Mobile App Development

Phát triển ứng dụng di động

4 Advanced Training Program

Mai Cường Thọ - Khoa Công nghệ thông tin – Trường Đại học Nha Trang

Tho C. Mai, FIT, NTU

Lecture 1

Introduction

Course: **Mobile App Development (SOT397)**

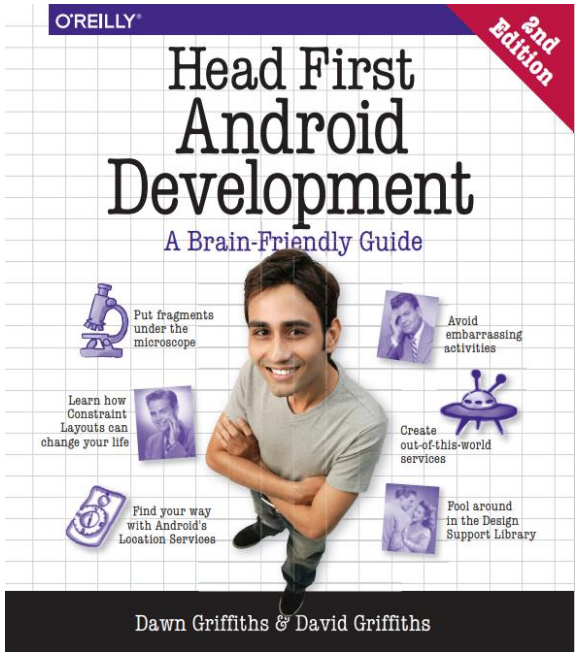
By: Tho C. Mai
Nha Trang University

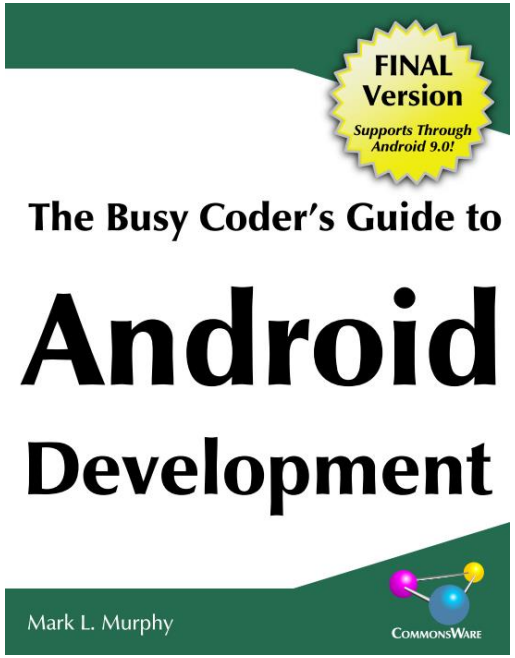
Introduction

- Instructors
  - Tho C. Mai
- Office Hours
  - MW 2-5pm
- Other contact infos
  - Email: thomc@ntu.edu.vn
  - FB Messenger : maicuongtho
  - Mobile: 0915311008
- Course Web site
  - Elearning NTU

Textbooks


Beginning
Android Programming with Android Studio
J. F. DiMarzio


O'REILLY
2nd Edition
Head First Android Development
A Brain-Friendly Guide
Put fragments under the microscope
Avoid embarrassing activities
Learn how Constraint Layouts can change your life
Create out-of-this-world services
Find your way with Android's Location Services
Pool around in the Design Support Library
Dawn Griffiths & David Griffiths


FINAL Version
Supports Through Android 9.0!
The Busy Coder's Guide to
Android Development
Mark L. Murphy
CommonsWare

Required Hardware & Software

- Hardware
  - PC or laptop (Mac, Windows, Linux)
  - Android Phone (optional)
- Software
  - Android Studio IDE

