

Android Application development

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Lecture Summary

- What is Android?
- Android Devices
- Android application
- Activity
- Layout
- Relation between layout and activity
- Building First Android App



What is Android?

- Open Source operating system



What is Android?

- Android Versions



Alpha



Beta



Cupcake



Donut



Eclair



Froyo



Gingerbread

Android N



Honeycomb



Ice Cream Sandwich



Jelly Bean



KitKat



Lollipop



Marshmallow



Android N

API 1: Android 1.0
API 2: Android 1.1
API 3: Android 1.5 (Cupcake)
API 4: Android 1.6 (Donut)
API 5: Android 2.0 (Eclair)
API 6: Android 2.0.1 (Eclair)
API 7: Android 2.1 (Eclair)
API 8: Android 2.2 (Froyo)
API 9: Android 2.3 (Gingerbread)
API 10: Android 2.3.3 (Gingerbread)
API 11: Android 3.0 (Honeycomb)
API 12: Android 3.1 (Honeycomb)
API 13: Android 3.2 (Honeycomb)
API 14: Android 4.0 (IceCreamSandwich)
API 15: Android 4.0.3 (IceCreamSandwich)
API 16: Android 4.1 (Jelly Bean)
API 17: Android 4.2 (Jelly Bean)
API 18: Android 4.3 (Jelly Bean)
API 19: Android 4.4 (KitKat)
API 21: Android 5.0 (Lollipop)
API 22: Android 5.1 (Lollipop)
API 23: Android 6.0 (Marshmallow)

What is Android?

- Android Platform



Applications

Home

Contacts

Phone

Browser

...

Application Framework

Activity
Manager

Window
Manager

Content
Providers

View
System

Package
Manager

Telephony
Manager

Resource
Manager

Location
Manager

Notification
Manager

Libraries

Surface
Manager

Media
Framework

SQLite

OpenGL | ES

FreeType

WebKit

SGL

SSL

libc

Android Runtime

Core
Libraries

Dalvik Virtual
Machine

Linux Kernel

Display
Driver

Camera Driver

Flash Memory
Driver

Binder (IPC)
Driver

Keypad Driver

WiFi Driver

Audio
Drivers

Power
Management

Android Devices

- Devices running android
 - Mobile
 - Tablet
 - TV
 - Smart Watch
 - Google Glass



Android Devices

- Do we need physical device for programming?



Android Devices

- Virtual device examples:
 - Emulator
 - Genymotion
 - Nox



Android application

- Developing Android application requirements
 - Programming language: Java
 - Development environment: Android Studio
 - Android Device



Activity

- What is the Activity?
 - It's the building block of the user interface
 - It's a java class that represent a Screen.
 - defines what the app should do



