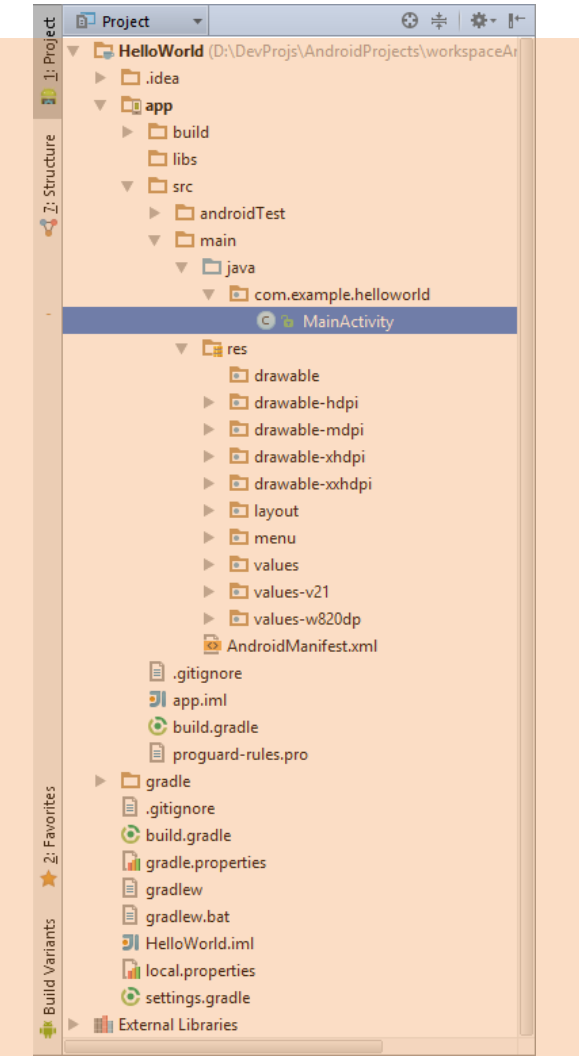
Android Application Development

Dive into the Project

Project Structure

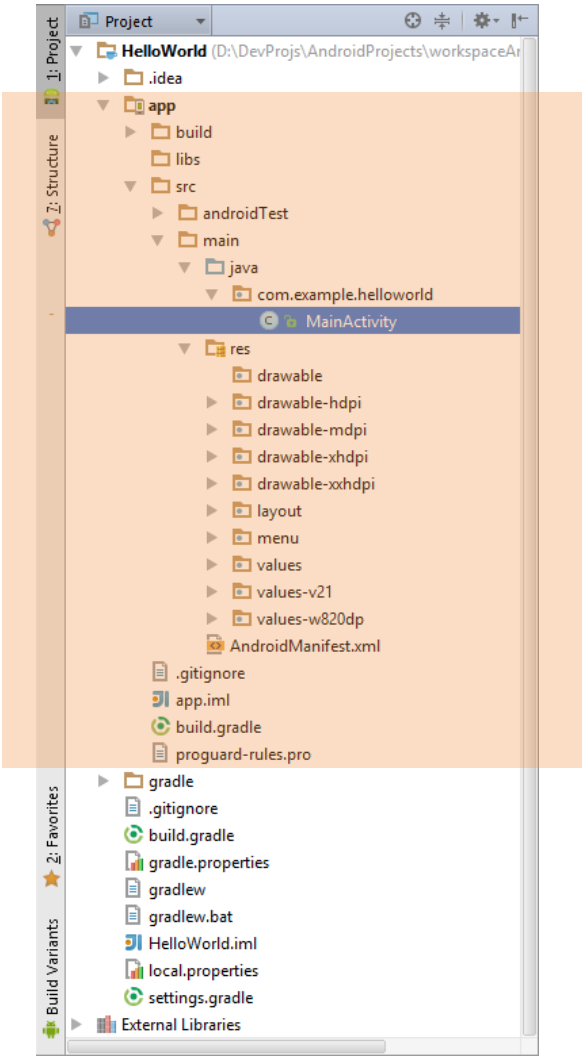


Tips: Forget everything about Eclipse !