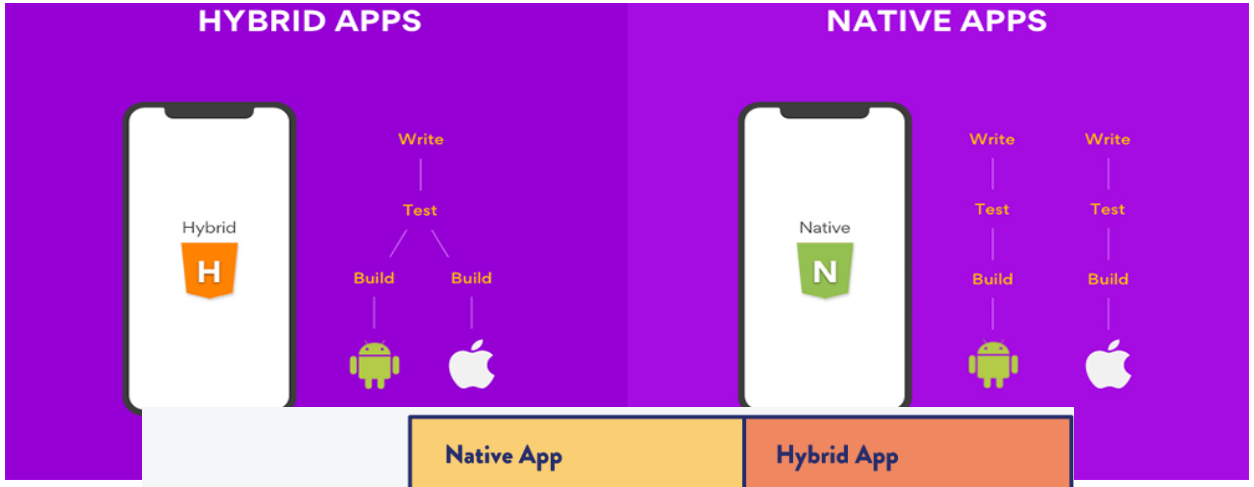
Assignments and Grading

- Assignments
  - Homework assignments (basic tasks, simple extension, challenge tasks)
  - Team project
    - Design and develop an interesting Android app
    - Project presentations and demonstration
    - Project report with source code
- Grading policy
  - Class participation: 30%
  - Mid term exams: 20%
  - Final exam: via team Project: 50%

What is Android?

- Based on Linux
- Originally developed by a startup company named “Android”
- 2005 Google purchased the startup
- Most of the Android code is open-source
- Android offers a unified approach to application development

Android vs ...



	Native App	Hybrid App
Languages	**Platform-specific:** Objective C or Swift for iOS, Java or Kotlin for Android	**General:** HTML, CSS, Javascript
Codebase	Distinct repositories for each platform	Single cross-platform codebase
Financial Investment	High	Low
Pace of Development	Slow	Fast
Performance	Fast	Medium

Native Android App Development Programming Languages

Logo	Name	Current Version	Developed Year	Famous Mobile Apps	Active Developers
Java	Java	JDK 16	1995	Minecraft Spotify	9 million
	Kotlin	1.5.31	2016	Evernote Coursera	4 million

