

# WELCOME

# Mobile Applications Testing

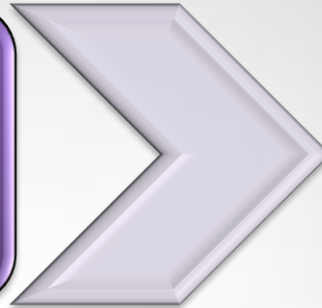


# Devices :

## JAILBREAKING : iOS

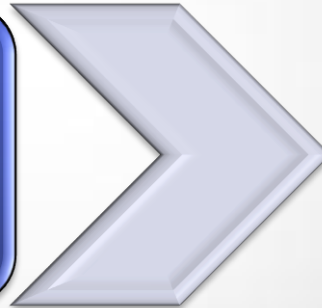
### JAILBREAKING

process of modifying iOS system kernels to allow file system read and write access.



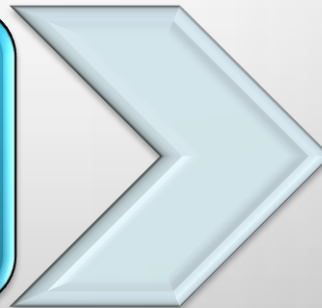
### JAILBREAKING TOOLS

(and exploits) remove the limitations and security features built by the manufacturer Apple (the "jail")



### JAILBREAKING TOOLS

allow users to run code not approved and signed by Apple.



# Devices :

## UNLOCKING : IPHONE

An **UNLOCKED** iPhone

can be used with any carrier, not just those that have been approved by Apple.

many **UNLOCKING** solutions only work with certain iOS models

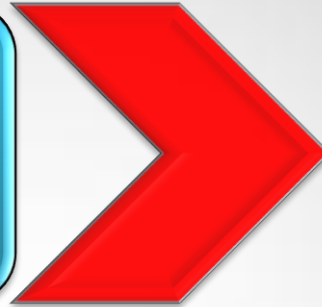
Factory IMEI **UNLOCKS** is a popular solution that works with all iPhone models.



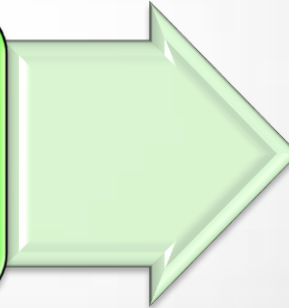
# Devices :

## ROOTING : ANDROID OS

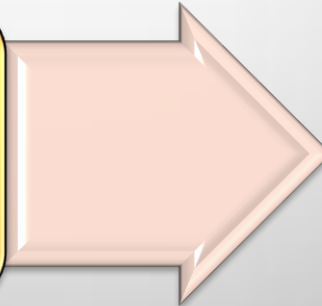
Rooting is the Android equivalent of jailbreaking, a means of unlocking the operating system



you can install unapproved apps, deleted unwanted bloatware,



update the OS, replace the firmware or customize anything



# Devices :

## ROOTING : GLOSSARY

### ROOT

- Rooting means you have root access to your device

### ROM

- A ROM is a modified version of Android.

### KERNEL

- A kernel is the component of your operating system that manages communications between your software and hardware.

### RADIO

- Radios are part of your phone's firmware that controls your cellular data, GPS, Wi-Fi, and other things like that.

### FLASH

- Flashing essentially means installing something on your device, whether it be a ROM, a Kernel, or a Recovery

# Devices :

## ROOTING : GLOSSARY

### BOOTLOADER

- Lowest level of software on a device, running all the code that's necessary to start OS

### RECOVERY

- Software on a device that allow user to make backups, flash ROMs, and perform other system-level tasks

### NANDROID

- From most third-party recovery modules, user can make device backups called nandroid backups.

### ADB

- ADB stands for Android Debug Bridge

### BRICK

- Breaking device during flashing or other acts.