Project

You can have only 1 project opened

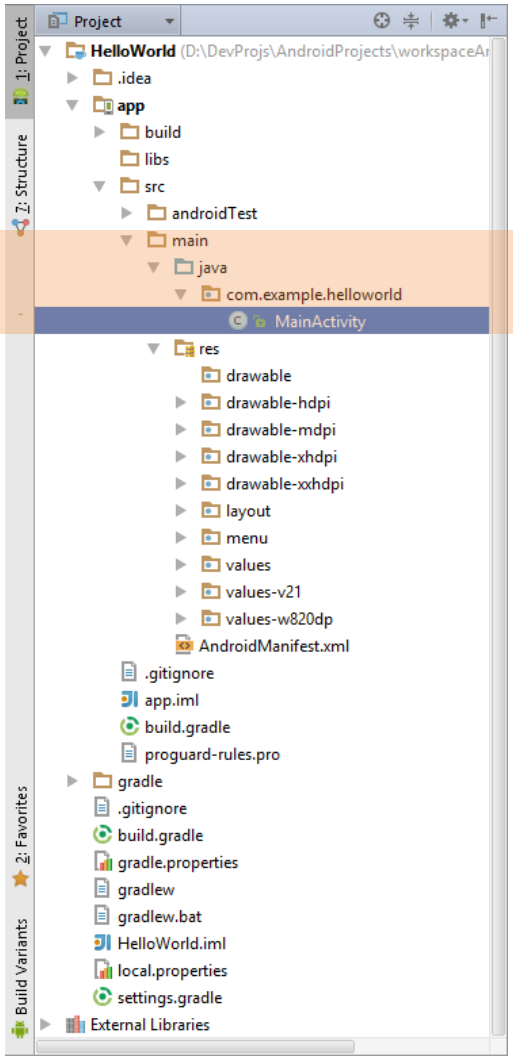
Project Structure



Module

You can have multiple modules inside a project

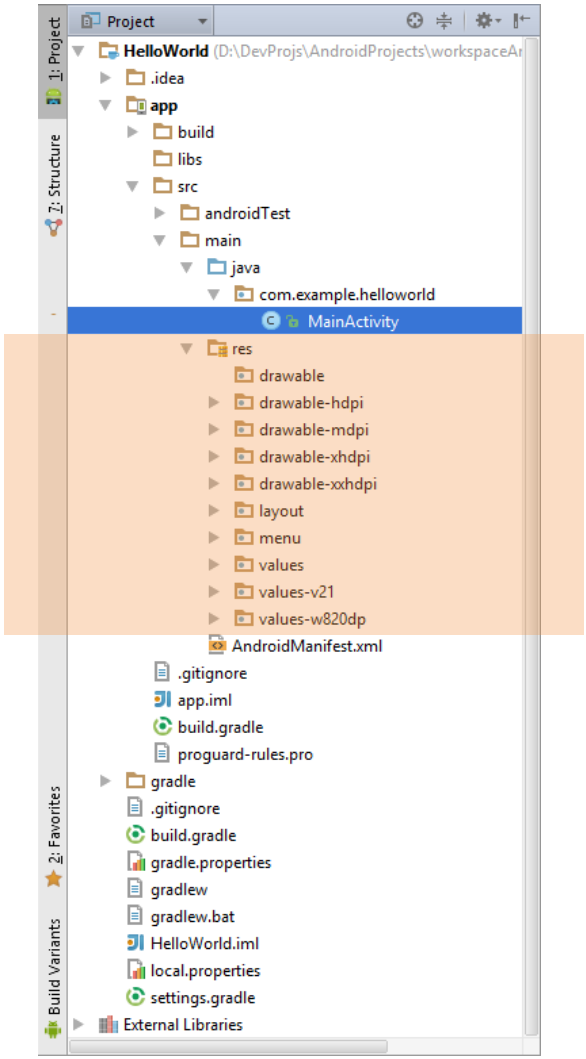
Project Structure



Java Source Code

All .java source codes are placed here

Project Structure

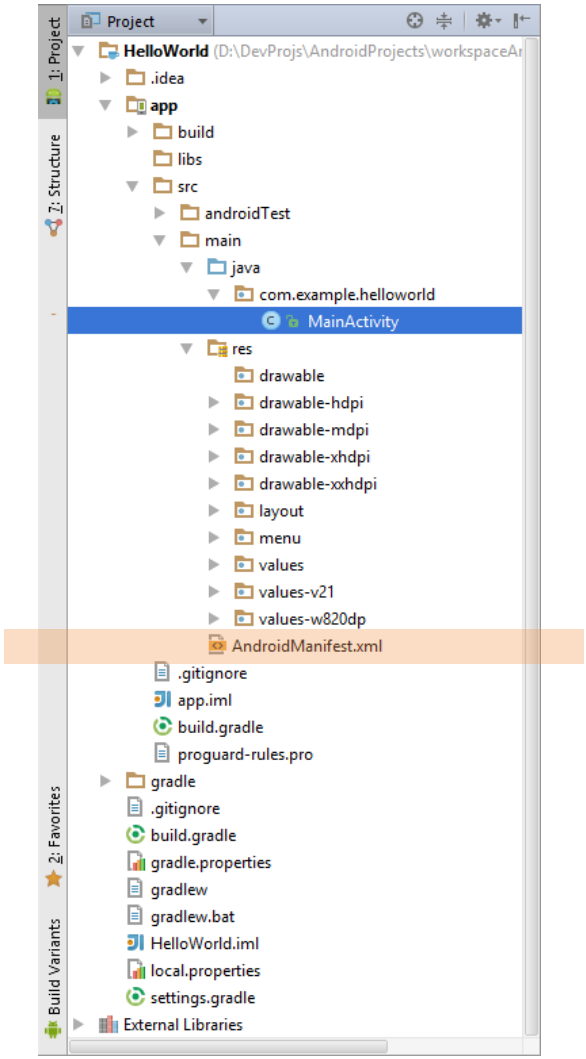


Resources

- **Layout**
- **Images**
- **etc.**

layout (xml), images (jpg, png), etc. are placed here

Project Structure



Manifest of the "Module"