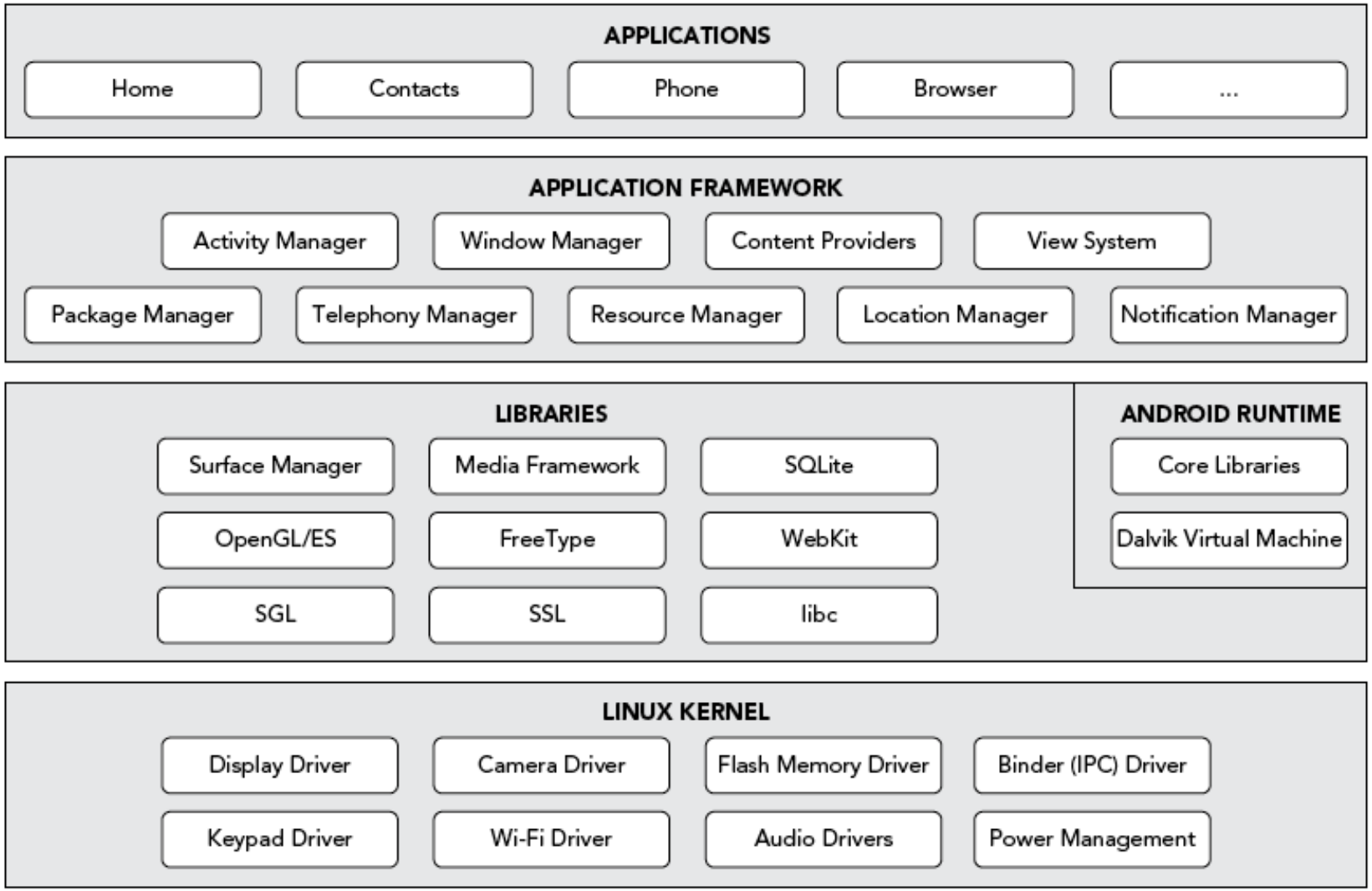
4 Best Hybrid Mobile App Development Frameworks

Logo	Name	Core Language	Famous Mobile Apps	Used by Developers (Statista)
Xamarin	Xamarin	C#	Olo Azure app FreshDirect	11%
Flutter	Flutter	Dart	Groupon CapitalOne eBay	42%
	React Native	JavaScript	Instagram Coinbase NerdWallet	42%
IONIC	Ionic	JavaScript	CNBC Sworkit InstantPot	16%

