

ANDROID DEVELOPMENT ENVIRONMENT

ANDROID

THE ANDROID PLATFORM

- ▶ A Multi-Layered Software Stack For Building And Running Mobile Applications

THE ANDROID DEVELOPMENT ENVIRONMENT

- ▶ Your Workbench For Writing Android Applications

TOPICS

- ▶ Downloading Android SDK
- ▶ Using The Android Studio IDE
- ▶ Using The Android Emulator
- ▶ Debugging Android Applications
- ▶ Other Tools

PREREQUISITES

- ▶ Supported Operating Systems:
 - ▶ Microsoft Windows 7/8/10/Vista/2003
 - ▶ Mac OS X From 10.8.5 to Current
 - ▶ Linux
- ▶ See :<http://developer.android.com/sdk>

PREREQUISITES

- ▶ Java Development Kit (JDK 7, 8 ~)
 - ▶ See: <http://www.oracle.com/technetwork/java/javase/downloads>

PREREQUISITES

- ▶ 2 GB RAM min, 4 GB RAM Required
- ▶ 1 GB+ For Android SDK, Emulator System Images, And Caches
- ▶ 400 MB Hard Disk Space
- ▶ 1280 x 800 min Screen Resolution

GETTING STARTED

- ▶ Download & Install Android SDK Bundle
 - ▶ See: <http://developer.android.com/sdk>
 - ▶ See: <https://youtu.be/jpFll5aw5rA>

ANDROID SDK BUNDLE

- ▶ Android Platform
- ▶ Android Studio IDE
- ▶ Key Development Tools
- ▶ System Image For Emulator

DEMO

- ▶ The Android Emulator (Runs Virtual Devices)

THE ANDROID EMULATOR

▶ Pros

- ▶ Doesn't Require an Actual Device
- ▶ Hardware is Reconfigurable
- ▶ Changes are Non-Destructive

THE ANDROID EMULATOR

▶ Cons

- ▶ Can be Very Slow
- ▶ Some Features Unavailable
 - ▶ E.g., No Support For Bluetooth Or USB Connections
- ▶ Performance / User Experience can be Misleading

ADVANCED FEATURES

- ▶ Can Emulate Many Different Device / User Characteristics,
- ▶ Such as:
 - ▶ Network Speed / Latencies
 - ▶ Battery Power
 - ▶ Location Coordinates

ADVANCED FEATURES

- ▶ Emulate Incoming Phone Calls & SMS Messages

THE ANDROID EMULATOR

- ▶ Can INTERCONNECT MULTIPLE EMULATORS

ADVANCED FEATURES

- ▶ Many More Options

- ▶ See:

- ▶ <http://developer.android.com/guide/developing/devices/emulator.html>

DEBUGGER

- ▶ Tool For Examining The Internal State Of a Running App

DALVIK DEBUG MONITOR SERVICE (DDMS)

- ▶ General Tools For Monitoring Application Behaviours

DALVIK DEBUG MONITOR SERVICE (DDMS)

- ▶ DDMS Tools Include

- ▶ File Explorer

- ▶ LogCat

- ▶ TraceView

- ▶ HierarchyView

DEMO

- ▶ File Explorer & LogCat

TRACEVIEW

- ▶ Graphically Display Method Traces Taken From Running Application
- ▶ Demo

UI HIERARCHY VIEWER

- ▶ Shows The Runtime Organization Of The User Interface
- ▶ Demo