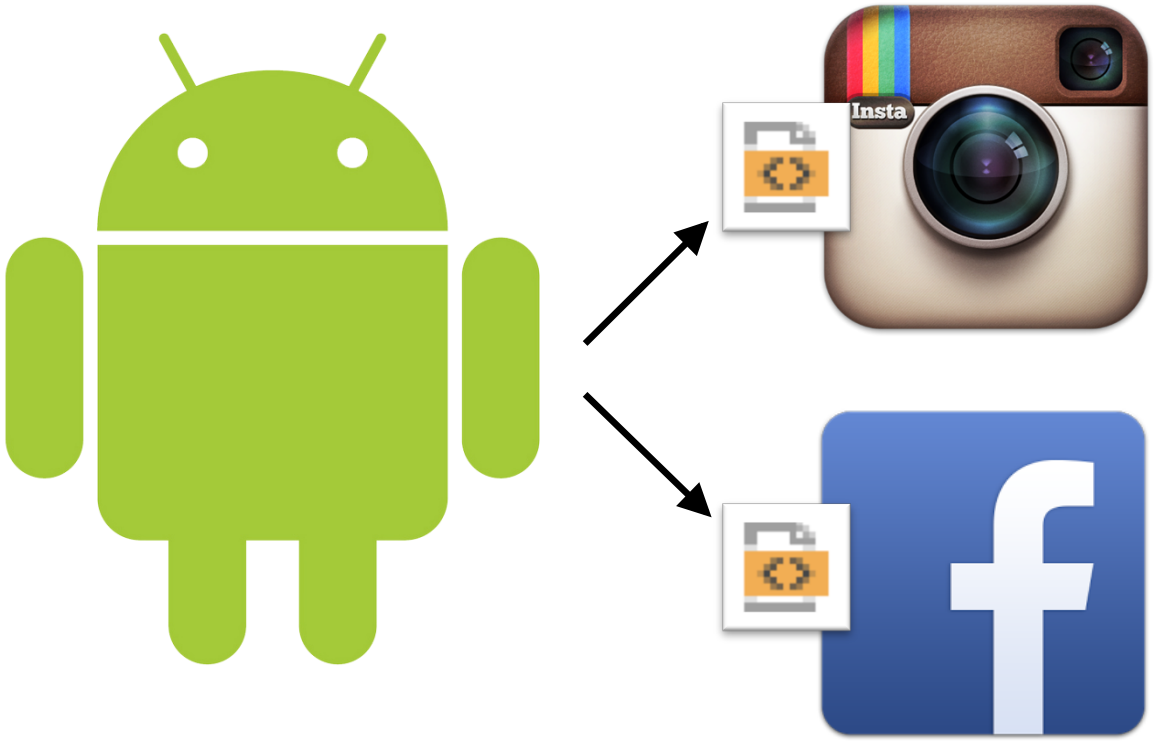
A **skeleton** of the Module

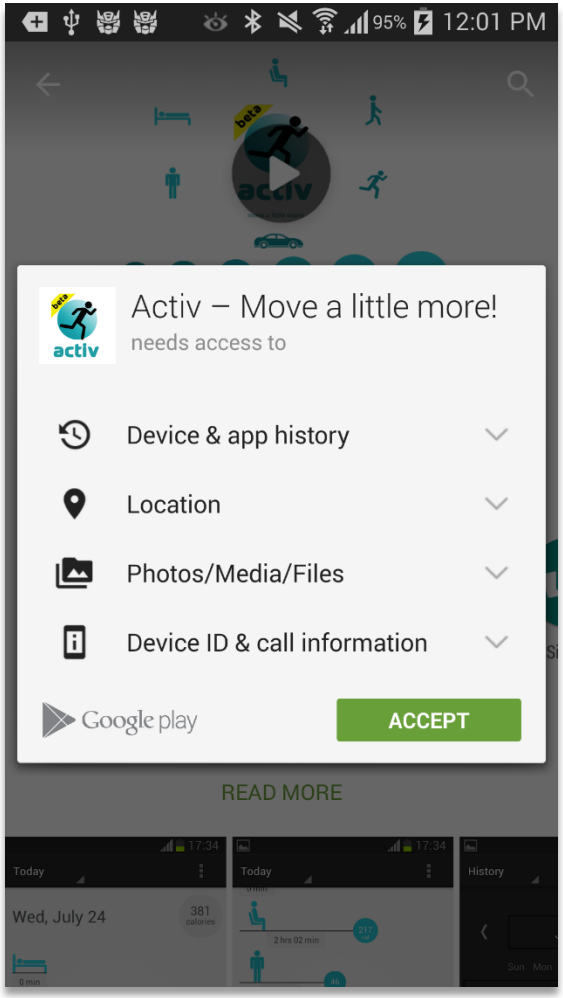
Define everything about this module for example, Package Name, Activity Class' name, etc.

AndroidManifest.xml

- A “Skeleton” of the module/app
- Role: Tell the system “What this module/app can do”
  - List of Activities
  - List of Service
  - List of Used Permission
- Very important to understand the role and every single line in this file
- Good news: You will learn those things by example one by one in this class