Android Versions

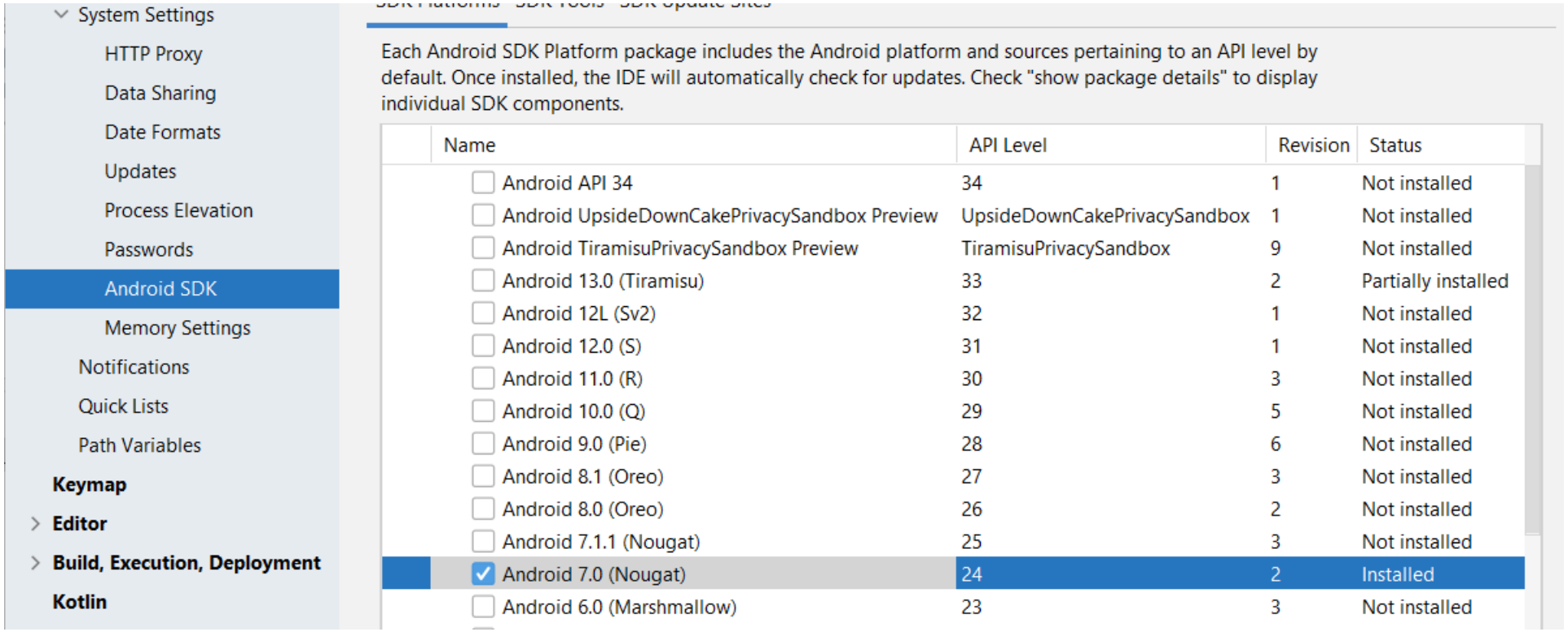
- 1.1: Feb 9, 2009; 1.5: April 30, 2009, Cupcake
- 1.6: Sep 15, 2009, Donut; 2.0/2.1: Oct 26, 2009, Eclair
- 2.2: May 20, 2010, Froyo; 2.3: Dec 6, 2010, Gingerbread
- 3.0/3.1/3.2: Feb 22, 2011, Honeycomb
- 4.0: Oct 8, 2011, Ice Cream Sandwich
- 4.1: July 9, 2012, Jelly Bean
- 4.4: Oct 31, 2013, KitKat
- 5.0: Nov 12, 2014, Lollipop
- 6.0: Oct 5, 2015, Marshmallow
- 7.0: Aug 22, 2016, Nougat
- 8.0: Aug 21, 2017, Oreo
- 9.0: Aug 6, 2018, Pie
- 10: September 3, 2019, Quince Tart
- 11: September 8, 2020, Red Velvet Cake
- 12: October 4, 2021, Snow Cone
- 13 : August 15, 2022, Tiramisu
- 14 : Q3 2023, Upside Down Cake
- 15 :

