following applications:

Managing your phone remotely

- Airdroid
- Mighty Text
- Whatsapp Web

Security

- Google Device Manager
- Look out

Other

- IFTTT
- CamScanner
- FitBit

Remotely accessing from your computers – Airdroid

You can send and receive SMS messages, check your phone call records and transfer files.

- 1. From Google play download AirDroid.
- 2. On a computer, go to web.airdriod.com.
- 3. Open up the Airdroid app on your device, and tap on the QR Code symbol.



4. Scan the QR Code on the Computer (on web.airdroid.com):



5. The following will be the welcome screen for the Airdroid App:



6. Click on the "Messages" Icon on the top left corner of the window.

7. Now you will have the following screen and you can TXT through your computer via Airdroid.



8. Close the Messages window and open the call log by clicking on the "Call Logs" icon.

Ca	III Logs					
All	Incoming	Outgoing	Missed	¢ 🗊		
	Name		Nu	imber	Time	Duration
•	e 🔏 Sal	lman Saudi C	lub 02	108217335	Yesterday at 10:18 PM	03:19
	Ab	dul Shefco	02	12785050	Yesterday at 8:51 PM	01:08

9. In the same manner play around with the other services provided:



Sending and receiving SMS messages - Mighty Text

You can send and receive SMS messages from your PC. You can set up a notification on your computer to

- Alert you when you have an incoming call even when your phone is on silent.
- Initiate a call
- Access photos and videos stored in your phone from your computer
- Schedule messages

This Application can only be used within a Chrome browser due to heavy use of Google code.

In order to download the app follow the steps below:

- Open Chrome Web store (<u>https://chrome.google.com/webstore/category/apps</u>) from a Chrome browser.
- Search for 'MightyText' and from the result, select + ADD TO CHROME



Sending and receiving SMS messages – WhatsApp

- 1. In similar fashion to Airdroid, download the Mightytext Application on to your phone from Google Play.
- Start the MightyText Application on you phone and login with your Google Account (must be the same you are using within your google chrome and Android Device)
- 3. Open the MightyText Chrome Extention and login.
- 4. The following should be the screen you see after clicking on the messages link on the left column:



- 5. You can now send text messages via your computer.
- 6. <u>Click on the Phone icon:</u>



- 7. By dialing a number and placing a call, your phone will start the process and you can take the call on your phone.
- 8. From your chrome window you can do the following:



9. These include:

- Viewing your battery life
- Turning notifications off (you will receive all mobile notifications on your computer otherwise).
- Playing a youtube video on your phone.
- Opening a link on your phone.
- Sending and reading messages from your computer.

Whatsapp Web

This application is for Whatsapp addicts, where you can send and receive messages from you computer. All from a single one-time access (Sign in once!). You however will need to have internet connectivity if you want to read and send messages on your phone and computer simultaneously.

1. Go to web.whatsapp.com



- 2. Scan the qr code with your whats app by tapping the top right corner and selecting whatsapp web.
- 3. The following is the view on your computer screen:



Managing computers that you have allowed Whatsapp to logon to through the single logon procedure:



Google Device Manager

This is an Android App that is installed by default on your computer. It can assist you with the following functionalities:

- Locate your device
- Ring your device
- Lock your device
- Wipe out data



Go to

https://www.google.com/android/devicemanager in order to do any of the following. You will also need to login and then select which device you want to control:

After having selected the device you will have google attempt the first functionality, namely locating your device on a map.

Locate your device:



Ring your device:



Lock your device



Wipe out data:

Android							
НТС	One_M8						
Last inc. Auction Last infl	and at 09.35 d. New Zealand - Actual Ins 1 July 2015	ine to 22 methes					
			Erase all data?				
1	il card		This performs a factory res- photos, music and settings device, Android Device Man is permanent. We may not b nord	et on your device. Your apps will be deleted. After you era ager will no longer work. Thi se able to wipe the content o	ise the is reset fithe SD		
			If your device is offline, we ve soon as it goes online.	will perform the factory reset	las - O		
				Lance	A COL		
			9 82 8	1 3 2 1 5 7	5. 5		

Lookout:

This is an app that can assist you with:

- Signal Flare Automatically send location before shutting down.
- Security (take picture)
 - o Sim card removed
 - o Incorrect pin
 - Airplane mode activated
- Antivirus, data protections, safe browsing and more!

You download the app from the google app store and the rest can be configured with ease. See the following image regarding how to get to the screen that sets these up:



Having activated it, you will receive pictures of people who are attempting to you steal your phone:

