Developing Android with Gradle and Groovy

@GROOVYPGH

def **me** =

```
[
        name : 'Billy Conner',
        title: 'Software Engineer',
        affiliation: 'Organizer, Pittsburgh Groovy Programming Meetup',
        email : 'billyconnerjr@groovypgh.org',
        twitter : '@billyconnerjr'
]
print me.values().each{ println it }
```

- Gradle is the recommended build tool for Android Applications
- Android applications are typically a multi-project Gradle build
- Gradle scripts use a DSL based on Groovy

Highly configurable

- Specify different build type configurations
  i.e. debug, testing, production

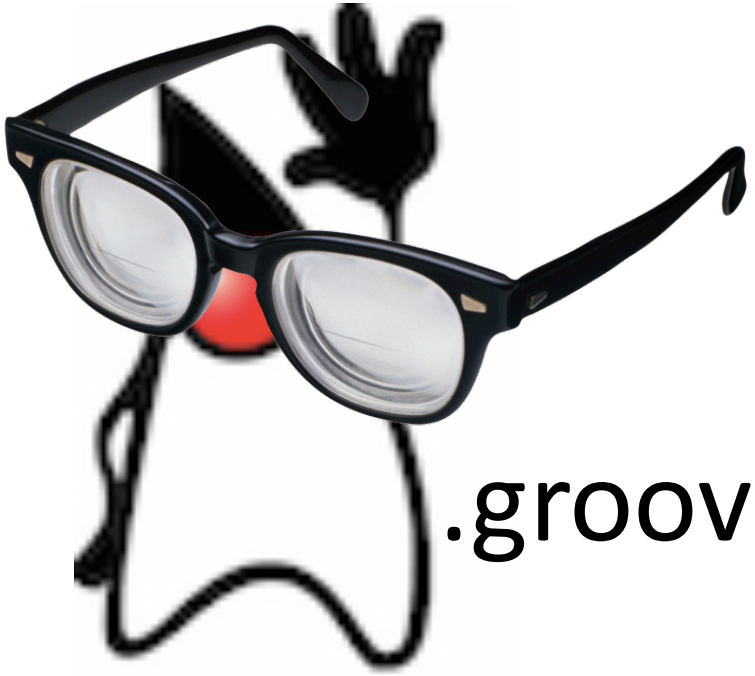
- Configure multiple versions to use different code and resources while reusing shared content
  i.e. Demo version, Paid version, Premium version, etc.

What is Groovy?

Sits on top of the Java platform

‘Java plus more’

Compiles to Java bytecode



Groovy can run Java classes!

Groovy can run all Java libraries!

Groovy in Gradle

- **Optional parenthesis** (if the method contains at least one argument)

```
apply plugin: 'java'

apply ([plugin: 'java'])


apply plugin: 'com.android.application'

apply ([ plugin: 'com.android.application'])
```

```
class Gradle{
   String plugin

   def apply(Map a){
       plugin = a.plugin
    }
}

Gradle project = new Gradle()
project.apply plugin: 'java'

assert project.plugin == 'java'
```