# Devices : TETHERING

## TETHERING

connecting one device to another

In the context of mobile phones and tablet computers, tethering allows sharing the Internet connection of the phone or tablet with other devices such as laptops

Connection of the phone or tablet with other devices can be done over wireless LAN (Wi-Fi), over Bluetooth or by physical connection using a cable, for example through



# Mobile Ecosystem

Mobile World Statistics

Carriers/Service Providers

Network

Manufactures

Devices

**Platforms/OS**

Frameworks

API-Apps

Services



# Platforms / OS

**Mobile Application Development Platform (MADP)** is *a type of software that allows a business to rapidly build, test and perhaps deploy mobile apps for SmartPhone or Tablets*

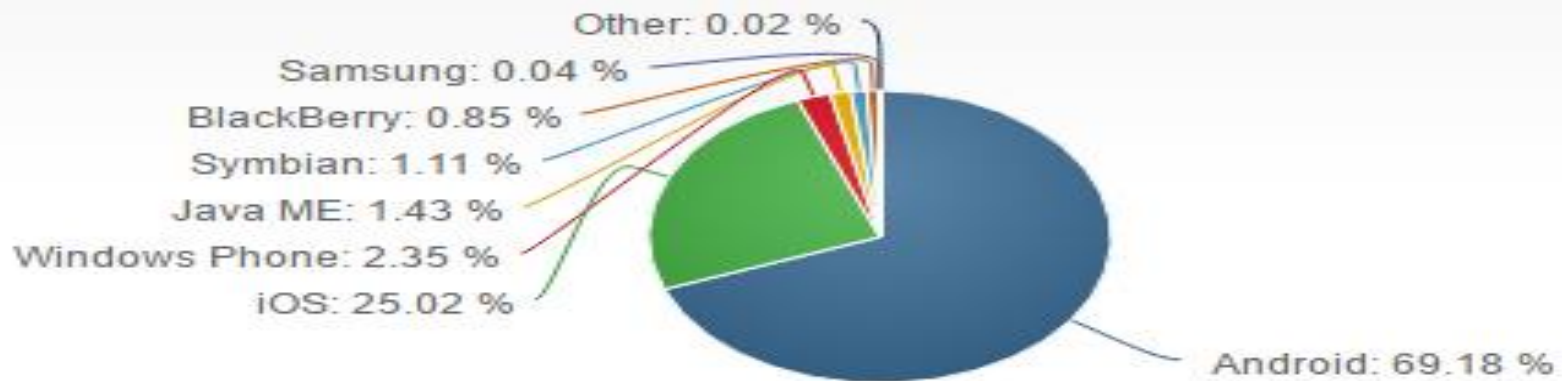
**Mobile Operating System (or mobile OS)** is *an operating system for SmartPhones, tablets, PDAs, or other mobile devices*



# Platforms / OS Market Share 2016

Period	Android	iOS	Windows Phone	Others
2015Q3	84.3%	13.4%	1.8%	0.5%
2015Q4	79.6%	18.6%	1.2%	0.5%
2016Q1	83.4%	15.4%	0.8%	0.4%
2016Q2	87.6%	11.7%	0.4%	0.3%

The worldwide SmartPhone market grew 0.7% year over year in 2016Q2, with 344.7 million shipments, according to data from the International Data Corporation ([IDC](#)) [Worldwide Quarterly Mobile Phone Tracker](#).



