CS 253: Parallel Functional Programming w/ Java & Android: Overview & Logistics (Part 2)

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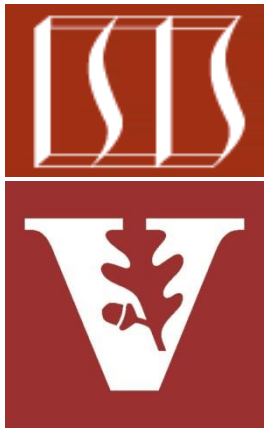

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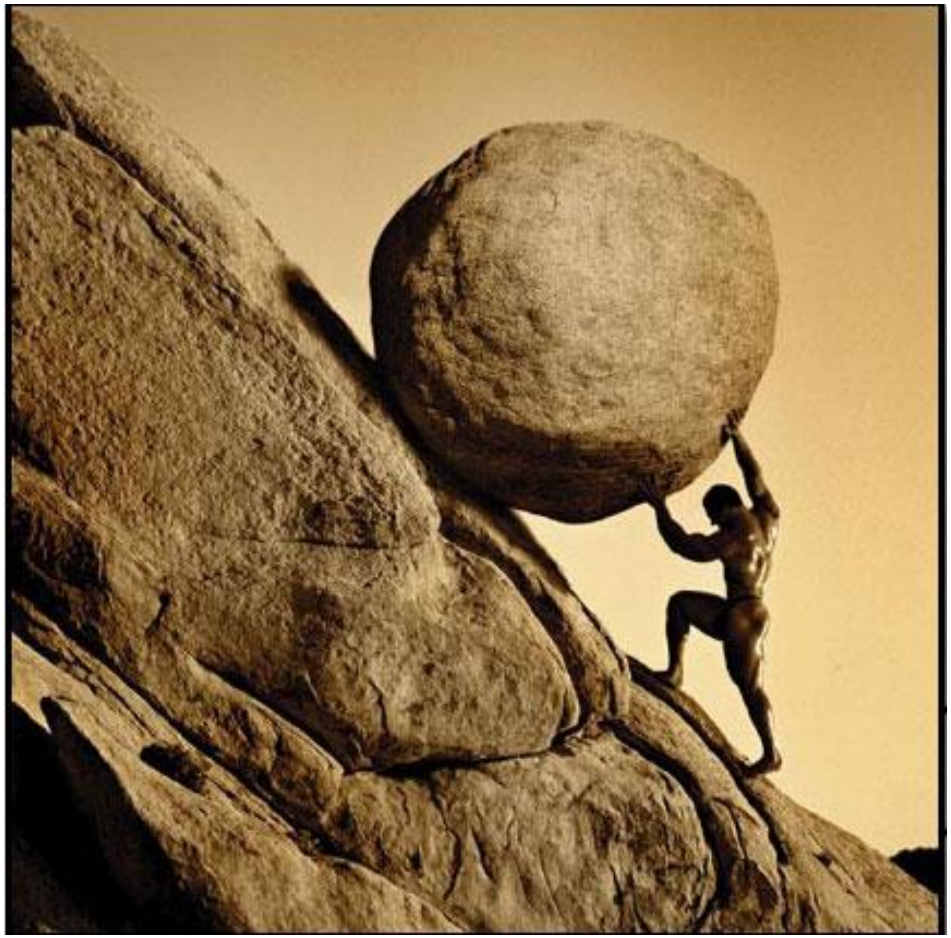
Learning Objectives in this Lesson

- Understand the course topics & logistics
  - Course philosophy
  - Course contents
  - Structure of the lecture material
  - Overview of the assignments & assessments
  - Setting up the Java & Android IDE on Android Studio
  - Accessing Android & Java source code
  - Summary



Setting Up the Android & Java IDE on Android Studio

Installing Eclipse Java/Android Developer Tools

- To use Android, you need to install the latest release of Android Studio

Android Studio provides the fastest tools for building apps on every type of Android device.

Download Android Studio

2020.3.1 for Windows 64-bit (912 MiB)