Traditional Android Development

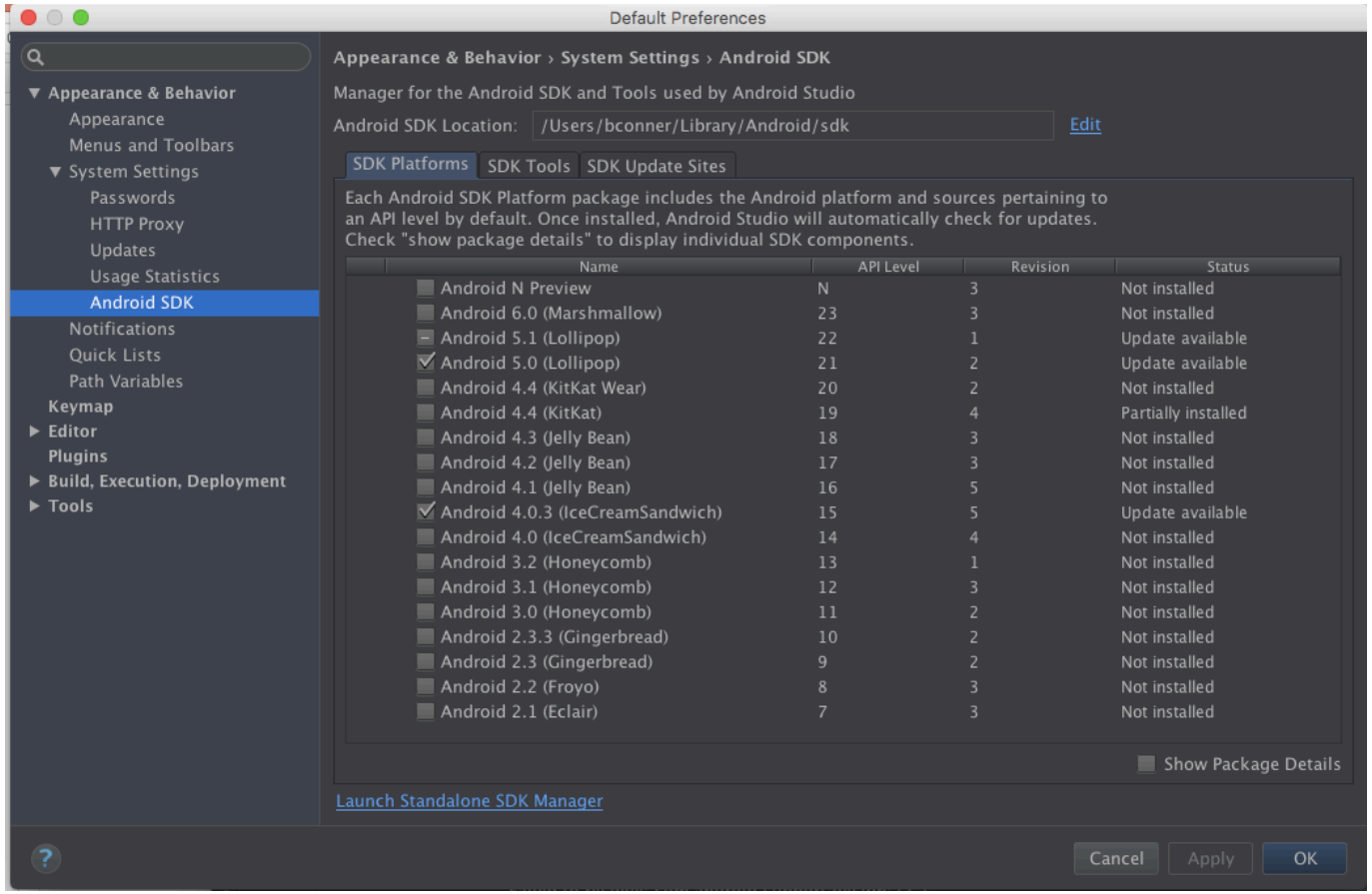
Requirements:

- Java Development Kit (JDK)
- Android Studio (Comes with the SDK)
  https://developer.android.com/studio
- Android platform
  - Physical Android device
  - Virtual emulator (i.e. Android Virtual Device, Genymotion)

Recommend Genymotion www.genymotion.com

Getting Older Android SDKs

Tools → Android → SDK Manager



SDK Command Line Tools

- Android Debug Bridge
- sqlite3
- Android Device Monitor
- Android Emulator
  (must create an emulator first)
- much more

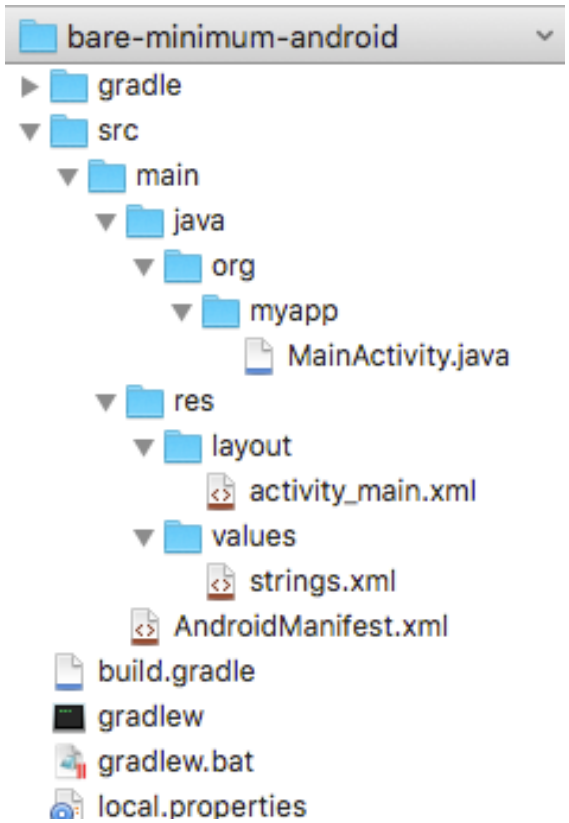
More info:

https://developer.android.com/studio/command-line/index.html

Demo Bare Minimum

Bare Minimum Development

- build.gradle
- Activity.java
- activity.xml
- strings.xml
- AndroidManifest.xml