Activity

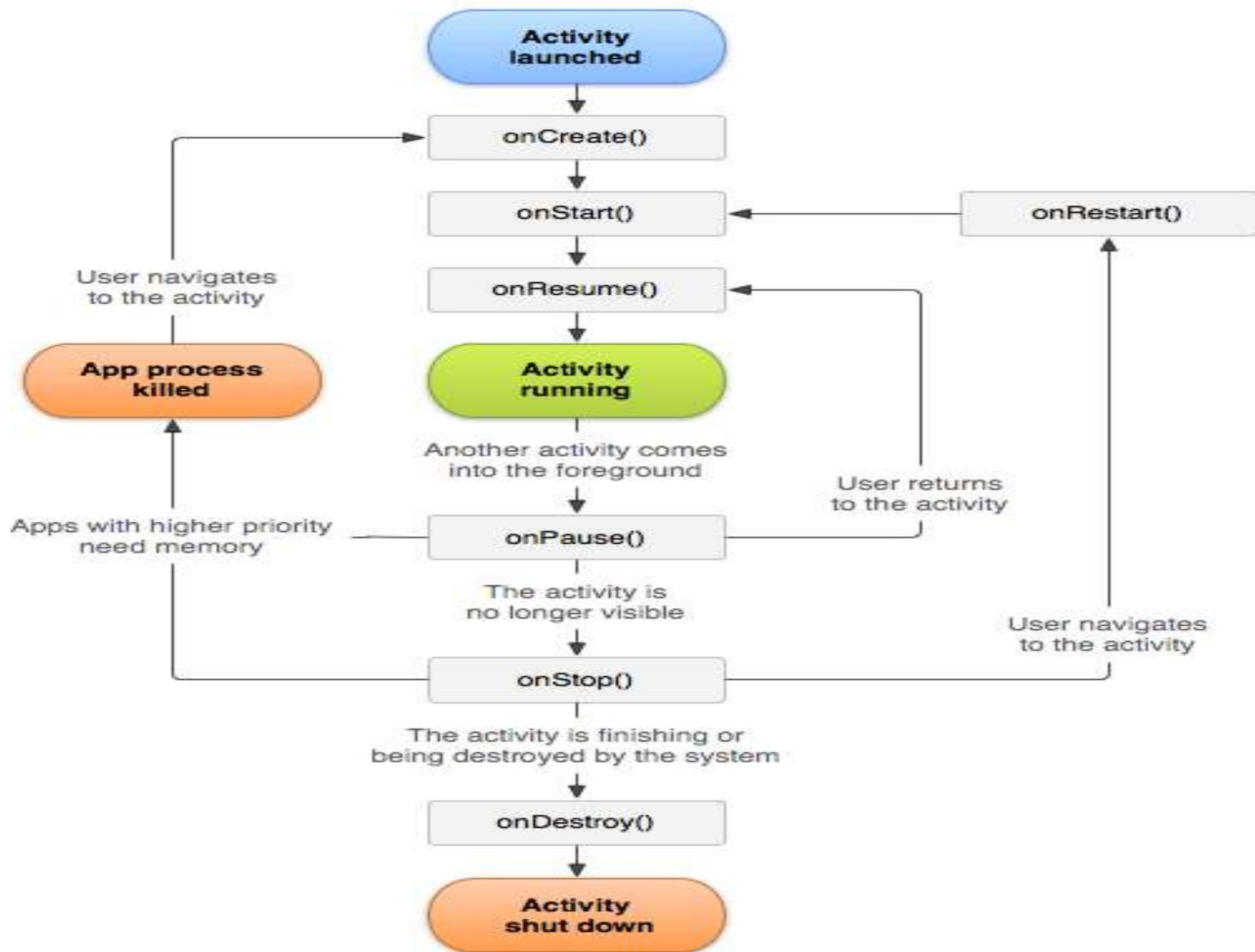
- Activity States
 - Active
 - Paused
 - Stopped
 - Dead