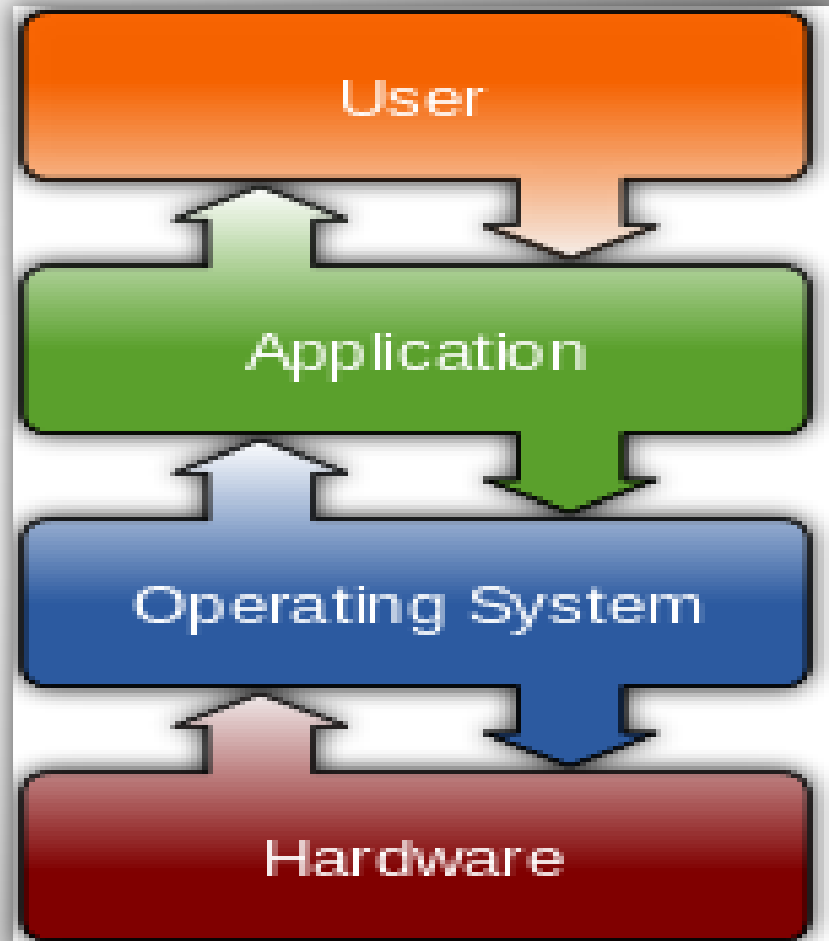
# Platforms / OS : Explained

A computing platform is the “stage” where computer programs run.

An operating system sits between applications and hardware, managing how applications access hardware and software resources.

This means that an operating system is a kind of computing platform, but a computing platform is not necessarily a kind of operating system.

A runtime library can also be a computing platform.



# Platforms / OS : In short

The terms **PLATFORM** and **OPERATING SYSTEM** mean almost the same thing. □

An **OPERATING SYSTEM** lets your computer run and control its most basic functions, but the platform is something, upon what programs/applications (like calendar or web browsers) can be installed and used.

Think of **PLATFORM** as a broader term denoting the difference between Mac and Windows in general, while **OPERATING SYSTEM** is more often used to when referring to specific versions of Windows or Mac

# Platforms / OS Licensed

*Licensed platforms are sold to device makers for non-exclusive distribution on devices.*

*The major goal of Licensed Platforms was to create a common/standard platform of Application Programming Interfaces (APIs) development that work similarly across multiple devices with the minimum effort required to adapt the device differences.*

**Example:** Windows Mobile, JME - Sun Microsystems/Oracle; Brew MP – HTC Smart Phone or carrier's firmware, etc



# Platforms / OS Proprietary

*A proprietary operating system is one which a particular company conceptualizes, designs, develops and sells. Examples of proprietary operating systems are Windows and Mac OS X*

## Pros

- ✓ Simplified user experience making the overall user experience simpler and smoother.
- ✓ User multiplier effect based on increasing number of people already using it.

## Cons

- ✓ Limited Customizability
- ✓ Interoperability Operating systems are often designed to work with a fixed set of hardware specifications





# Platforms / OS Open Source

*Open source is a philosophy which suggests that the source code behind something should be freely available to the public.*

## Pros

- ✓ The main advantage is that it allows end users to directly interact with the source, potentially modifying it to suit their wishes.
- ✓ Encourages constant development and innovation, while also creating a community of shared information.

## Cons

- ✓ Vulnerable to malicious users
- ✓ Might not be as user-friendly as commercial versions
- ✓ Don't come with extensive support