Download options

Release notes

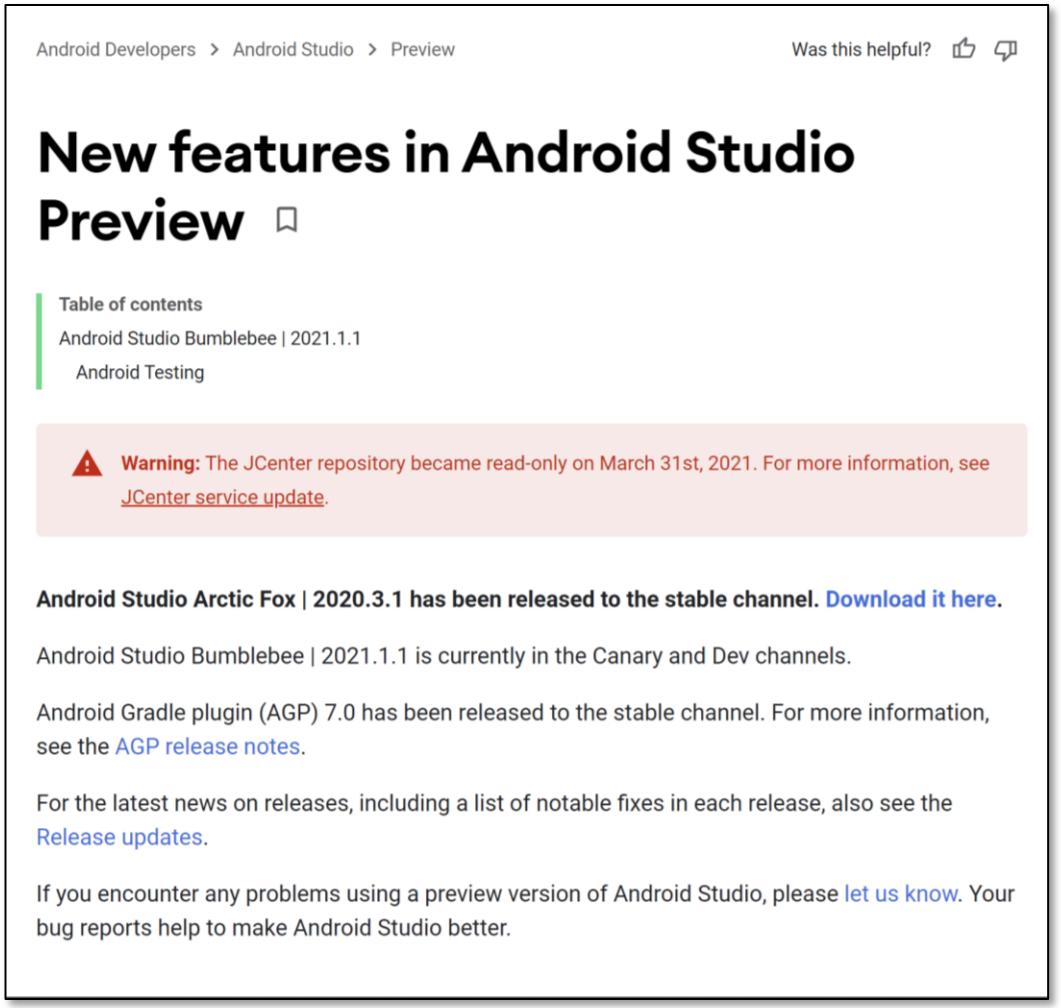
See developer.android.com/studio

Installing Eclipse Java/Android Developer Tools

- Installation steps

Installing Eclipse Java/Android Developer Tools

- Installation steps
  - Download & install the latest version of Android Studio



Android Developers > Android Studio > Preview

Was this helpful?

New features in Android Studio Preview

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Android Studio Bumblebee | 2021.1.1

Android Testing

Warning: The JCenter repository became read-only on March 31st, 2021. For more information, see JCenter service update.

Android Studio Arctic Fox | 2020.3.1 has been released to the stable channel. Download it here.

Android Studio Bumblebee | 2021.1.1 is currently in the Canary and Dev channels.

Android Gradle plugin (AGP) 7.0 has been released to the stable channel. For more information, see the AGP release notes.

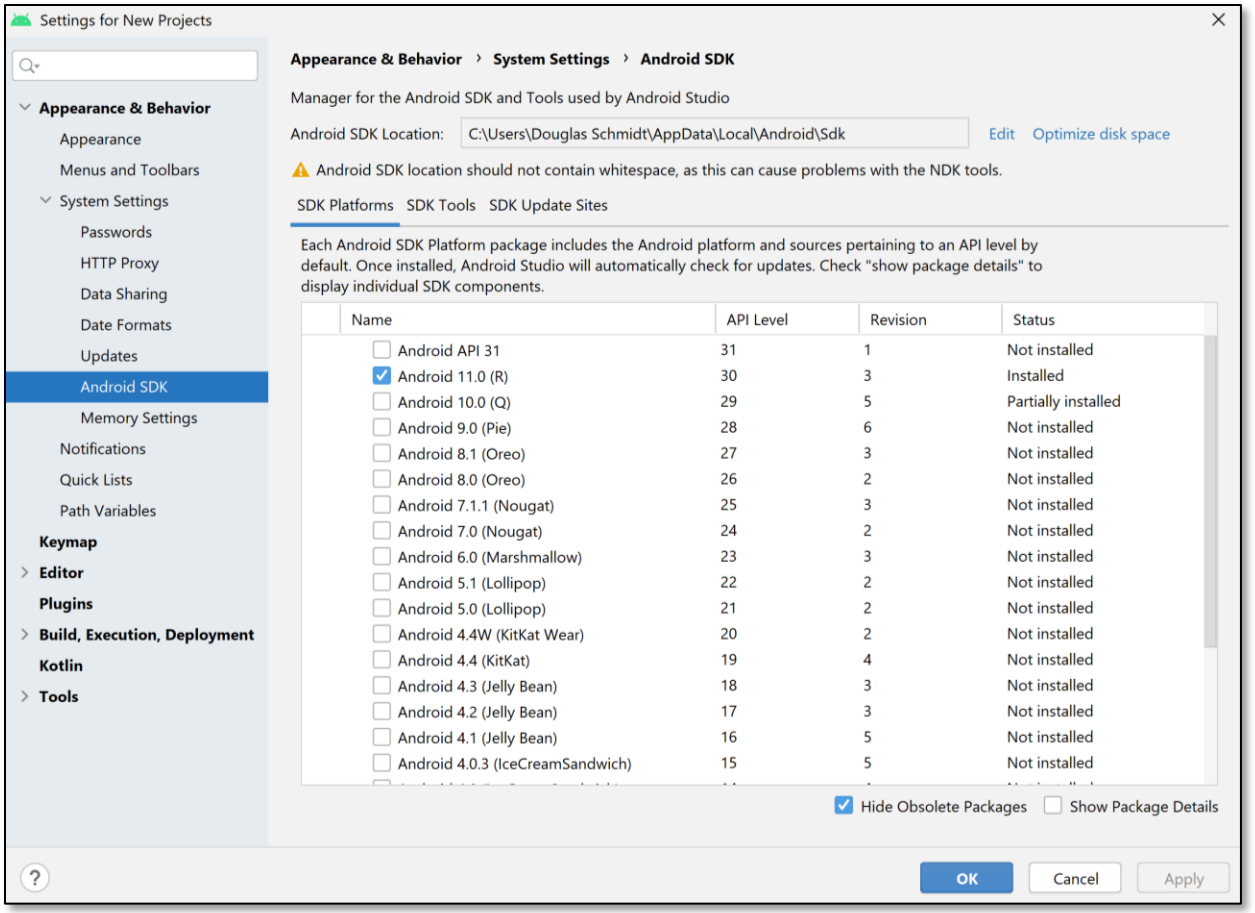
For the latest news on releases, including a list of notable fixes in each release, also see the Release updates.