Android Architecture



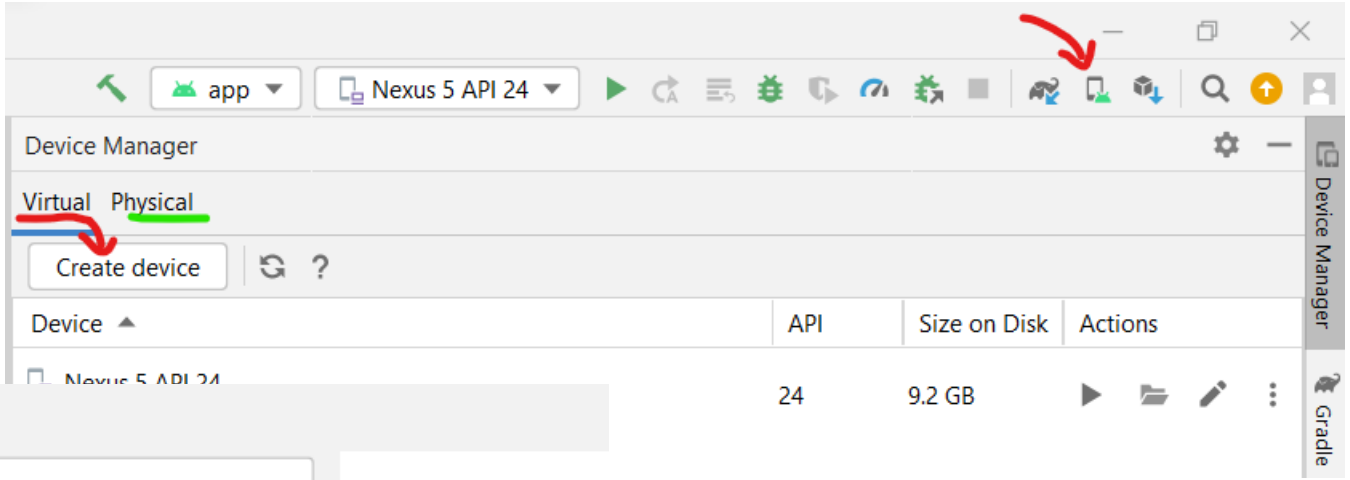
Android Development Tools

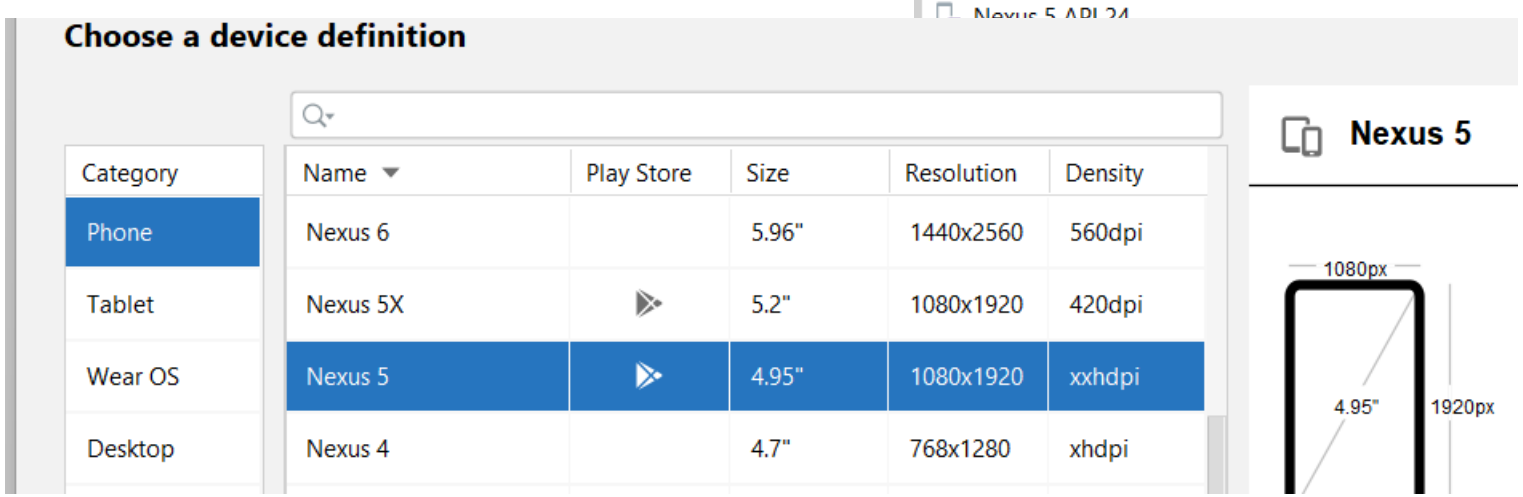
- Android Studio: http://developer.android.com/sdk/index.html
  - Android SDK (Software Development Kit)



Creating Android Virtual Devices

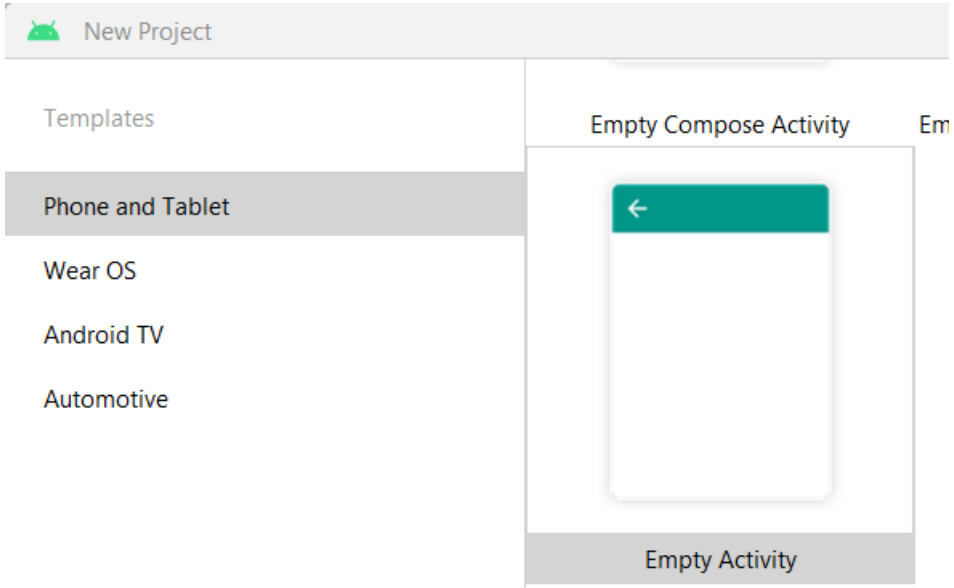
- Android Studio offers an emulator for testing of Android apps

