

BCS 371

Mobile Application

Development I

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- Android Emulator
- Android Runtime

Today's Lecture

Android Emulator

- Substitute for an actual device such as a phone or tablet.
- Can be configured to emulate a wide variety of devices.
- Can test orientation changes and other functionality just like an actual device.
- Here is a good link describing the emulator:
<http://developer.android.com/tools/devices/emulator.html>

Android Emulator

Emulator Vs AVD

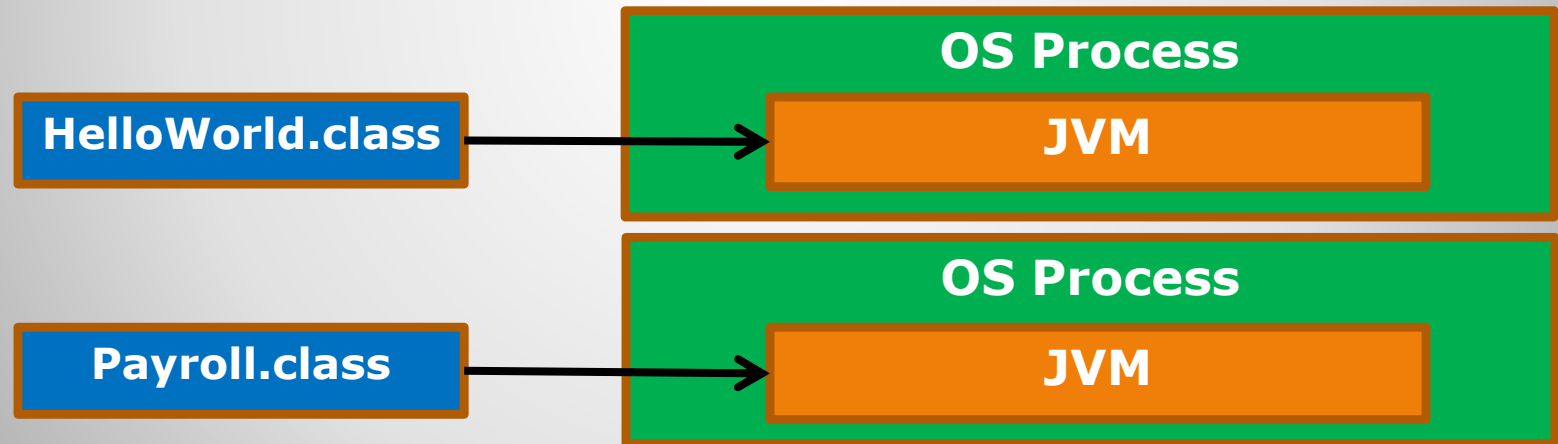
- You must create an Android Virtual Device (AVD) to use the emulator.
- The ***emulator uses the AVD*** when it executes.
- The AVD contains a specific device configuration.
- Use the AVD Manager to create a new AVD.

Android Emulator and AVDs

- When programs run on the emulator they run in an Android Process.
- Each program that runs has its own Android Runtime code compiled into the program.
- For example...

