

Android Programming

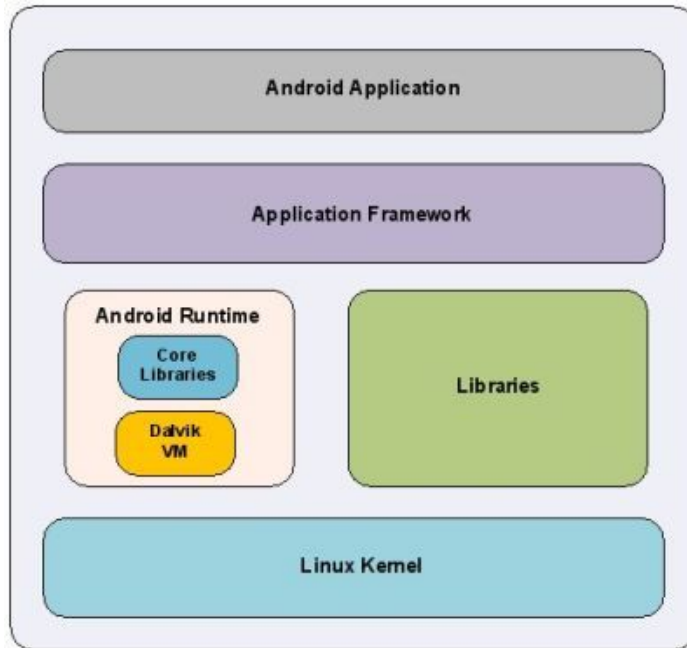


COSC 5384

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Android Architecture





Android Studio

Powered by the IntelliJ Platform

<https://developer.android.com/studio/index.html>

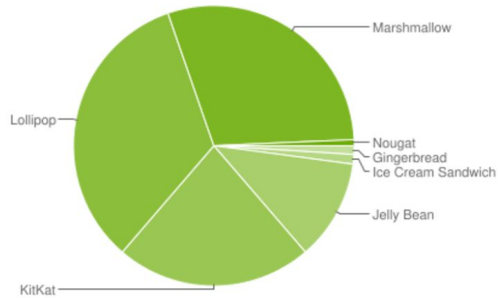


Platform Versions

This section provides data about the relative number of devices running a given version of the Android platform.

For information about how to target your application to devices based on platform version, read [Supporting Different Platform Versions](#).

Version	Codename	API	Distribution
2.3.3 - 2.3.7	Gingerbread	10	1.0%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	1.1%
4.1.x	Jelly Bean	16	4.0%
4.2.x		17	5.9%
4.3		18	1.7%
4.4	KitKat	19	22.6%
5.0	Lollipop	21	10.1%
5.1		22	23.3%
6.0	Marshmallow	23	29.6%
7.0	Nougat	24	0.5%
7.1		25	0.2%



Data collected during a 7-day period ending on January 9, 2017.
Any versions with less than 0.1% distribution are not shown.



four main components

Activity

A “single screen” that’s visible to user

Service

Long-running background “part” of app (not separate process or thread)

ContentProvider

Manages app data (usually stored in database) and data access for queries

BroadcastReceiver

Component that listens for particular Android system “events”, e.g., “found wireless device”, and responds accordingly

AndroidManifest.xml



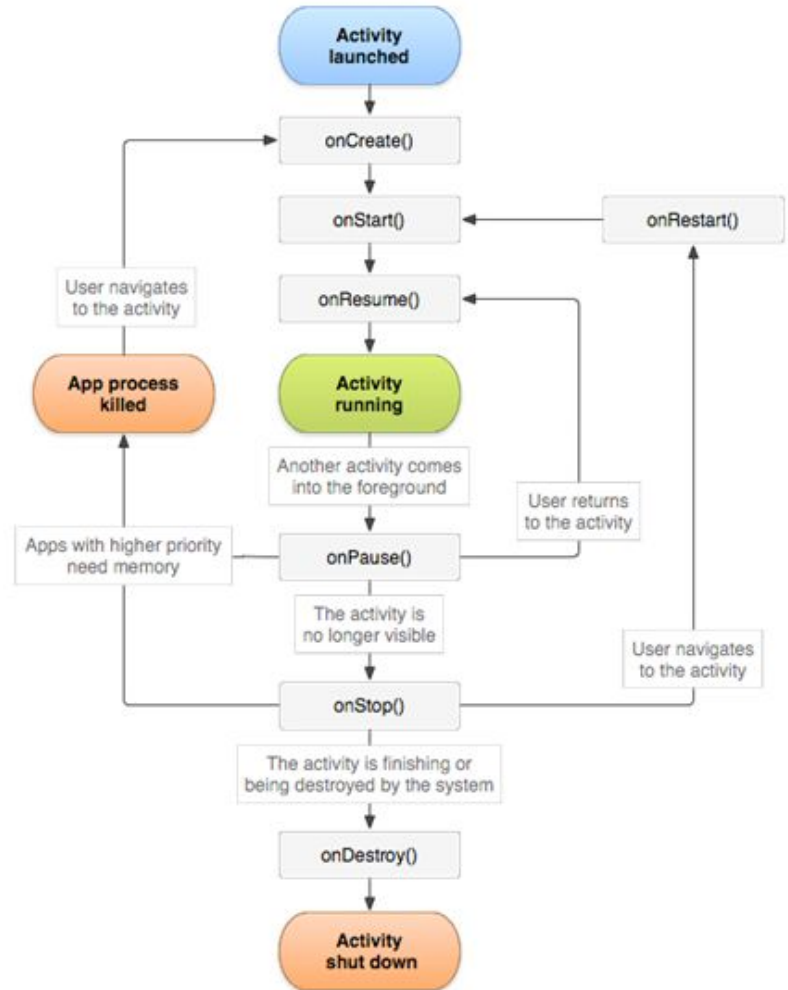


Manifest

- App's Activities, Services, etc.
- Permissions requested by app
- Minimum API required
- Hardware features required, e.g., camera with autofocus
- External libraries to which app is linked, e.g., Google Maps library