If you encounter any problems using a preview version of Android Studio, please let us know. Your bug reports help to make Android Studio better.

See developer.android.com/studio

Add Components to the SDK

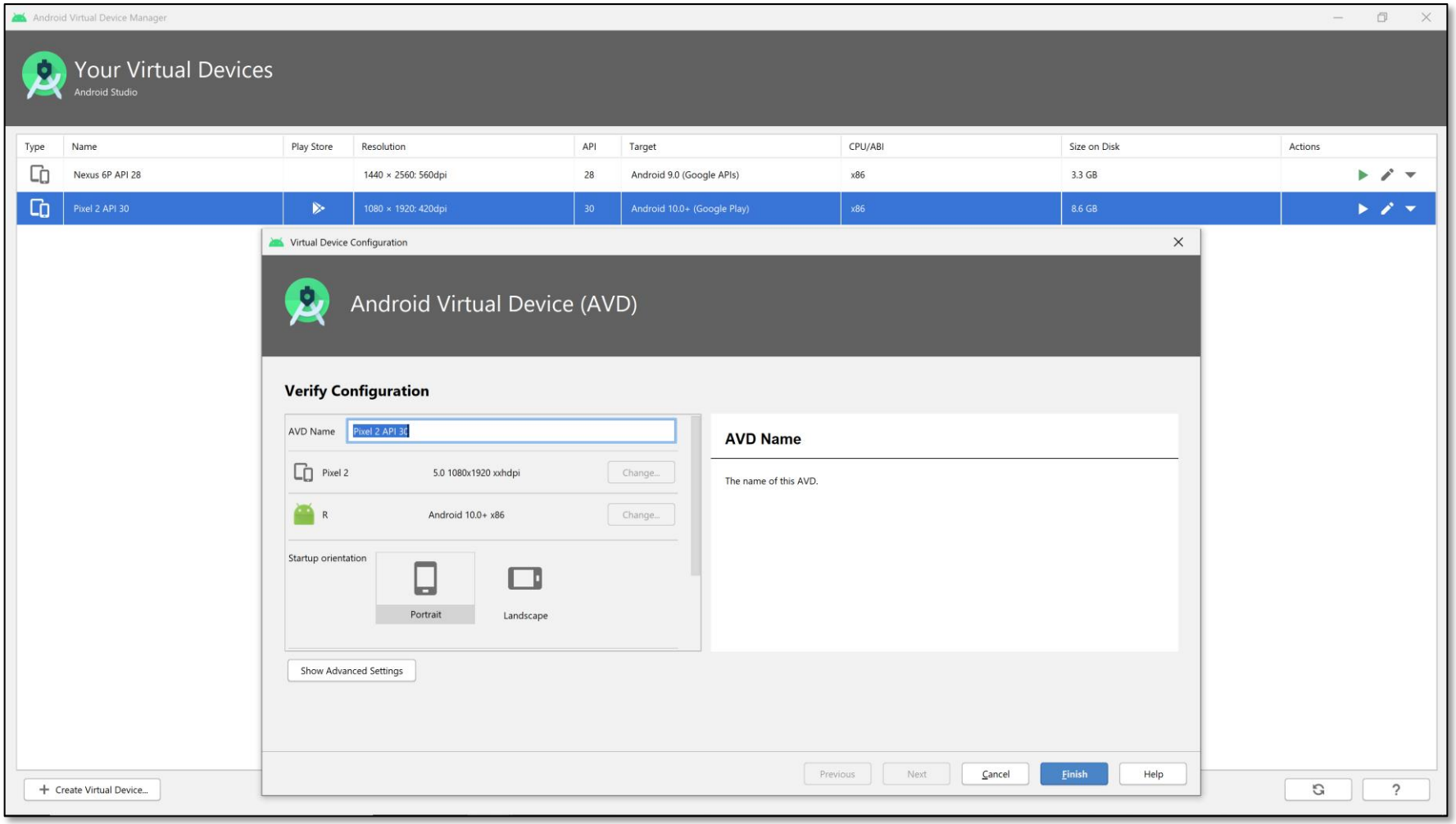
- Launch the Android Studio SDK Manager
  - Select the "R" version of Android (11, API 30)