Code is available at:

https://github.com/billyconnerjr/bare-minimum-android

Getting Groovy with Android

You will need the groovy-android-gradle-plugin

https://github.com/groovy/groovy-android-gradle-plugin

Less code more production

- Implicit getters and getters
- Default Constructors
- No need for semi colons
- Optional return keyword (returns last statement)
- Avoid using subclasses that extend AsyncTask

Groovy on Android

Why would you?

- Less verbose code
- Code readable
- Dynamic code

Issues:

- Android bytecode is different
- Dynamic code (classes at runtime)
- Proguard

Java

```
public class Person {
   private String name;
   private int age;
   public Person(String name, int age){
      setName(name);
      setAge(age);
   }
   public String getName(){
      return name;
   }
   public int getAge(){
      return age;
   }
   public void setName(String name){
      this.name = name;
   }
   public void setAge(int age){
      this.age = age;
   }
}
```

Groovy

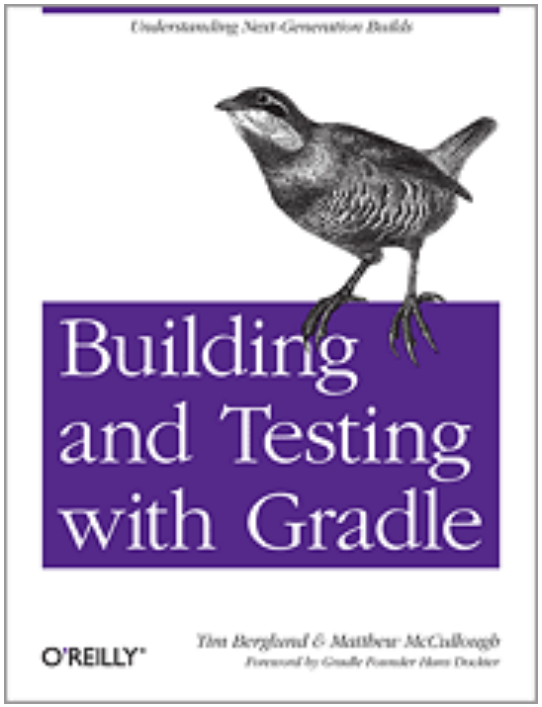
```
class Person {
   String name
   int age
}
```

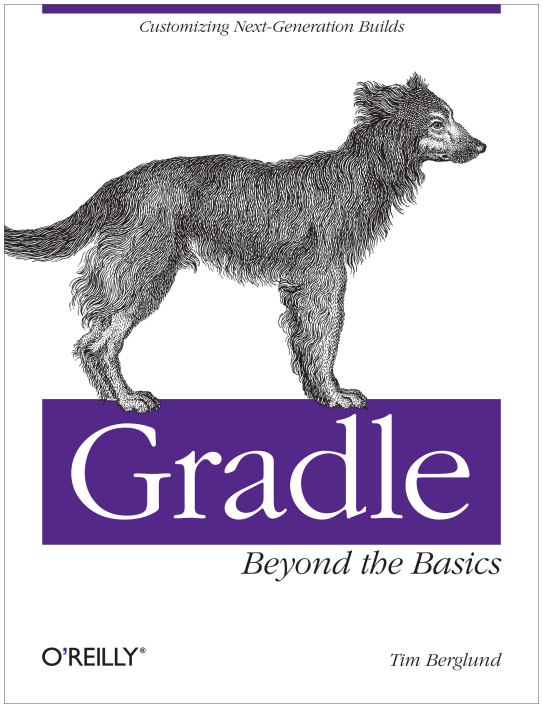
Avoid Subclasses that extend AsyncTask

```
Fluent.async{
        new URL(url).text
} then {
        textView.setText(it)
}
```

Further Reading

http://gradle.org/books/





Resources

Gradle

https://docs.gradle.org/current/userguide/userguide.html

Groovy on Android

https://github.com/groovy/groovy-android-gradle-plugin

GroovyPGH

Pittsburgh Groovy Programming Meetup

http://www.meetup.com/Pittsburgh-Groovy-Programming/

Thank you!