Activity Lifecycle





Real Android device

- Ensure drivers are installed
- Enable developer options on device under Settings, specifically USB Debugging
- Android 4.2+: Go to **Settings**→**About phone**, press **Build** number **7 times** to enable developer options

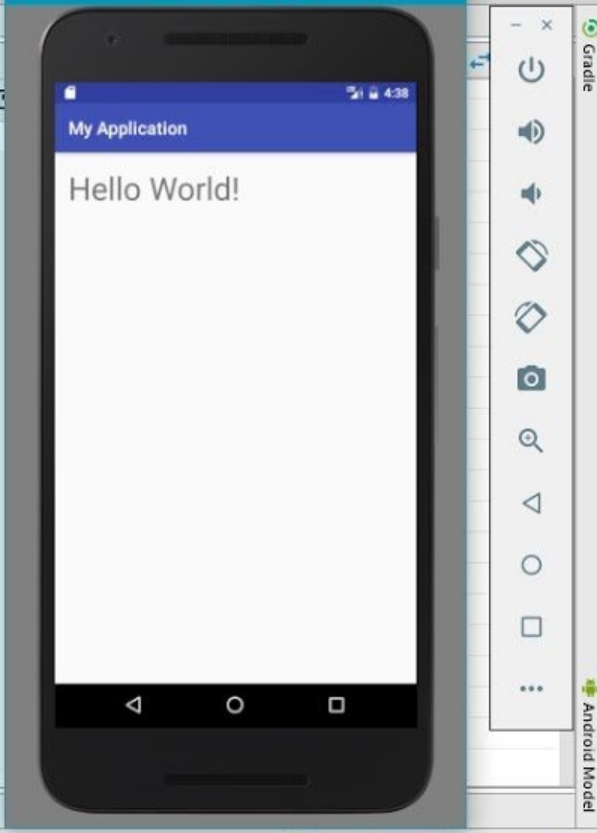
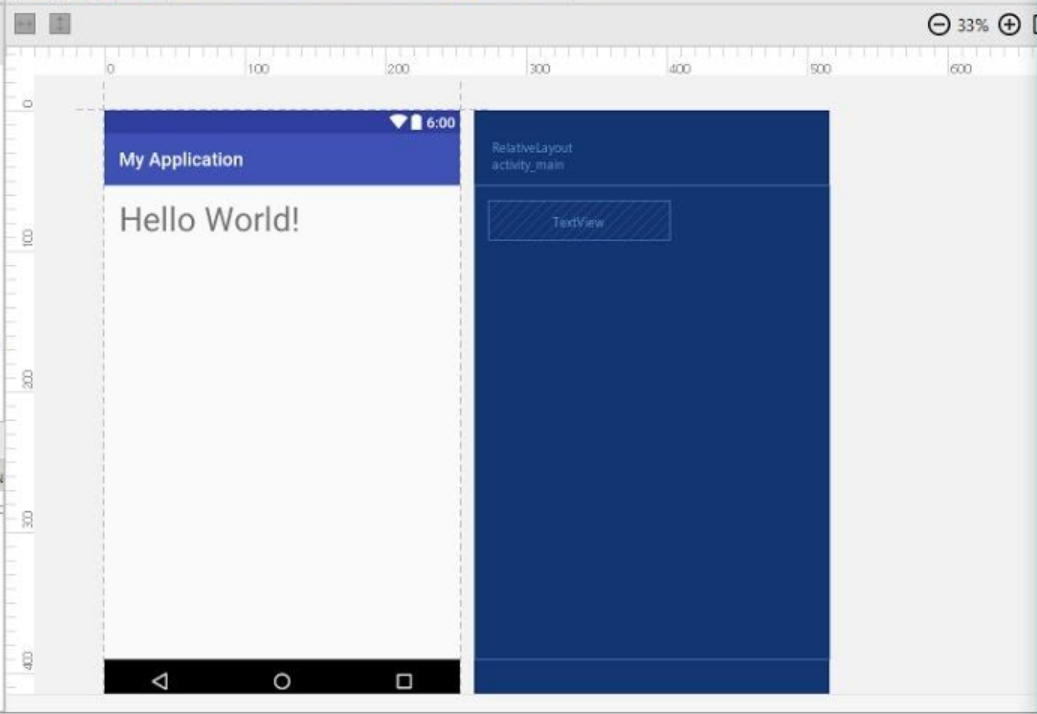


Widgets

- TextView
- Button
- ToggleButton
- CheckBox
- RadioButton
- CheckedTextView
- Spinner
- ProgressBar (Large)
- ProgressBar
- ProgressBar (Small)
- ProgressBar (Horizontal)
- SeekBar
- SeekBar (Discrete)

Component Tree

- activity_main (RelativeLayout)
 - TextView - "Hello World"



Gradle

An advanced, Open source build management system based on Groovy