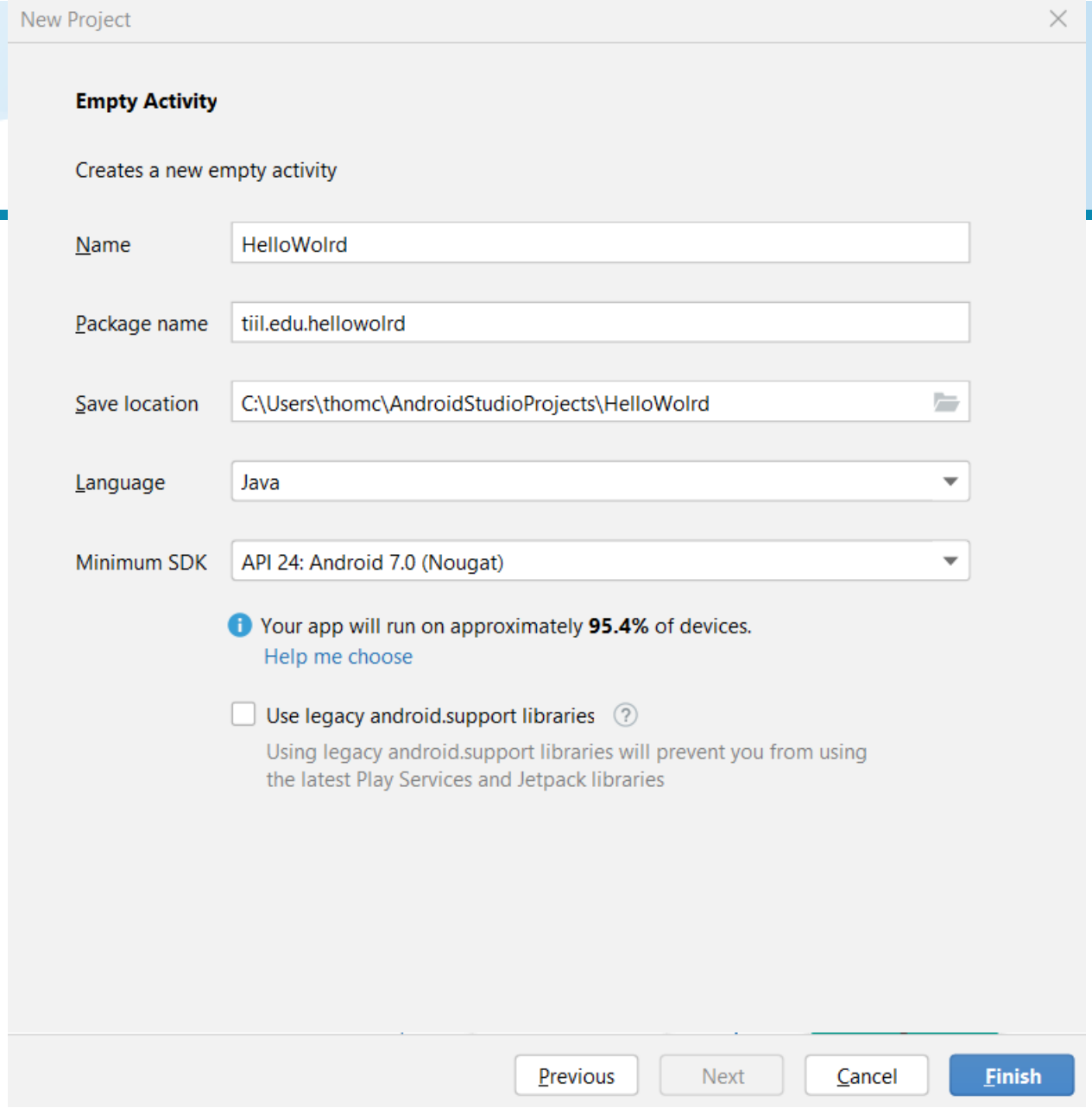




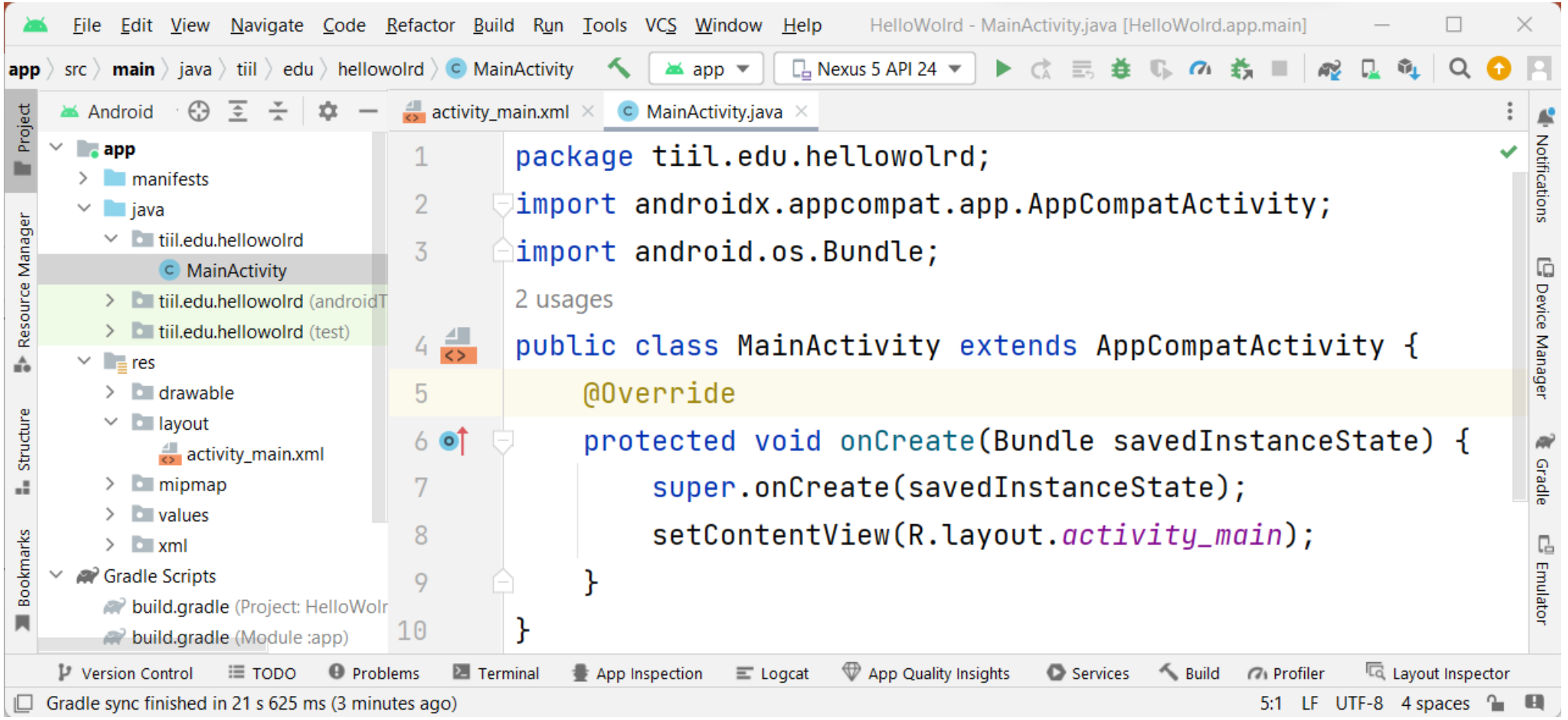
Creating your first Android App

- File -> New->New Project
- Name the app: HelloWorld
- Then select default option for all remaining steps