AndroidManifest.xml

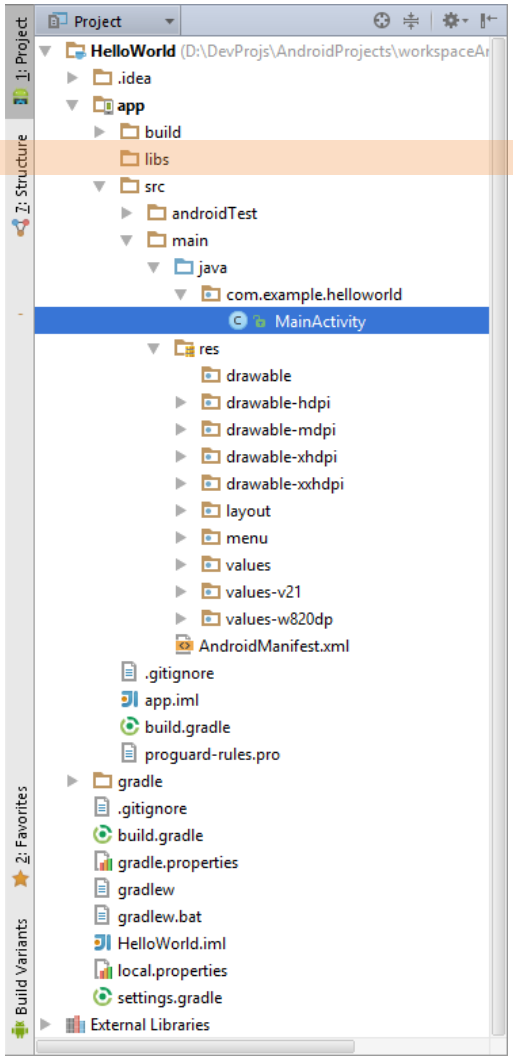




AndroidManifest.xml

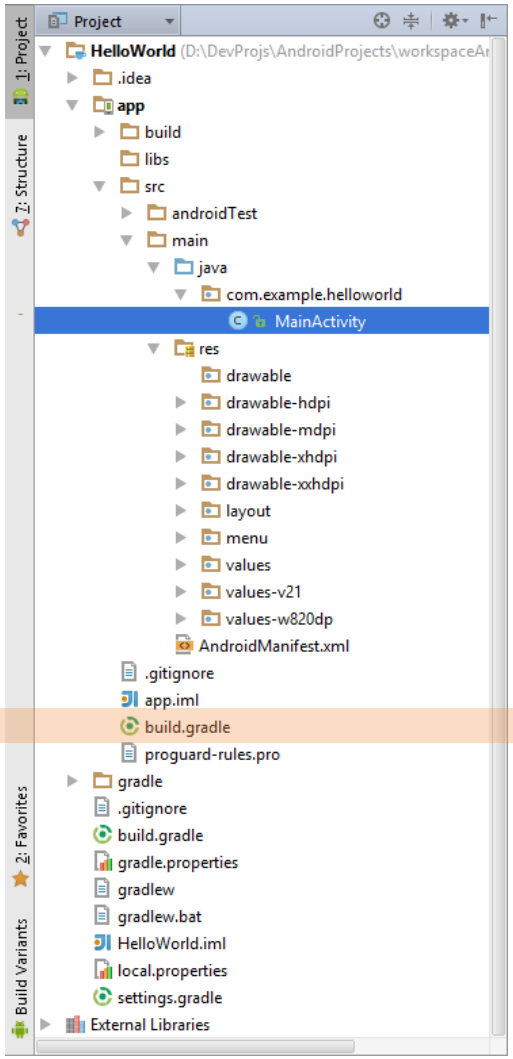
```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.helloworld" >

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.helloworld.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Project Structure



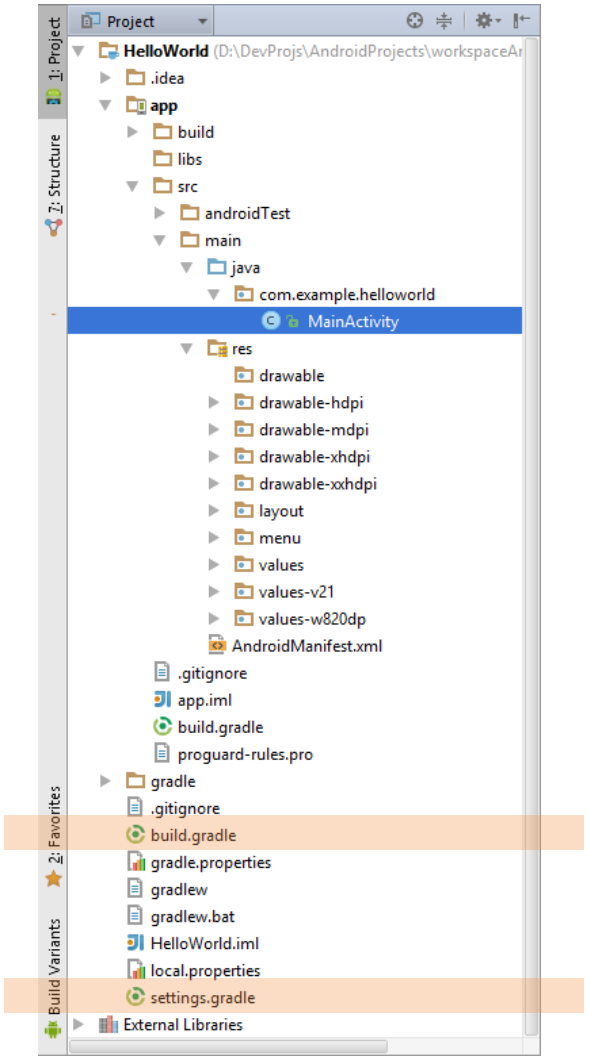
Placed Java library (.jar) here (if existed)

Project Structure