# Platforms / OS SUMMARY

## *Licensed*

- JME
- BREW
- LiMo

## *Proprietary*

- OS X
- BB QNX
- Windows Phone
- bada
- Symbian (Eclipse Lic.)
- webOS

## *Open Source*

- Android-OHA
- Tizen
- Maemo
- MeeGo
- Linux
- Alternative



# Platforms / OS : Open Source vs Proprietary

## Open-Source Software can replace proprietary software



for



Operating Systems



for



Office applications



for



Image editing



for



Internet browser



for



Video & audio playback



for



Ebooks

# Platforms / OS : What do I HAVE ?



# Platforms / OS :

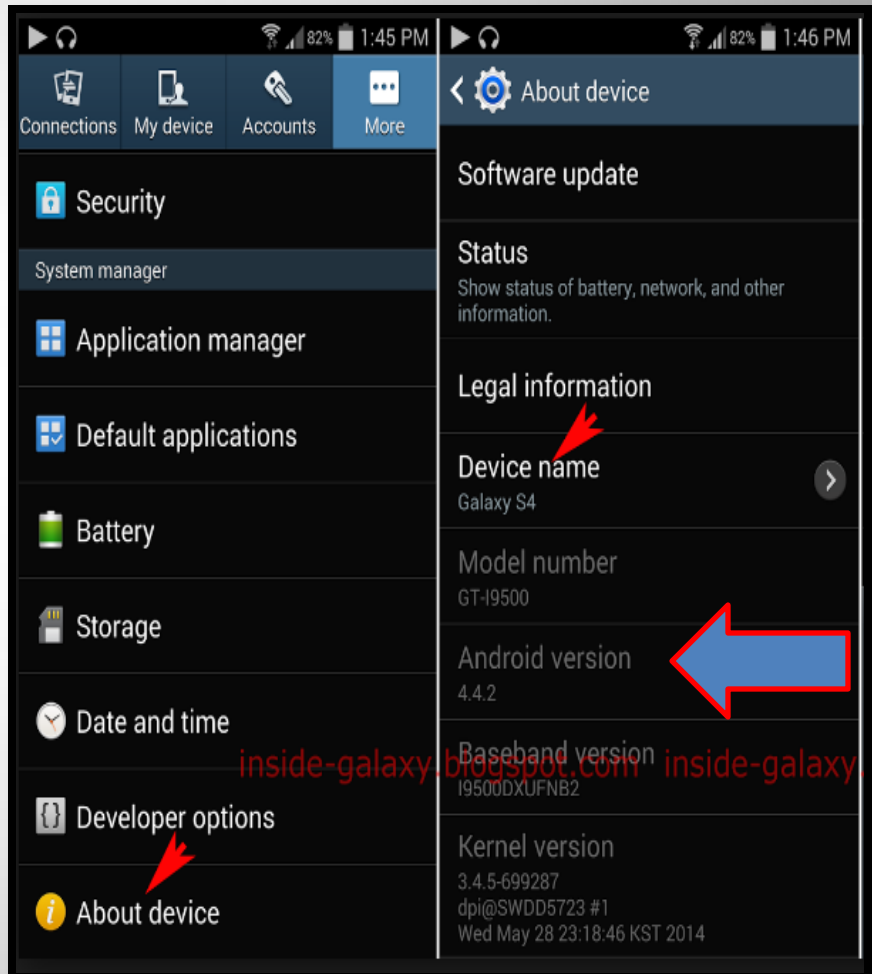
## How to find my Android OS Version ?



