

Learning Unit 1

1.1 Introduction

MOAATH ALRAJAB



Learning Unit 1

- 1.1 Introduction
 - Android History
 - Android Architecture
 - Getting Started
- 1.2 Android Studio
 - IDE parts
 - Creating a project
 - Installing required plugins
- 1.3 Android Application
 - Concept and components
 - Manifest file



What is Android?

PHONE BRAND

OPERATING SYSTEM

PLATFORM

ECOSYSTEM

What is Android?

Android is the world's most popular mobile operating system, powering billions of devices ranging from phones to watches, tablets, TVs, auto, and more.

Some Android History

2003 Founded by Android Inc.

2005 Acquired by Google

2007 Launch of Open Handset Alliance



Some Android History

2008 First Android Device (HTC Dream / G1)

528Mhz ARM
256mb RAM
3.2" screen at 320x480px



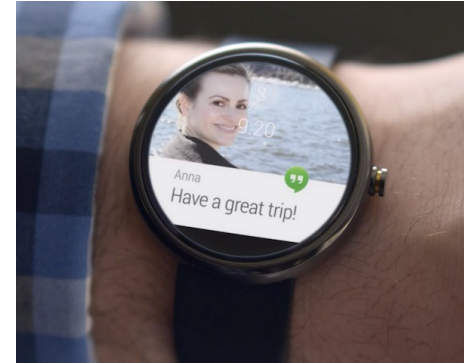
2010 First Nexus Device (Nexus One)