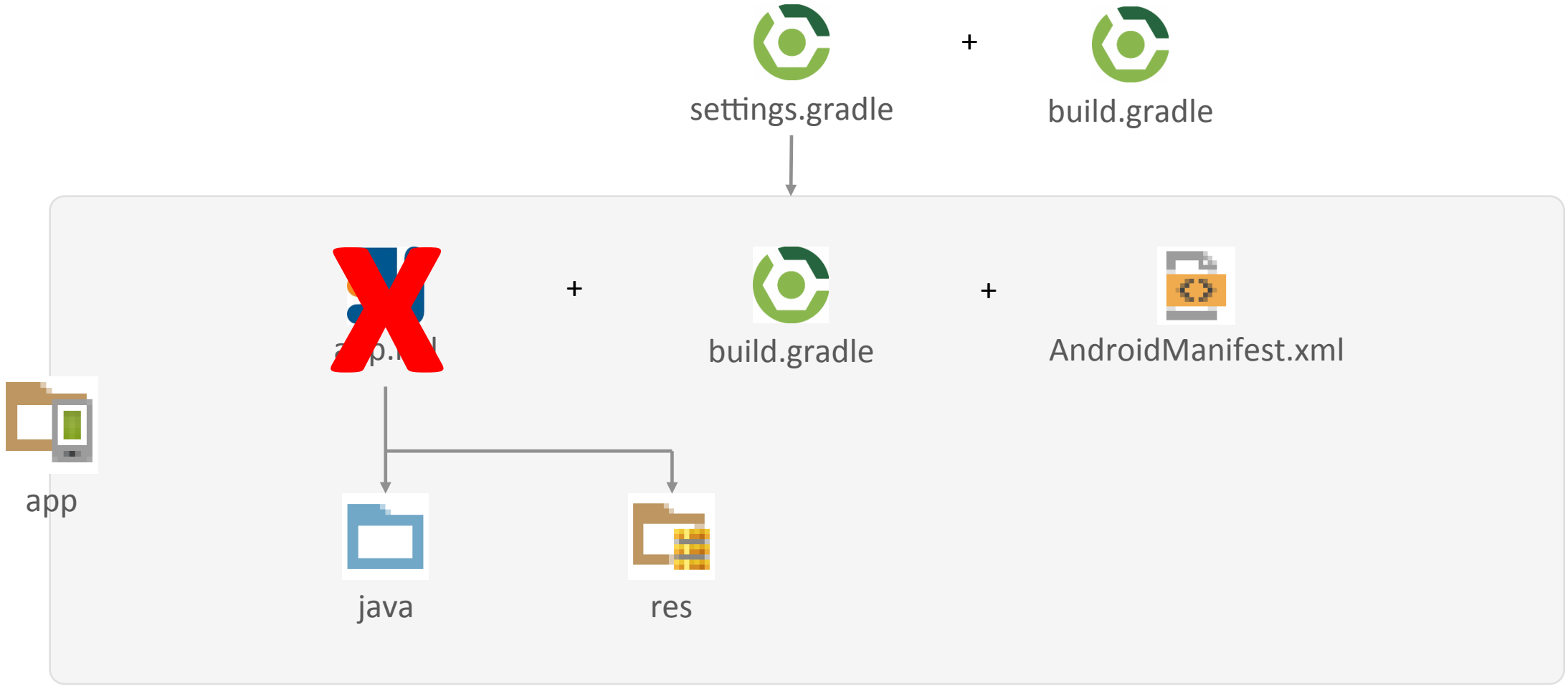
Gradle Script associated to the “Module”

Project Structure



Gradle Script associated to the “Project”

Project Hierarchy



Next Generation Plugin

		1.0 / 2.2.1	1.2 / 2.2.1	1.3 / 2.4	Next Gen
10proj x 25var	help	5.8	7.4	3.3	0.9
10proj x 25var	assemble 1 variant	5.8	7.4	3.3	1.1
10proj x 25var	assemble	8.3	10.2	5.0	2.4
400 variants	help	33.0	52.0	4.0	2.4
400 variants	assemble 1 variant	33.3	52.8	4.1	2.5