See developer.android.com/studio/intro/update.html

Add Components to the SDK

- Launch the Android Studio Virtual Device Manager
  - Create an Android API 30 emulator



developer.android.com/tools/devices/managing-avds.html

Intel HAXM Virtualization Driver

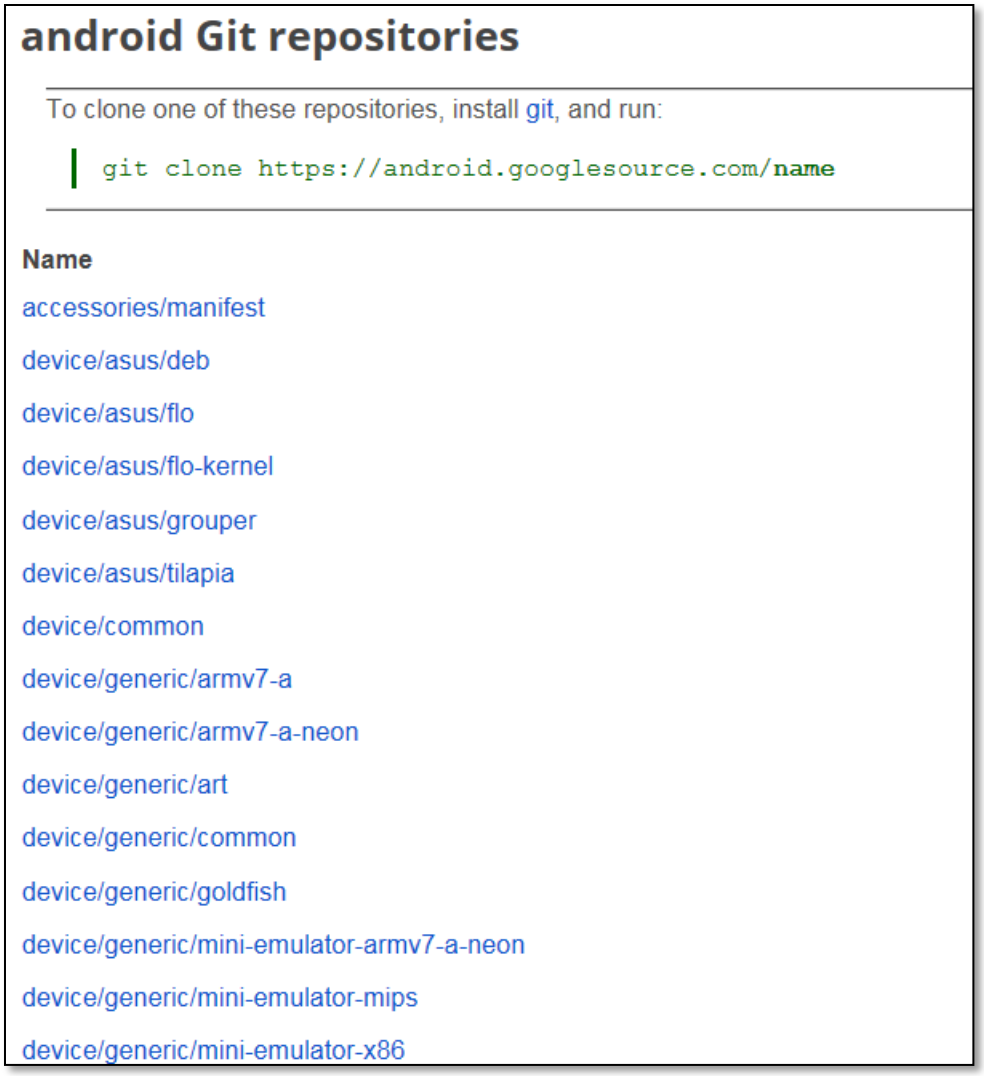
- **Requirements**
  - Intel virtualization extensions (VT, VT-x, vmx)
  - AMD virtualization extensions (AMD-v, SVM) [only supported on Linux]
  - Download an x86 emulator image
- **Windows & Mac OSX**
  - <sdk>/extras/intel/Hardware_Accelerated_Execution_Manager/IntelHAXM.exe/dmg
- **Linux**
  - Install KVM & pass "-enable-kvm" flag to emulator when starting