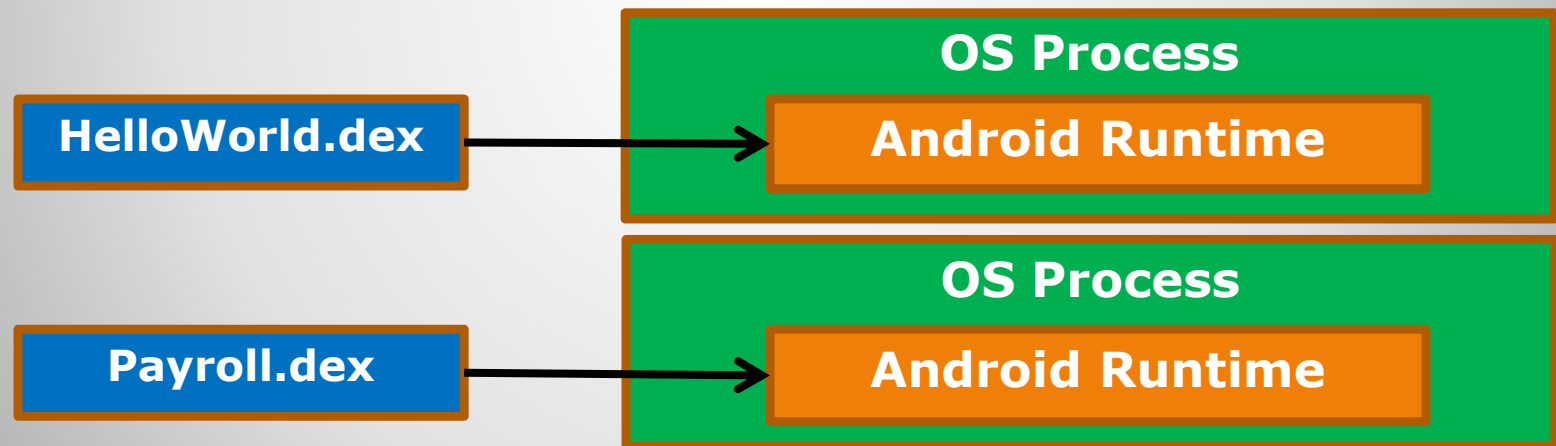
Running Programs

- REVIEW - Java Virtual Machine (JVM)
- Each Kotlin program that runs will have its very own JVM when it executes.
- For example, if two programs are run on the same machine (say HelloWorld and Payroll) they will both have their own JVMs.



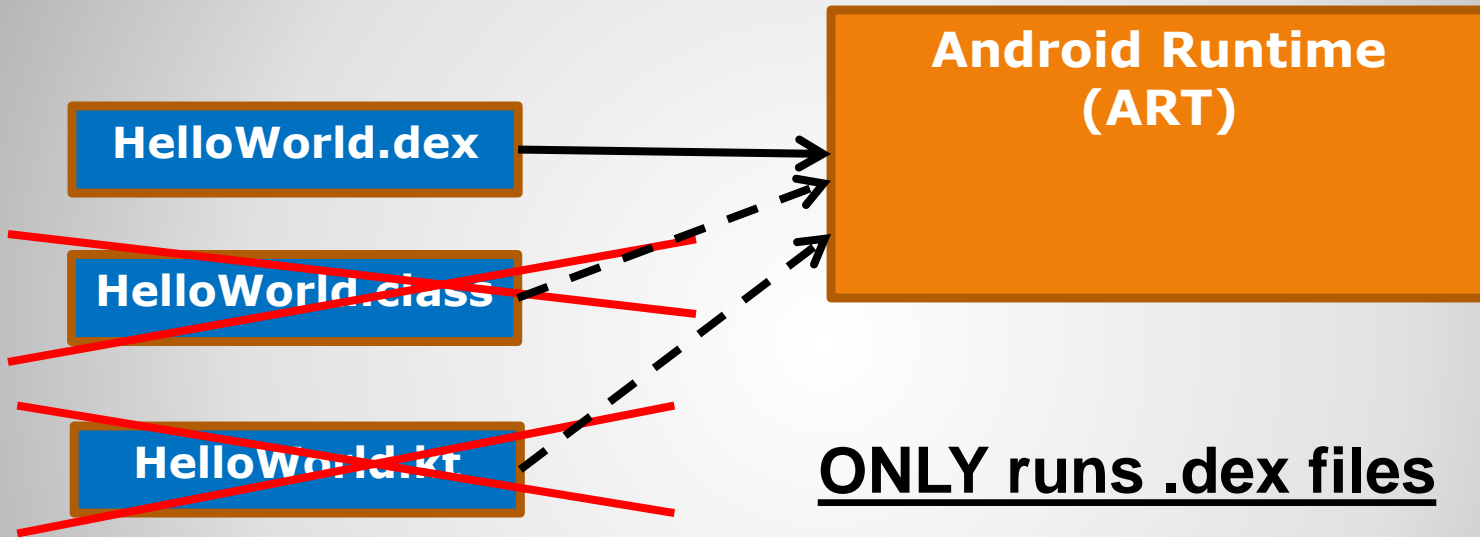
Java Virtual Machine

- Android Runtime (ART)
- Each Android program that runs will have the Android Runtime library code inside of it when it executes.
- For example, if two programs are run on the same machine (say HelloWorld and Payroll) they both have the Android Runtime inside of them.



Android Runtime (ART)

- What does Android Runtime run?
- ONLY runs .dex files!!!