**Open your  
device  
SETTINGS**

**Scroll to  
ABOUT  
PHONE**

**Look for line  
which says  
"Android  
Version"**





# Platforms / OS :

## How to find my Apple iOS Version ?

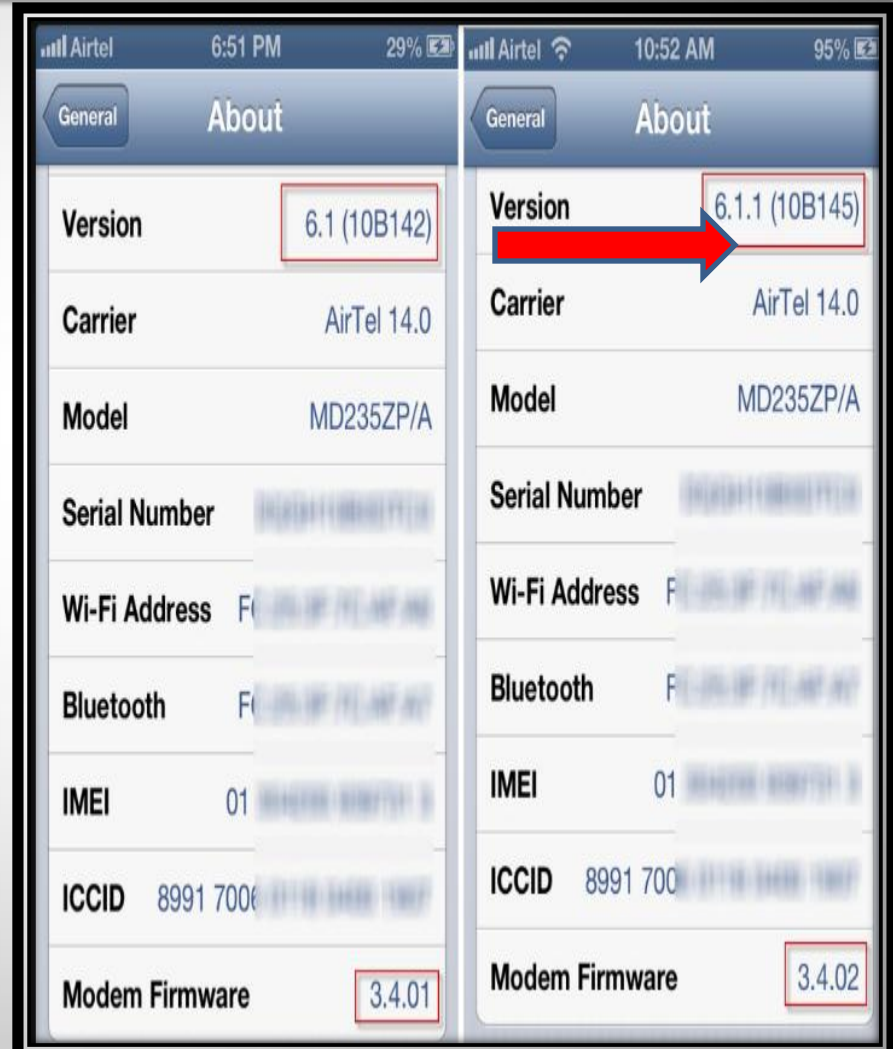


Open the  
Settings

Tap 'General'

Tap 'About'

Scroll down  
for 'Version'





# Platforms / OS :

## How to find my WinPhone OS version ?



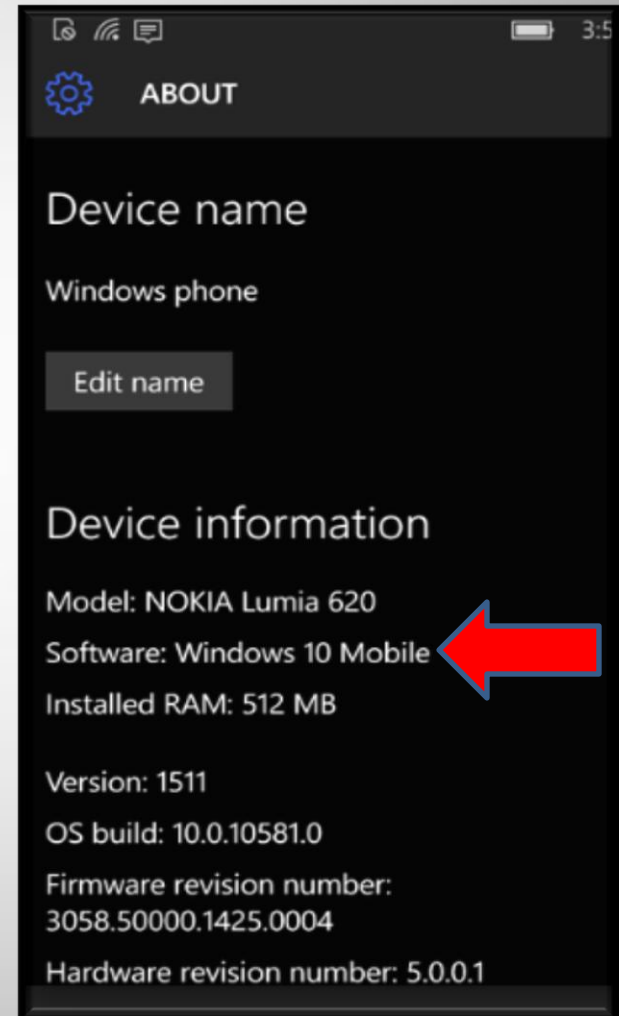
Windows Phone home screen

Swipe left to reveal more icons

Scroll down and tap 'SETTINGS'

Scroll down and tap 'ABOUT'

'About' screen, tap MORE INFO



# Platforms / OS :

## BLACKBERRY current ver : 10.3.2

BlackBerry (RIM) is a proprietary operating system

It is tailor-made for business, with functionality taking a seat over personality or appearance

Its main focus is on messaging, email and other communication features.