1Ghz Scorpion
512mb RAM
3.7" screen at 480x800px

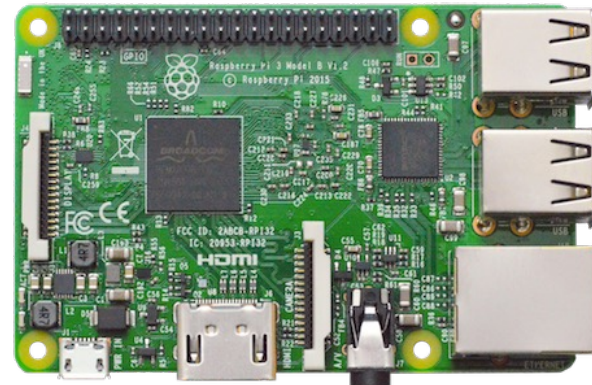


Some Android History

2014 Android Wear



2015 Android Things - **Brillo**



Some Android History

2016 Daydream
("Android VR")



Also explore

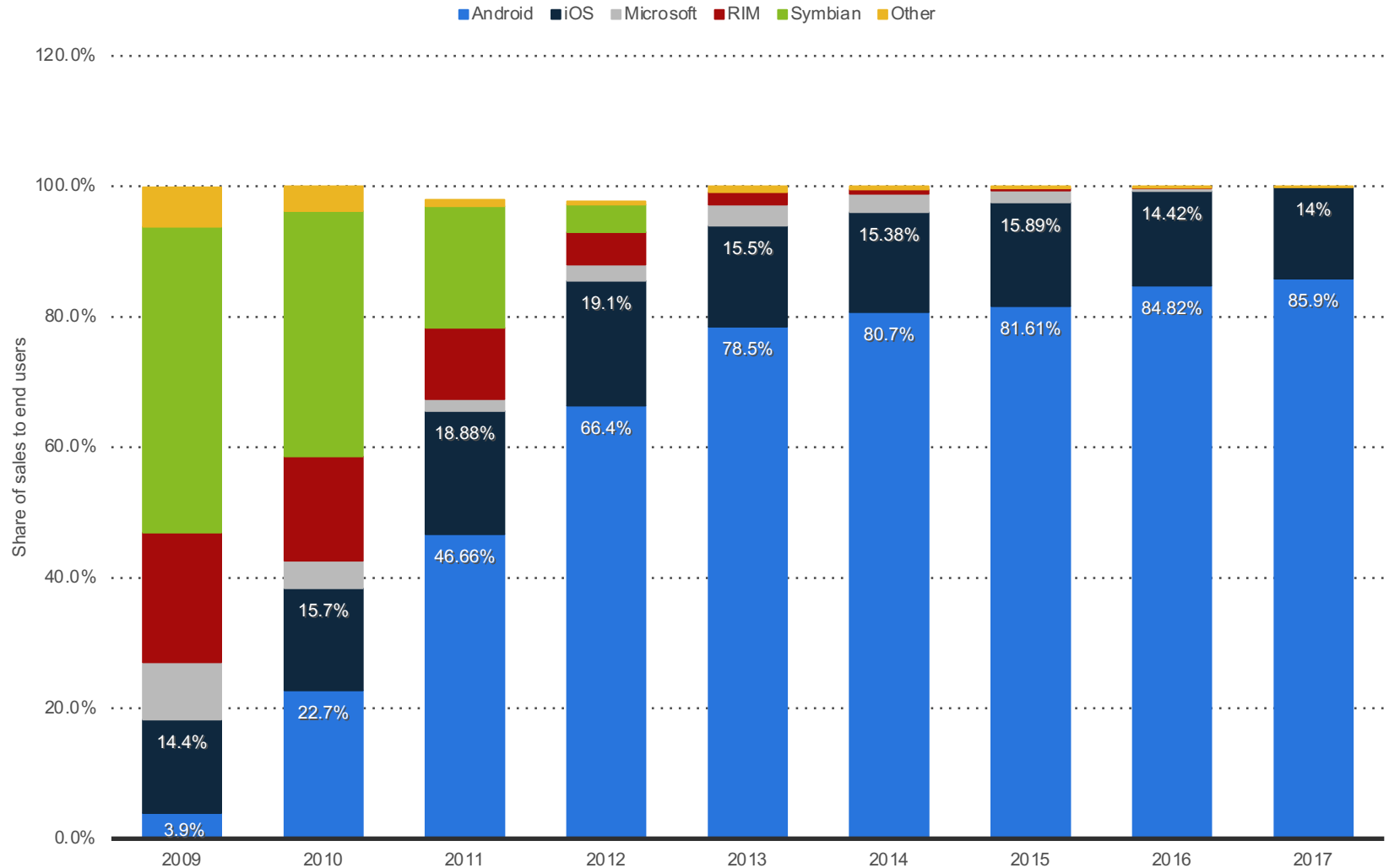
Android Auto and Android Chrome

<https://developer.android.com/chrome-os/intro>

<https://developer.android.com/training/auto/>

Popularity

Smartphone operating systems: global market share 2009-2017



Note: Worldwide; 2009 to 2017

Further information regarding this statistic can be found on [page 3](#)