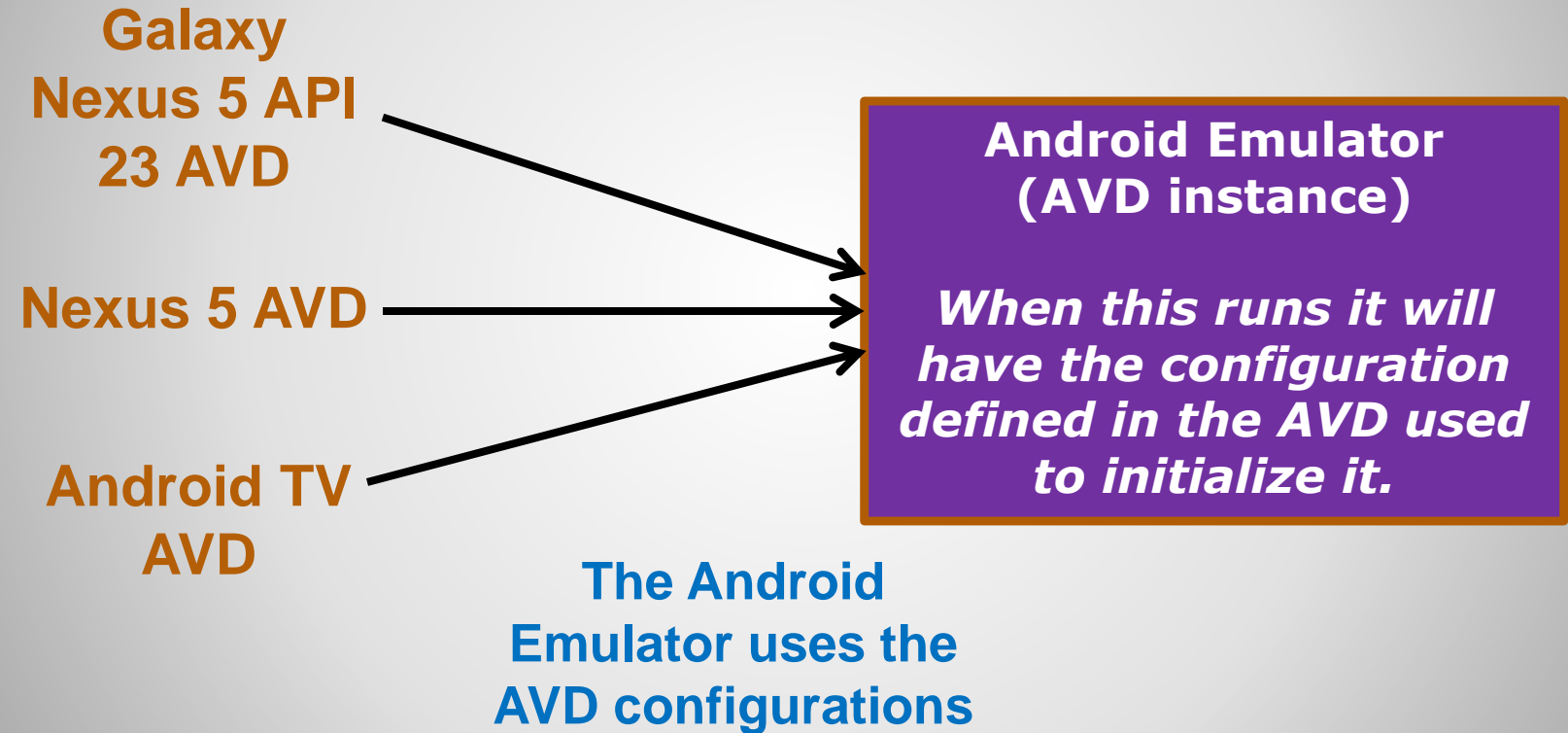


ONLY runs .dex files

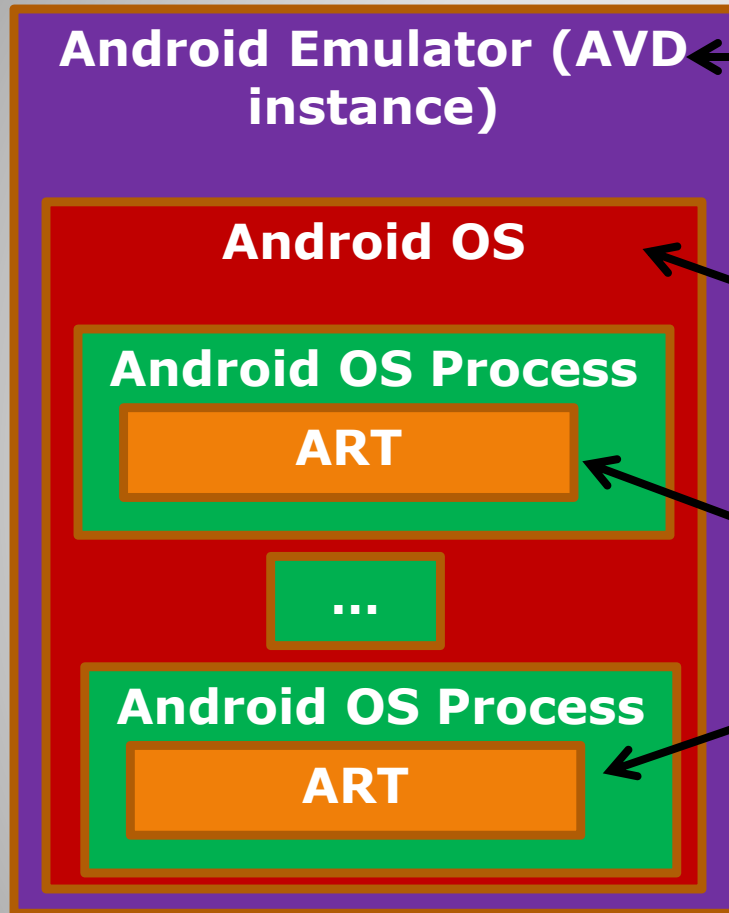
Does NOT run .class, .kt,
or any other type of file

Android Runtime (ART)

- The Android Emulator is a software replacement for a device (phone/tablet etc...).
- An AVD is a specific configuration for the emulator.



Android Emulator Architecture



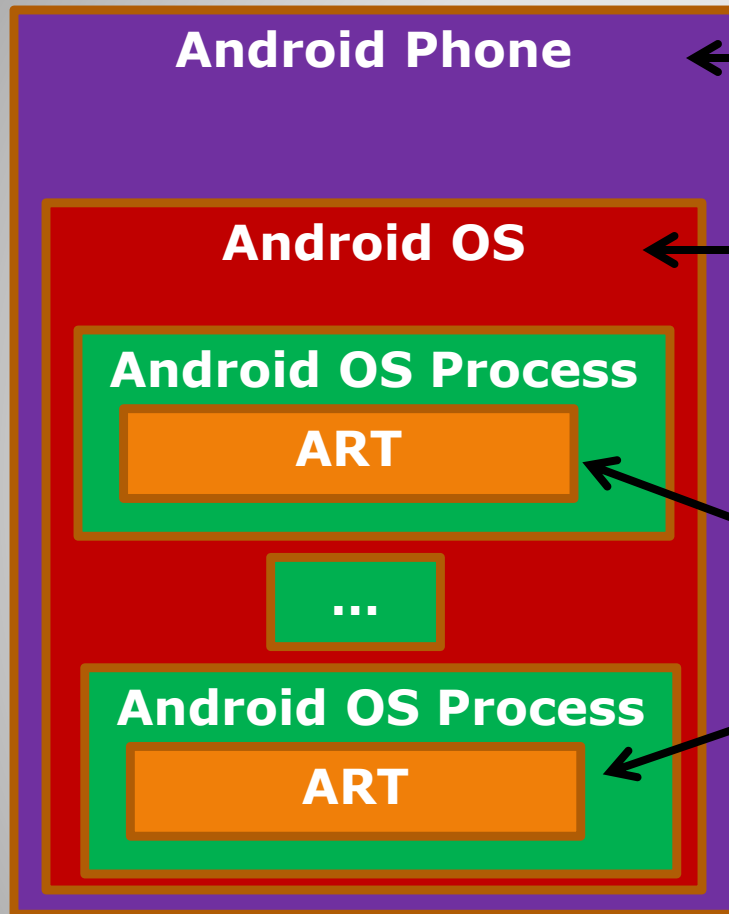
The Android Emulator is a software replacement for a device (phone/tablet etc...).

An AVD is a specific configuration for the emulator.

Android OS runs on an actual device or an emulator.

Each program that runs gets its own Android Runtime.

Android Emulator Architecture



Actual Device.
For example a phone (or
tablet or etc...).

**Android OS runs on
an actual device or
an emulator.**

**Each program
that runs gets its
own Android
Runtime.**

Phone Architecture

- End of Slides

End of Slides