developer.android.com/studio/run/emulator-acceleration

Accessing Java & Android Source Code

Accessing Java & Android Source Code

- Android source code is available
  - For browsing android.googlesource.com



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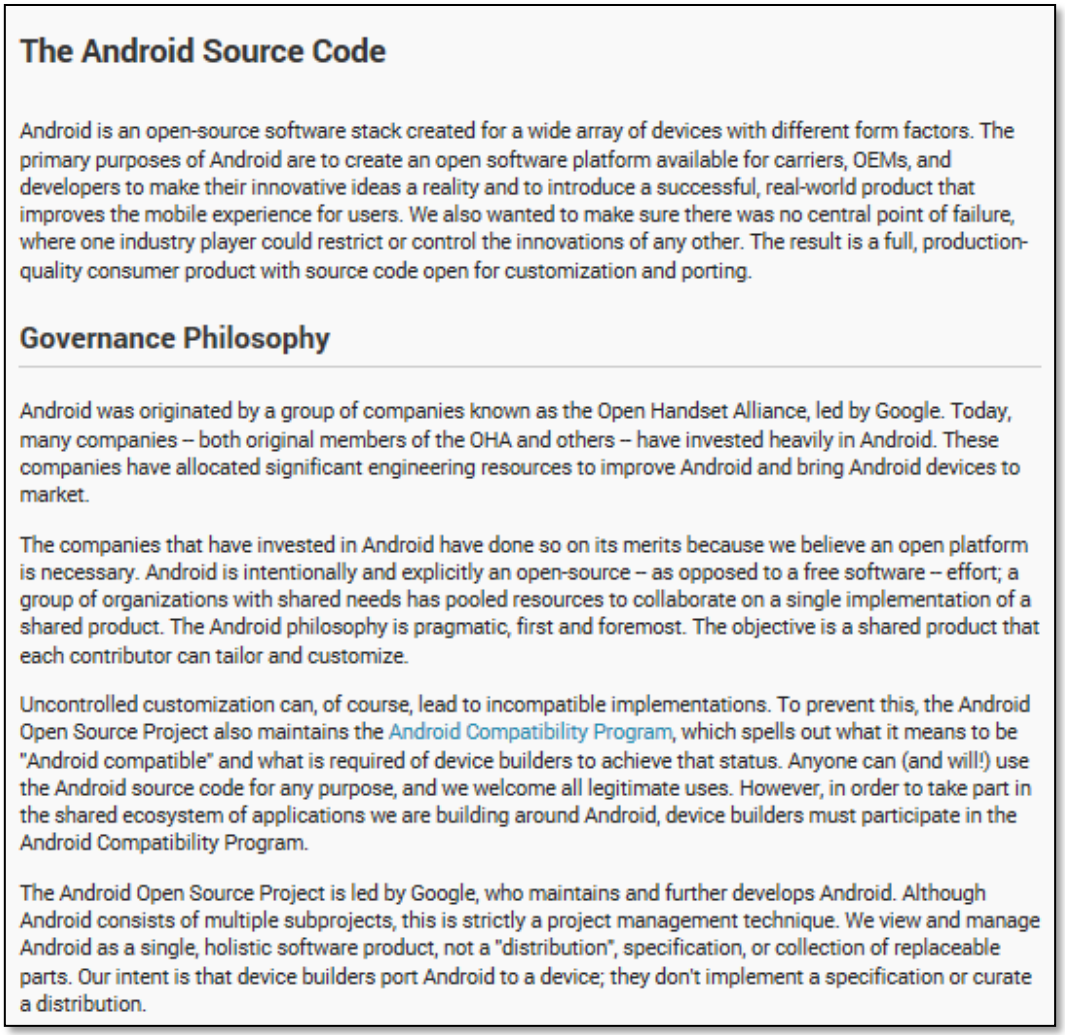

The Android Source Code

Android is an open-source software stack created for a wide array of devices with different form factors. The primary purposes of Android are to create an open software platform available for carriers, OEMs, and developers to make their innovative ideas a reality and to introduce a successful, real-world product that improves the mobile experience for users. We also wanted to make sure there was no central point of failure, where one industry player could restrict or control the innovations of any other. The result is a full, production-quality consumer product with source code open for customization and porting.

Governance Philosophy

Android was originated by a group of companies known as the Open Handset Alliance, led by Google. Today, many companies – both original members of the OHA and others – have invested heavily in Android. These companies have allocated significant engineering resources to improve Android and bring Android devices to market.

The companies that have invested in Android have done so on its merits because we believe an open platform is necessary. Android is intentionally and explicitly an open-source – as opposed to a free software – effort; a group of organizations with shared needs has pooled resources to collaborate on a single implementation of a shared product. The Android philosophy is pragmatic, first and foremost. The objective is a shared product that each contributor can tailor and customize.

Uncontrolled customization can, of course, lead to incompatible implementations. To prevent this, the Android Open Source Project also maintains the Android Compatibility Program, which spells out what it means to be "Android compatible" and what is required of device builders to achieve that status. Anyone can (and will!) use the Android source code for any purpose, and we welcome all legitimate uses. However, in order to take part in the shared ecosystem of applications we are building around Android, device builders must participate in the Android Compatibility Program.

The Android Open Source Project is led by Google, who maintains and further develops Android. Although Android consists of multiple subprojects, this is strictly a project management technique. We view and manage Android as a single, holistic software product, not a "distribution", specification, or collection of replaceable parts. Our intent is that device builders port Android to a device; they don't implement a specification or curate a distribution.