Activity

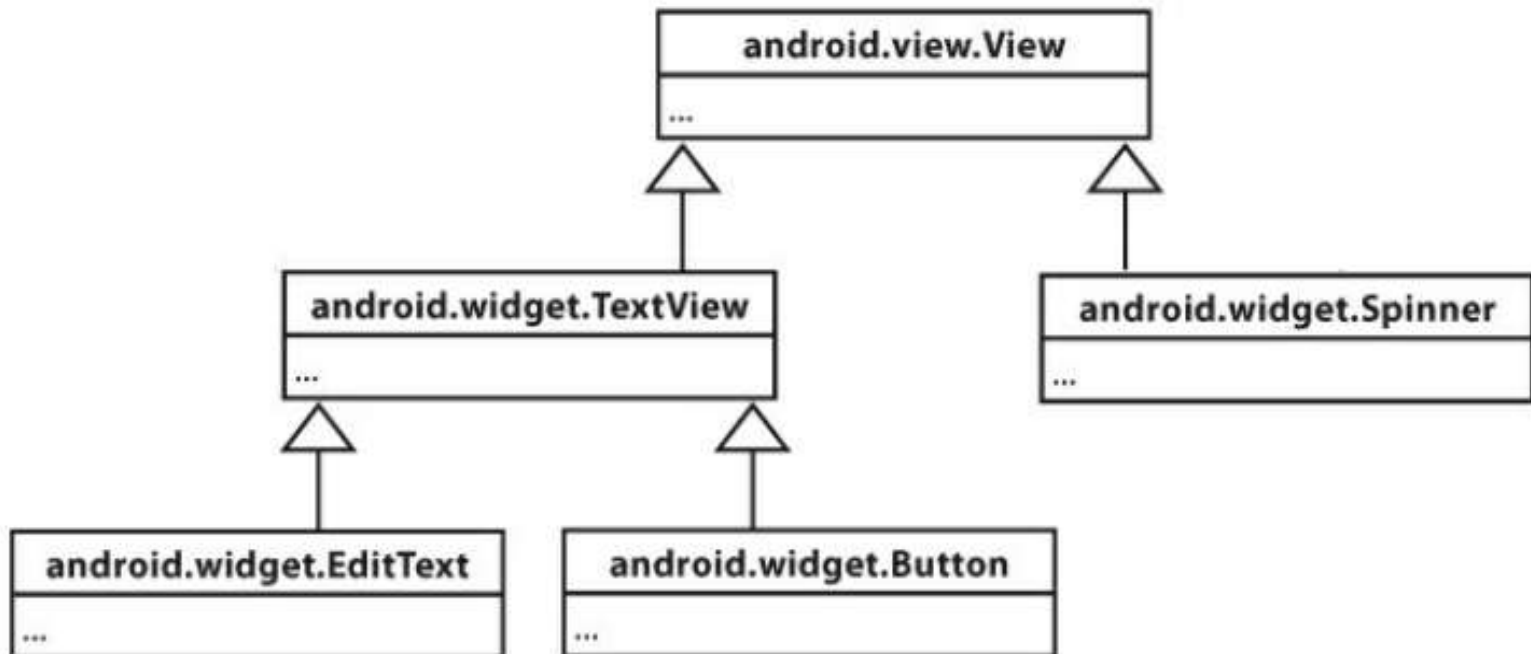
- Activity Lifecycle





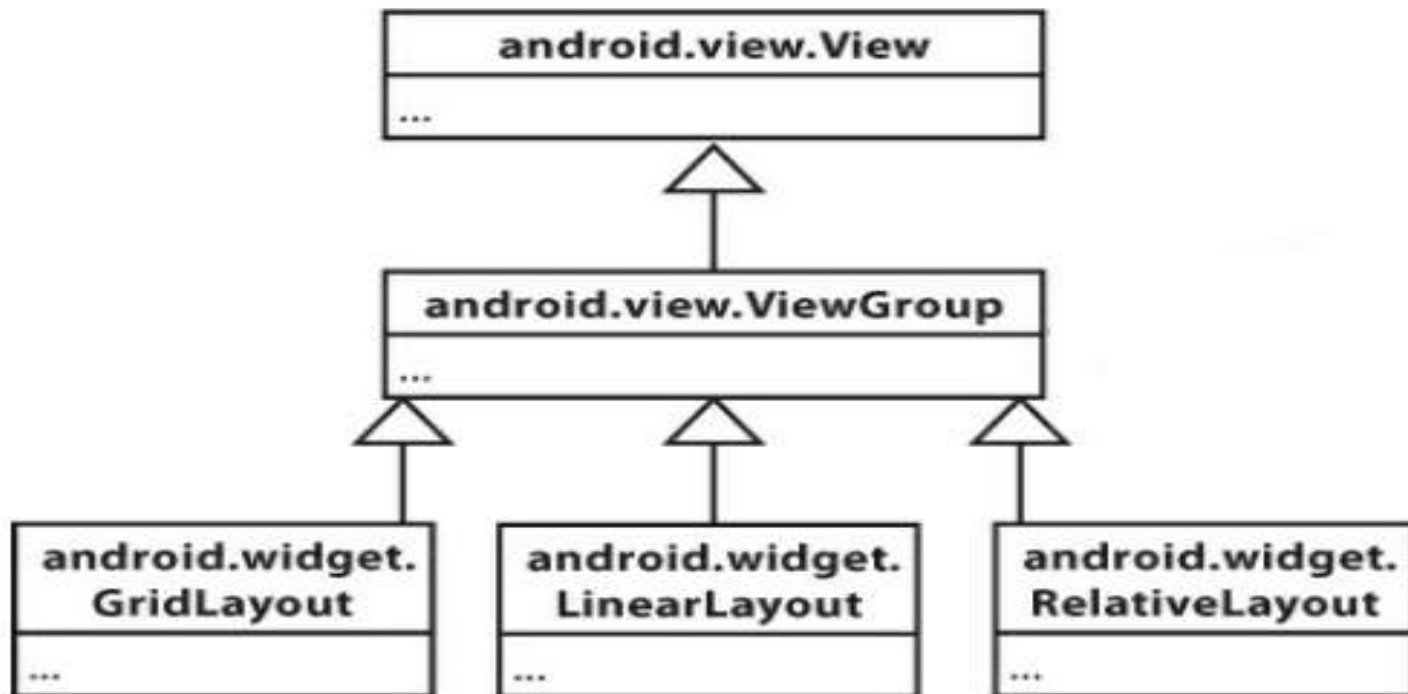
View

- What is the View?
 - all layouts and GUI components are subclasses of the Android View class