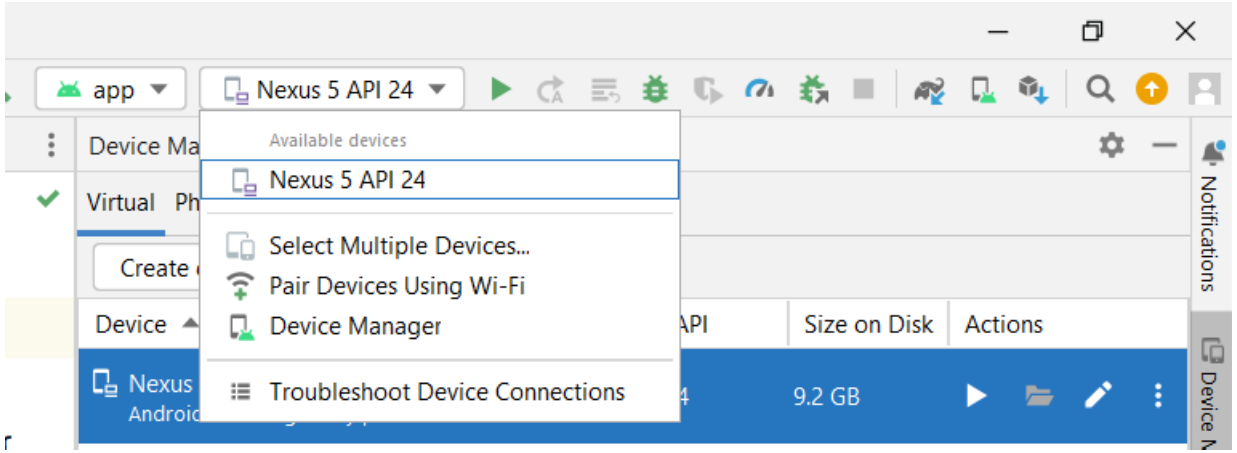


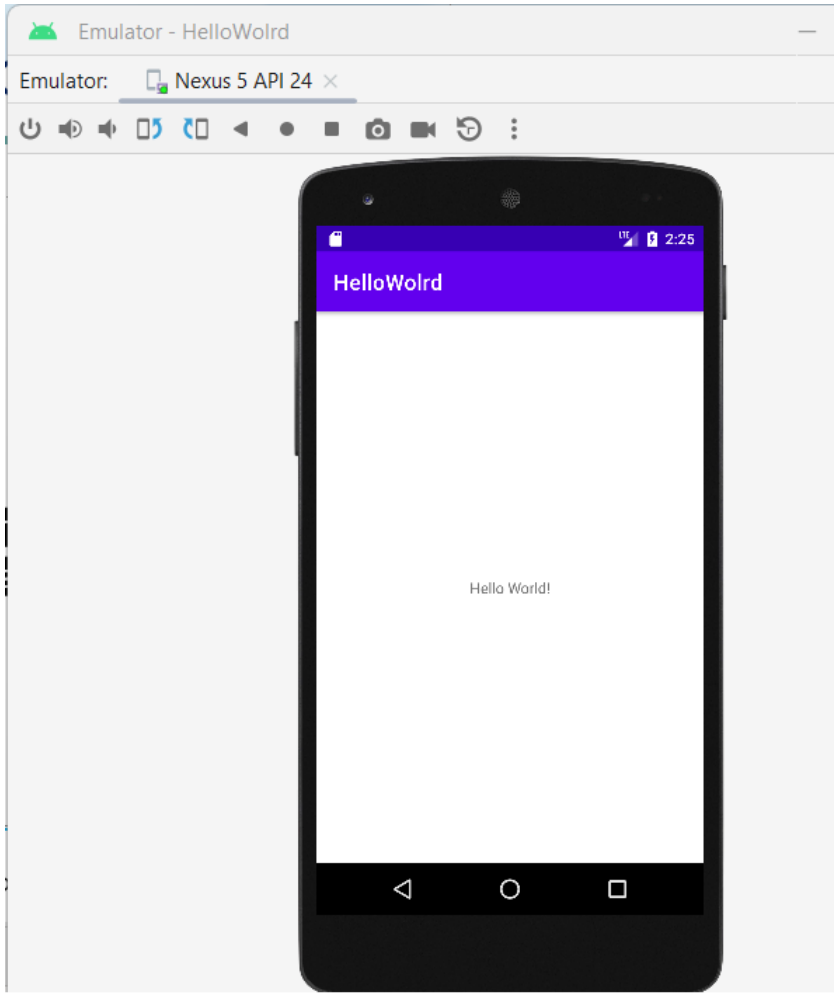


Creating your first Android App



Launching your first Android App





Your turn

I fear not the man who has practiced 10,000 kicks once,
but I fear the man who has practiced one kick 10,000 times.
Bruce Lee

- The first thing you HAVE TO DO
  - Create your Github repository to store and manage your code, as well as track and control changes.
    - Create your local repository as a workspace to store your projects
- Practice 1/ Excercie 1
  1) Repeat the example by yourself
  2) Push it to your github repository
     - ✓ With a report with screenshots of the final app in action, data structures used/class design, and the implementation logic.