Accessing Java & Android Source Code

- Java 8 source code is available
  - For browsing zgrepcode.com

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  - For downloading jdk8.java.net/download.html

Summary

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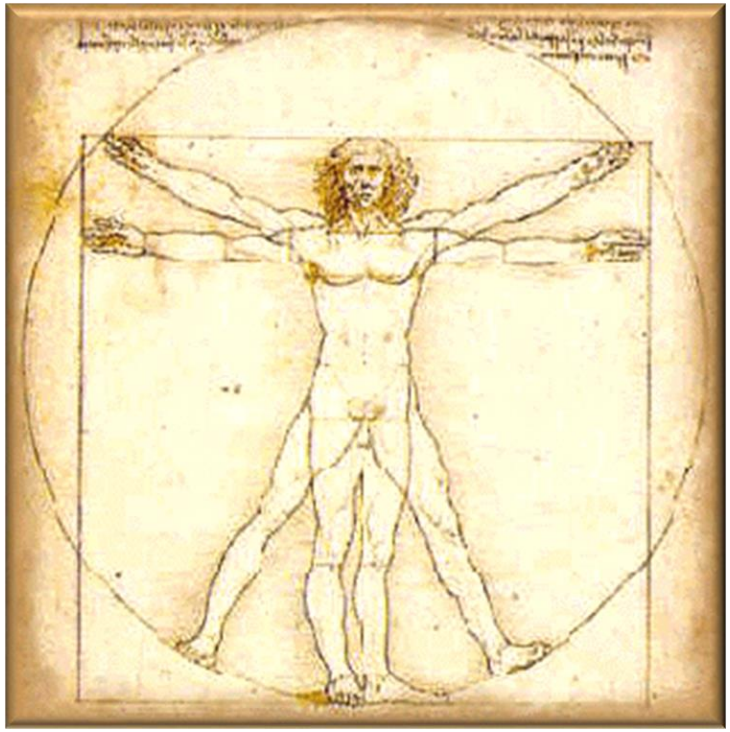
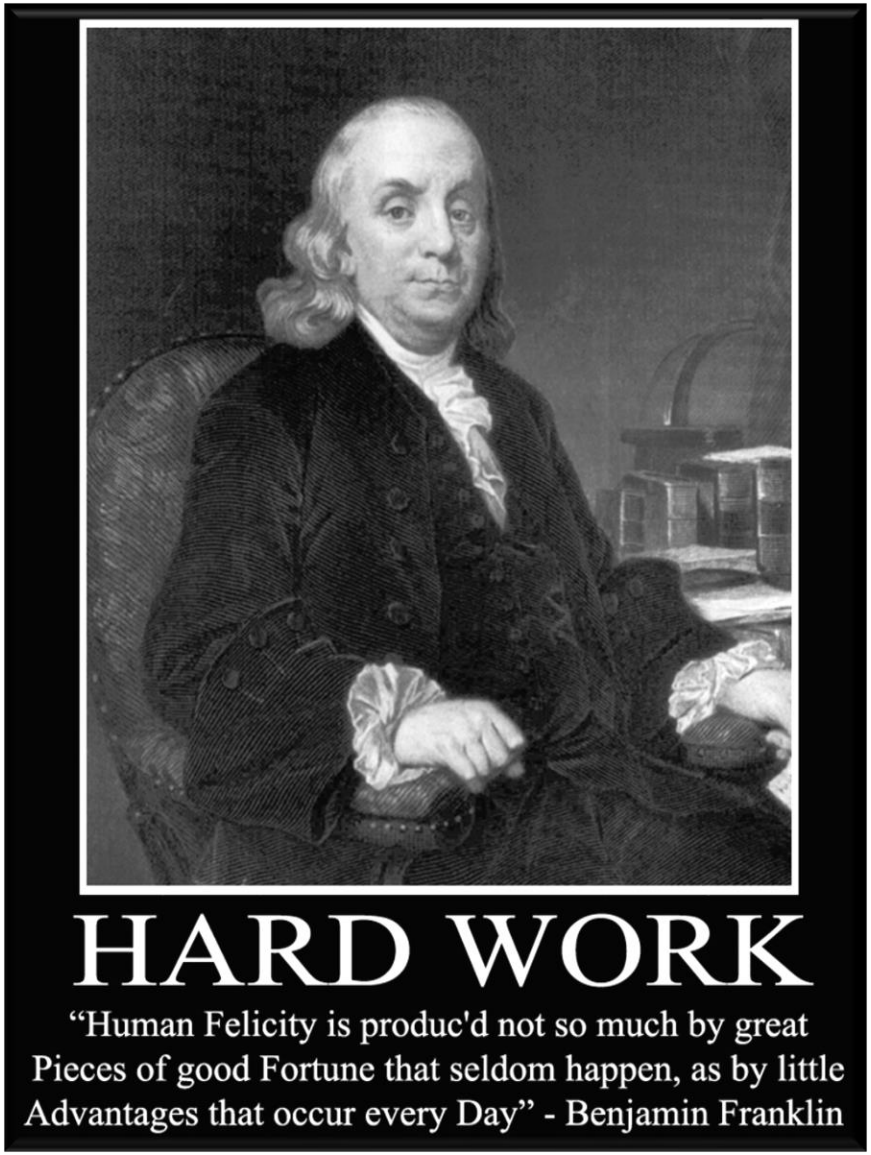
- You will get out of this course what you put into it