400 variants	assemble	36.0	54.0	5.9	5.1

Times in seconds

All assemble runs with --dry-run

Hola Gradle

Q: What is Gradle?

A: A build automation tools

Q: What are those .gradle files?

A: Build scripts

Q: What can those build scripts do, any example?

A: Copy files before build

Q: Do we have to know about it?

A: Definitely !

Q: Do we have to learn completely everything about it?

A: No, just some part that you use.

Hola Gradle Script

Q: What do we do with those .gradle files practically in Android App Development?

A:

`settings.gradle`

Add more Module(s) to build in the Project

`build.gradle`

Add library through dependencies

Define version code, version name

Define SDK version

etc.

(You will have to play around with this quite a lot)

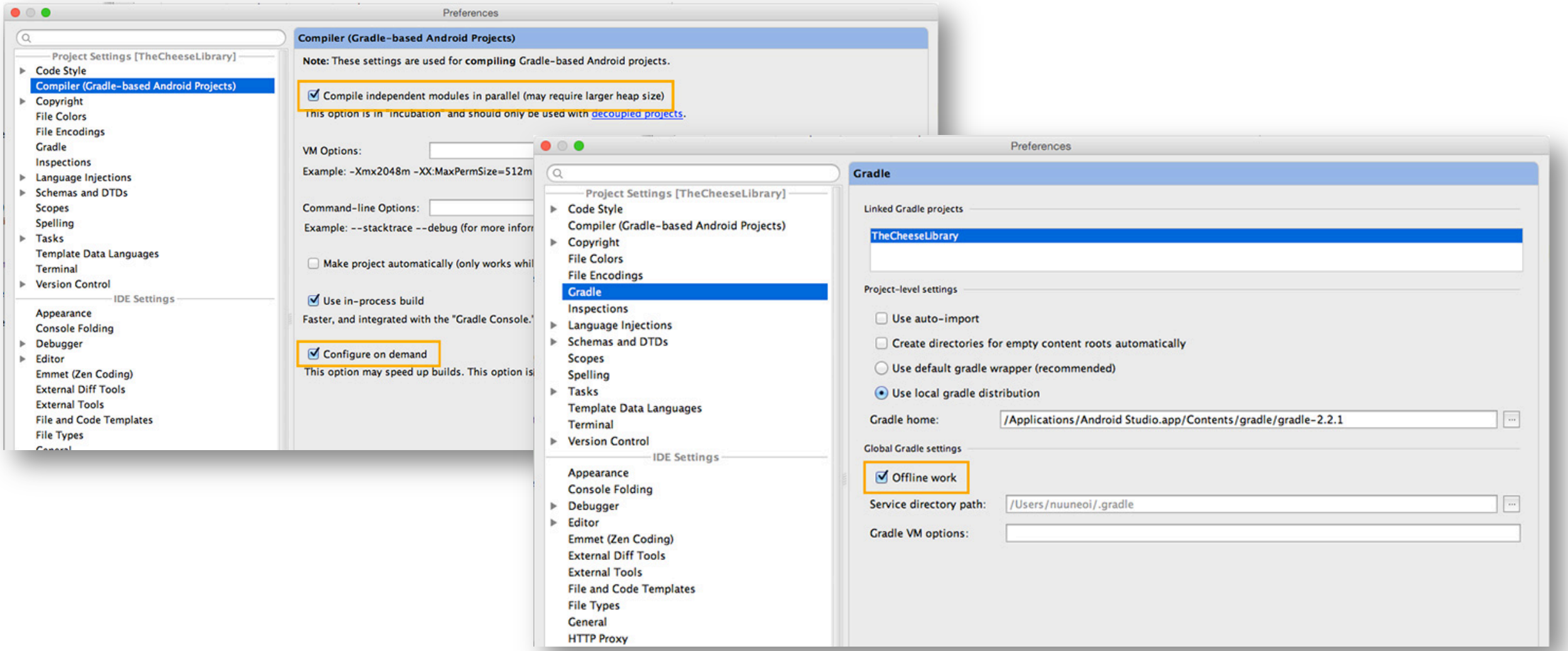
Speed up build time

- Open `gradle.properties`
  - Global: ~/.gradle/
  - Local: Project's root
- Add line