ViewGroup

- What is the ViewGroup?
 - It is a special type of view that can contain other views
 - A layout is a type of view group

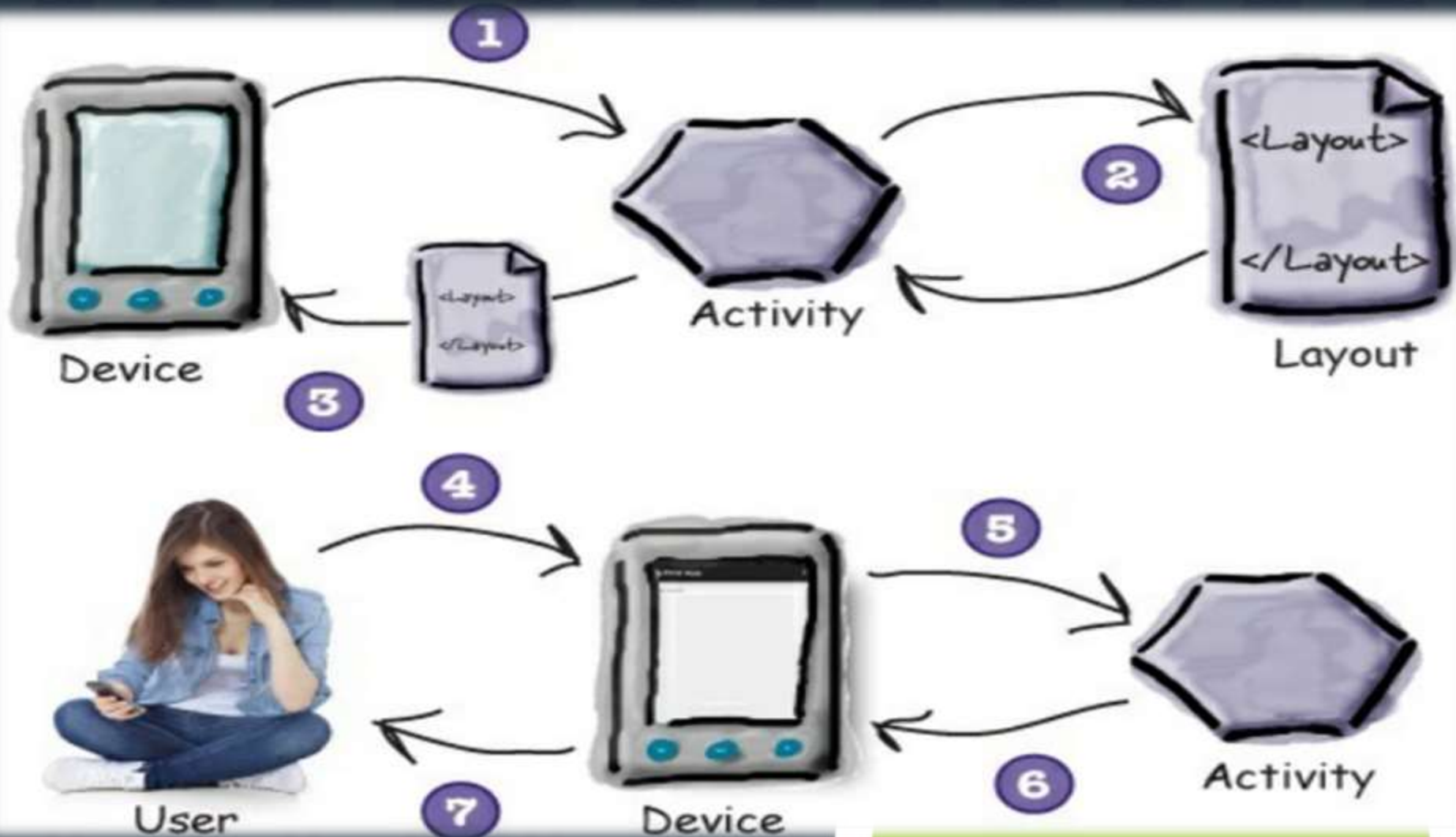


Layout

- What is the layout?
 - A layout describes the appearance of the screen.
 - Layouts are written as XML files
 - Layout files are stored in the /res/layout folder
 - referenced in code with the following identifier:
`R.layout.layout_name`



Relation between layout and activity



Building First Android application

- Set up Environment
- Project files
- Emulator
- SDK
- SDK manager