# Platforms / OS :

## Windows Phone current ver : 10.0

- Windows Phone (WP) is a family of mobile operating systems developed by Microsoft for SmartPhones

Replacement successor to Windows Mobile and Zune  
WP features a new UI derived from Metro design language.



# Platforms / OS :

## ANDROID

### ANDROID

*is a mobile **operating system** developed by GoogleBased on the Linux Kernel and designed primarily for touch screen Mobile Devices such as : SmartPhones and Tablets.*



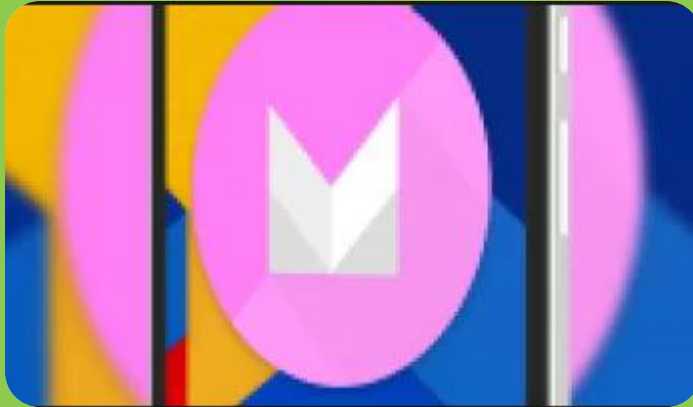


# Platforms / OS :

ANDROID version 6.0-6.0.1

API level 23

“MARSHMALLOW”



Officially released in  
October 2015



# Platforms / OS :

**ANDROID version 7.0-7.0.1**  
**API level 24-25**

**ONLY**

*Nexus 6, 5X, 6P, 9, Nexus Player,  
Pixel C, and General Mobile 4G*

## **Android 7.0-7.1** **"Nougat"**

7.0 :First released as a beta build on March 9, 2016, it was officially released on August 22, 2016, with Nexus devices being the first to receive the update.





# Platforms / OS :

## ANDROID HISTORY 2009-2015

04-2009



Android 1.5 Cupcake

09-2009



Android 1.6 Donut

11-2009



Android 2.0 Eclair

05-2010



Android 2.2 Froyo

12-2010



Android 2.3 Gingerbread

*The Dream Run of*  **ANDROID** *from*  
*Version 1.0 to 6.0.1*

10-2015



Android 6.0 Marshmallow

02-2011



Android 3.0 Honeycomb

11-2011



Android 4.0  
Ice Cream Sandwich

07-2012



Android 4.1 Jelly Bean

10-2013



Android 4.4 KitKat

11-2014



Android 5.0 Lollipop

# Platforms / OS :

## ANDROID OS HISTORY

Code name	Version number	Initial release date	API level
N/A	1.0	September 23, 2008	1
	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 <sup>[a]</sup>	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 – 20
Lollipop	5.0 – 5.1.1	November 12, 2014	21 – 22
<b>Marshmallow</b>	6.0 – 6.0.1	October 5, 2015	23
<i>Nougat</i>	7.0 - 7.1	October 14, 2016	24 - 25

# Platforms / OS :

## ANDROID ARCHITECTURE

### ARCHITECTURE OF ANDROID



Android operating system is a stack of software components which is roughly divided into five sections and four main layers as shown below in the architecture diagram.





# Platforms / OS :

## ANDROID ARCHITECTURE

### Linux kernel

- This provides basic system functionality like process management, memory management, device management like camera, keypad, display etc.

### Libraries

- It is this layer that enables the device to handle different types of data

### Android Runtime

- The Android runtime also provides a set of core libraries which enable Android application developers to write Android applications using standard Java programming language

### Application Framework

- The Application Framework layer provides many higher-level services to applications in the form of Java classes. Application developers are allowed to make use of these services in their applications.

### Applications

- You will find all the Android application at the top layer. You will write your application to be installed on this layer only. Examples of such applications are Contacts Books, Browser, Games etc.