Summary

- You will get out of this course what you put into it
  - Be prepared to work hard



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  - Do *not* miss deadlines…

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  - Participate in discussions in class & on piazza

See piazza.com/vanderbilt/fall2021/cs253

Summary

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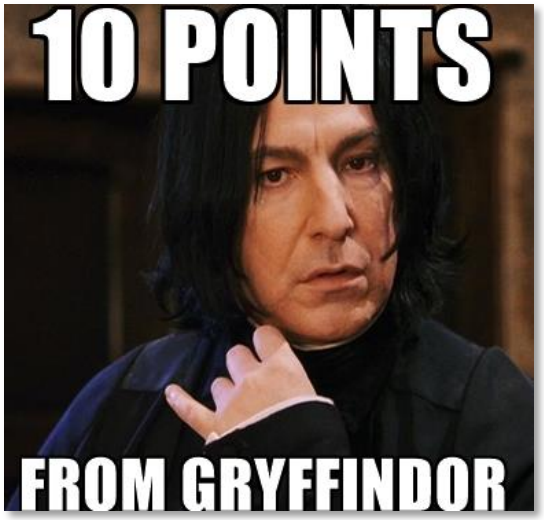
  - Be prepared to work hard
  - Do *not* miss deadlines…
  - Participate in discussions in class & on piazza
  - No laptops/phones in class unless explicitly allowed



Failure to comply with this rule will cost you participation points..

Summary

- You will get out of this course what you put into it
  - Be prepared to work hard
  - Do *not* miss deadlines…
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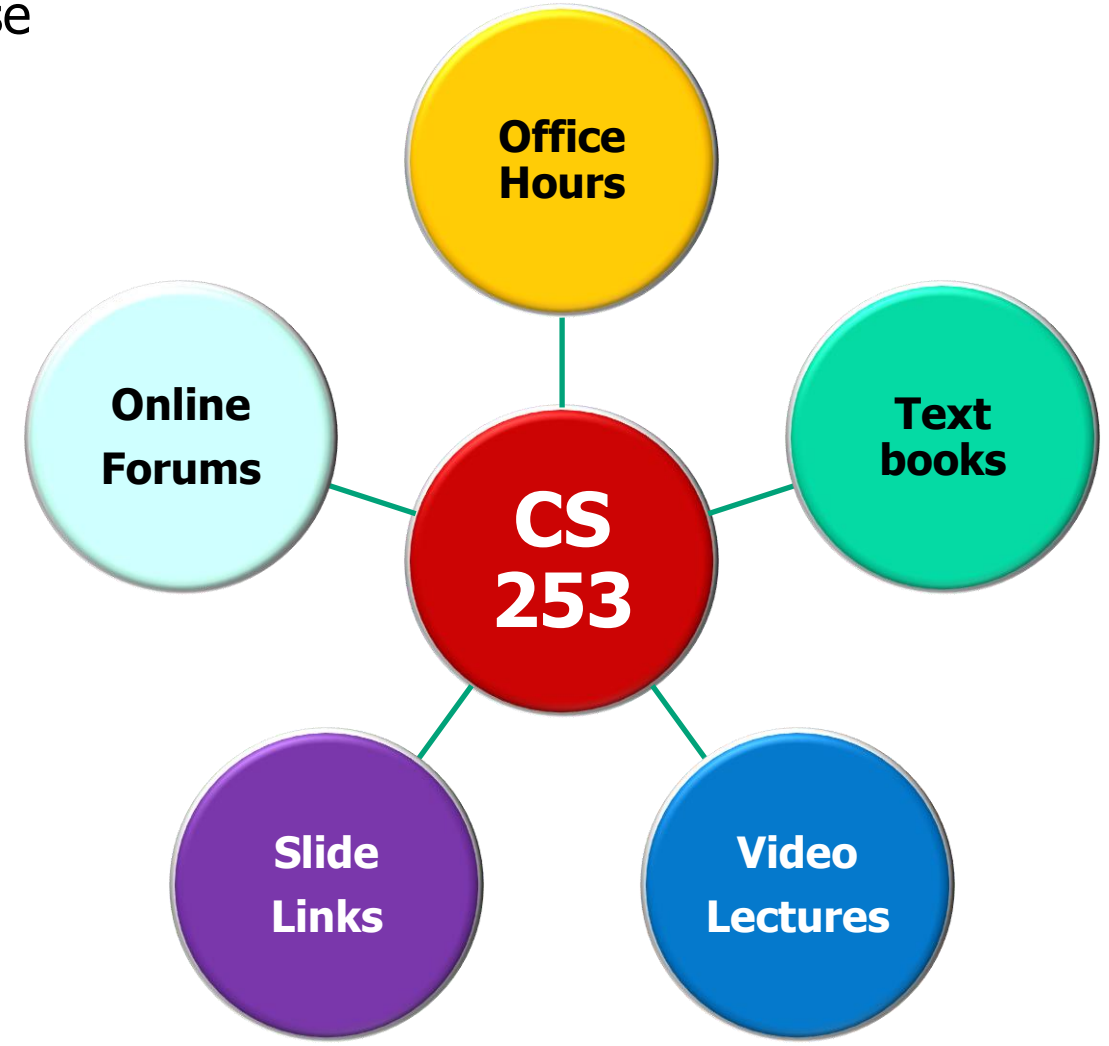
  - No laptops/phones in class unless explicitly allowed
- Avail yourself of available resources



See www.dre.vanderbilt.edu/~schmidt/cs253

Summary

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  - Be prepared to work hard
  - Do *not* miss deadlines…
  - Participate in discussions in class & on piazza
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  - Avail yourself of available resources

Please resist the urge to email me directly unless it's a confidential matter or you'd like to schedule a meeting!