```
org.gradle.daemon=true
```

- Restart Android Studio

Speed up build time

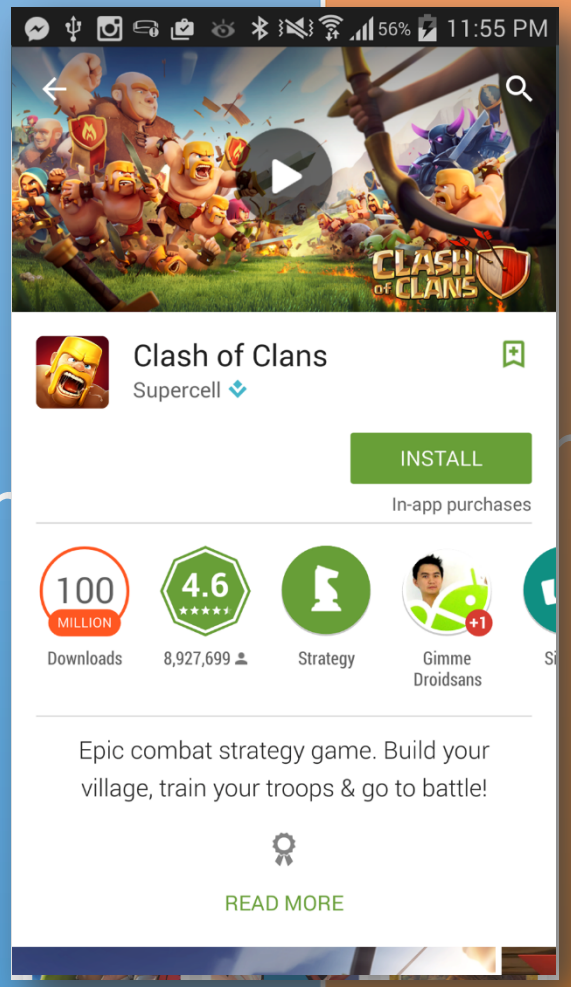


Android Application Development

Android Basic UI Foundation

What is an Android App Development?

UI Implemen



nput/Event Handling

Thread Management

3 things you need to know what it is now

Activity

View

ViewGroup

3 things you need to know what it is now

Activity

Activity class takes care of creating a window for you in which you can place your UI

3 things you need to know what it is now

View

This class represents the basic building block for user interface components

3 things you need to know what it is now

ViewGroup

A ViewGroup is a special **view** that can contain other views (called children.)