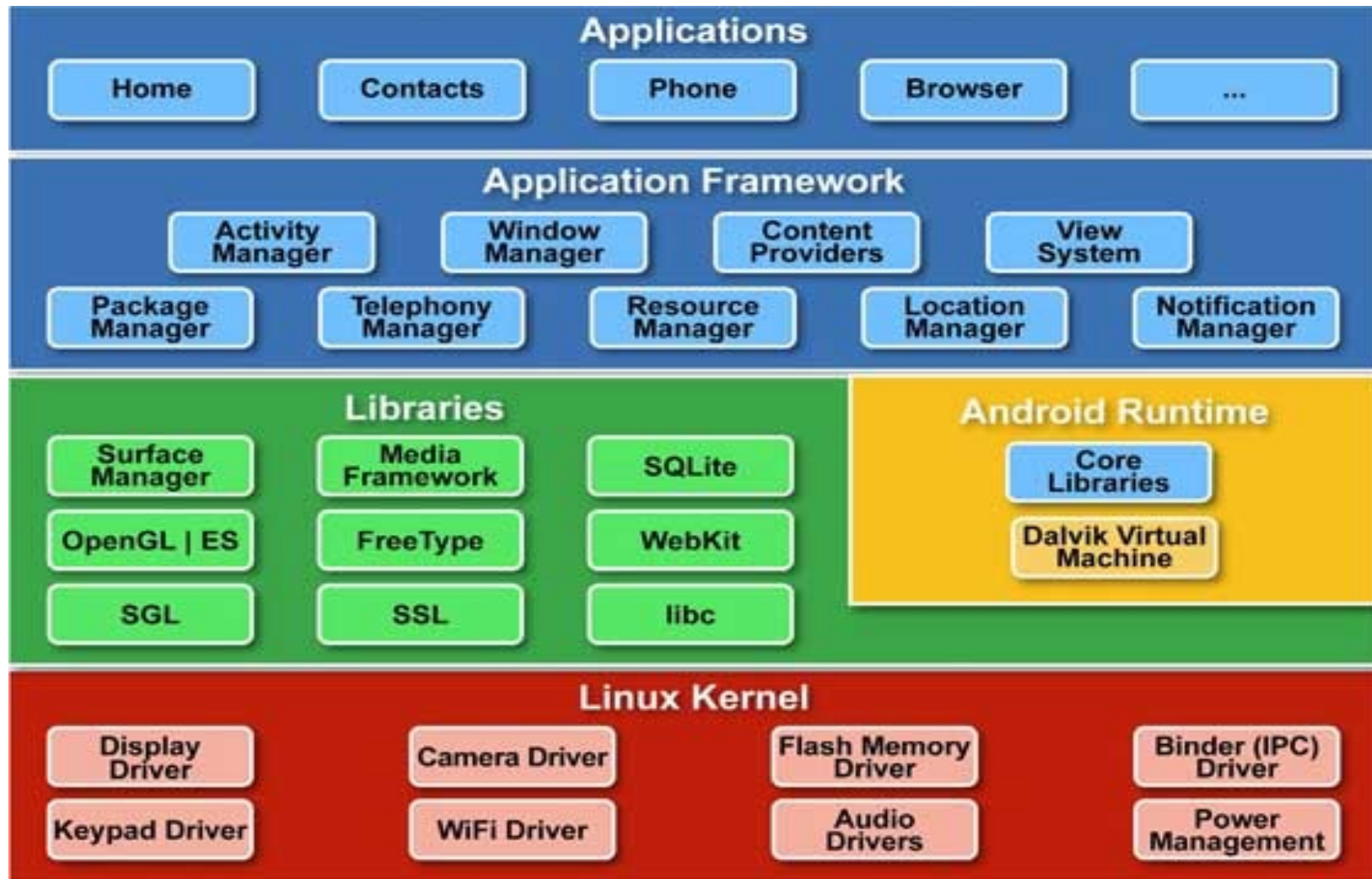
Source: Gartner (2017)

Android History

| Date | Version | Nickname | API Level |
|------------------|-------------|---------------------------|-----------|
| Sep 2008 | 1.0 | Android | 1 |
| Apr 2009 | 1.5 | Cupcake | 3 |
| ... | | | |
| July 2012 | 4.1 | Jelly Bean | 16 |
| Oct 2013 | 4.4 | KitKat | 19 |
| Nov 2014 | 5.0 | Lollipop | 21 |
| Oct 2015 | 6.0 | Marshmallow | 23 |
| Aug 2016 | 7.0 | Nougat | 24-25 |
| Aug/2017 | 8.0 | Oreo | 26-27 |
| 2018 | 9.0 | <i>Android P (Beta 3)</i> | 28 |
| Sept/2019 | 10.0 | Android 10 | 29 |
| Sept/2022 | 13.0 | Android 13 | 33 |



Android Architecture

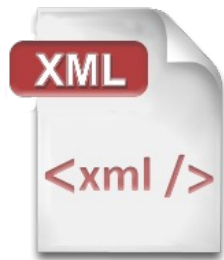


Programming Languages

We will use the following programming languages in this course.



Pre-requisite:
Good Experience



Any Experience



It is good to have



Any Experience

Packaging Apps: **APKs**

- Basically **.zip** files
- Cryptographically signed
- "side-load" or upload to Play Store



Building Process

1. Generate Java source files (e.g. from XML)
2. Compile Kotlin source into JVM bytecode
3. "dex" JVM bytecode into Dalvik bytecode (old android)
4. Pack with graphics and assets into **.apk**
5. Cryptographically sign **.apk**
6. ...
7. Profit!

Development Hardware

- Windows, Mac, or Linux (because Java!)
- Physical Android Device
 - turn on developer options!
- Emulator (Virtual Device) available
 - emulator not great on Windows
 - use the Intel HAXM for acceleration!

Development Software

- Java SDK
- Gradle or Apache ANT
- Android Studio IDE
- Android SDK (command-line tools)
 - **adb** "android debugging bridge" connect to devices (physical or virtual)
 - **emulator** run the emulator

Next

1.2 Android Studio