Summary

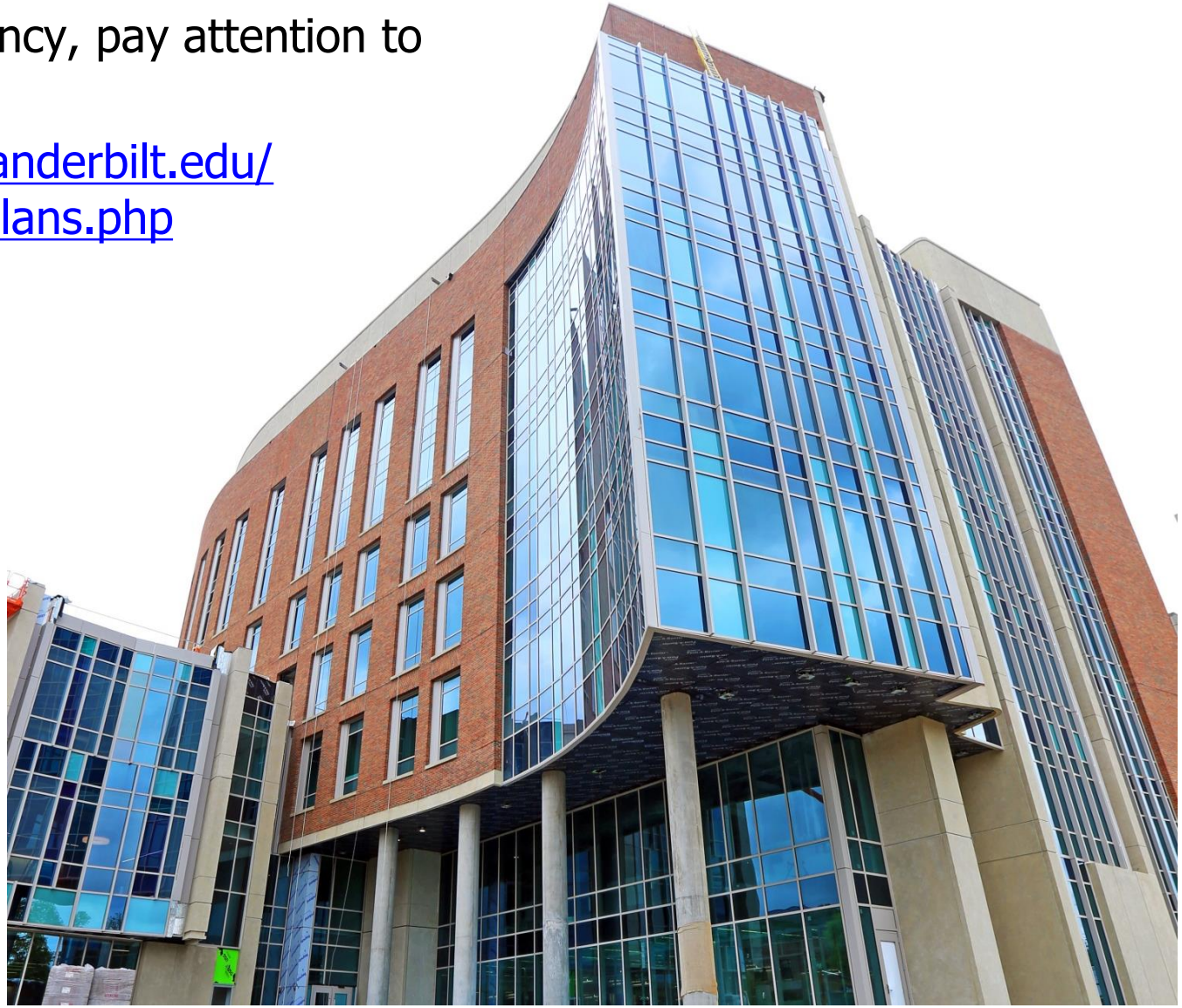
- There are abundant opportunities!

BROAD CATEGORY	2019 SALARY PROJECTION	2018 SALARY PROJECTION	PERCENT CHANGE
Engineering	$69,188	$66,521	4.0%
Computer Science	$67,539	$66,005	2.3%
Math & Sciences	$62,177	$61,867	0.5%
Business	$57,657	$56,720	1.7%
Social Sciences	$57,310	$56,689	1.1%
Humanities	$56,651	$56,688	-0.1%
Agriculture & Natural Resources	$55,750	$53,565	4.1%
Communications	$52,056	$51,448	1.2%

See www.naceweb.org/job-market/compensation/starting-salary-projections-for-top-earning-degrees-level

Summary

- If there's an emergency, pay attention to the escape route!
  - See engineering.vanderbilt.edu/about/evacuationplans.php



End of Part 2