Kotlin In Android

Upon completion of this module, a student will be able to

- convert Java code to Kotlin

- add Kotlin file to existing project

- create a new app using Kotlin

- use Interface callbacks with Kotlin

- add the KotlinX Serialization library to an Android project

- set up a class for Kotlin serialization

- encode and decode JSON

Assignment

- Task

  - Build an App with a RecyclerView using Kotlin

- Repo

  - https://github.com/LambdaSchool/Android_Kotlin_RecyclerView

- Submission
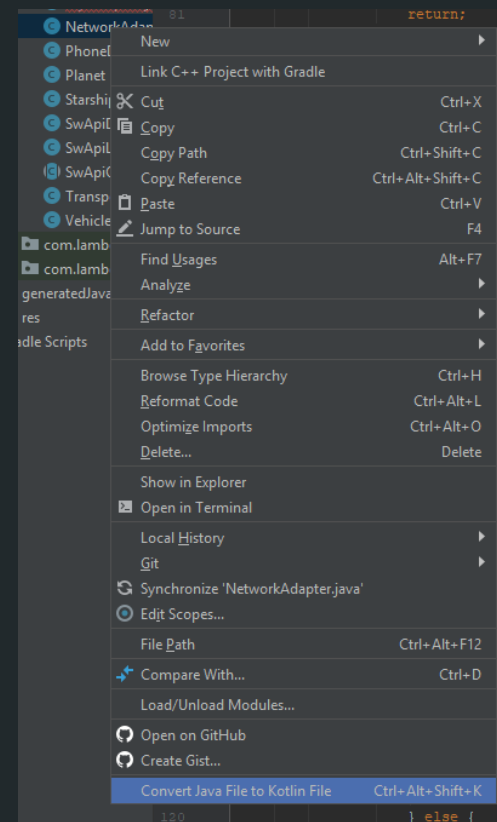
  - Fork on github and submit pull request

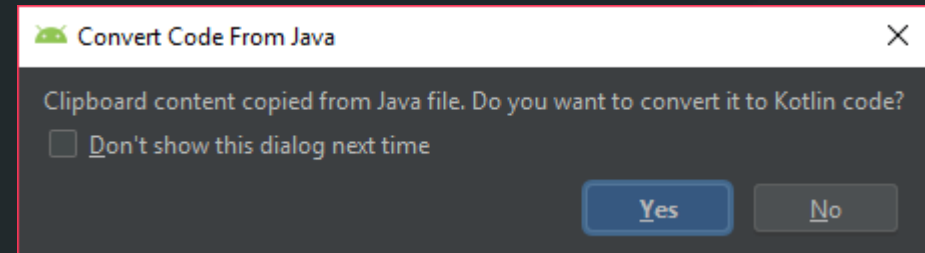# A Student Can

convert Java code to Kotlin

Convert Java File

- Convert in place

- May need to refactor other code

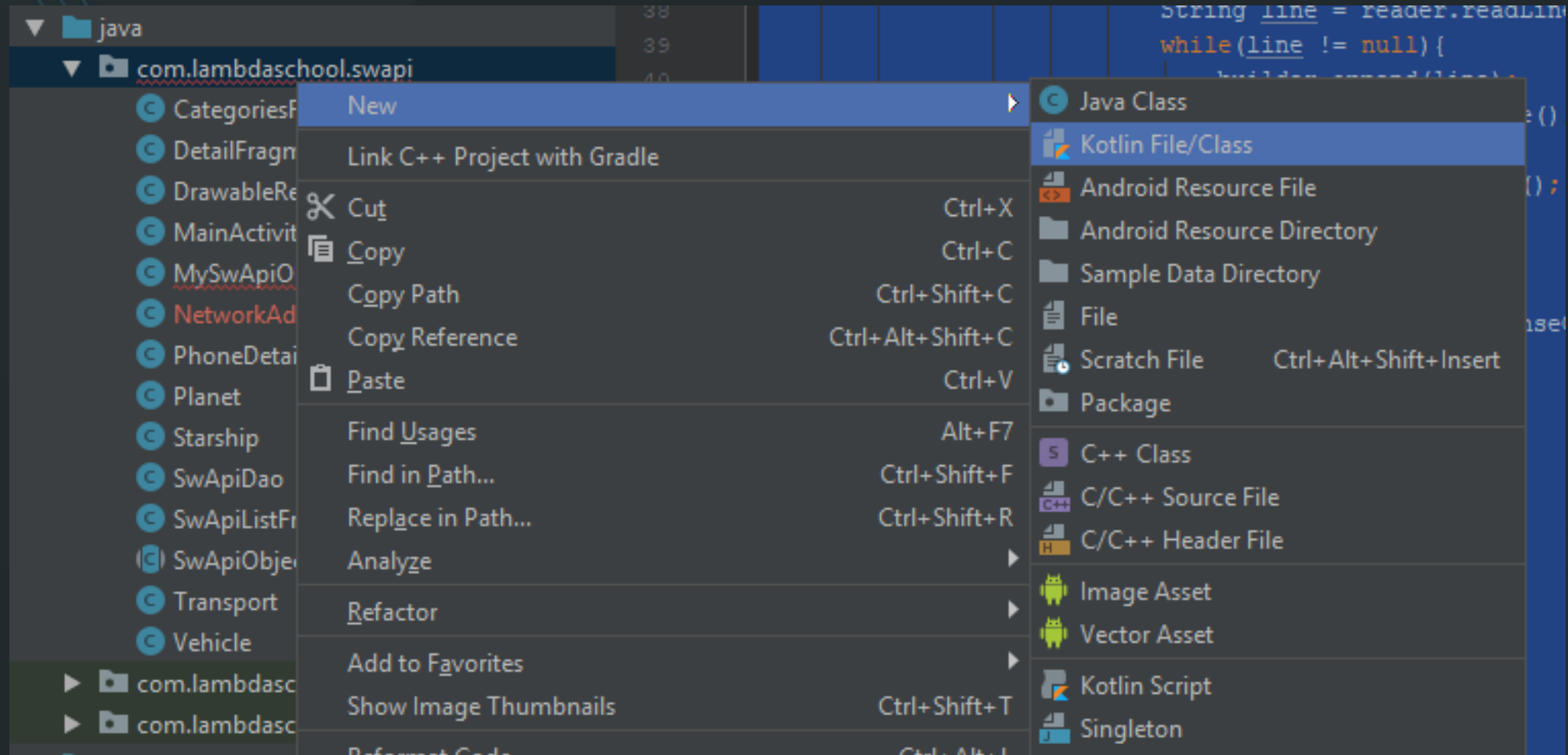# Convert Java Code

- Paste Java code into Kotlin file

Convert Code From Java

Clipboard content copied from Java file. Do you want to convert it to Kotlin code?

☐ Don't show this dialog next time

[Yes] [No]

A Student Can

add a Kotlin file to existing project
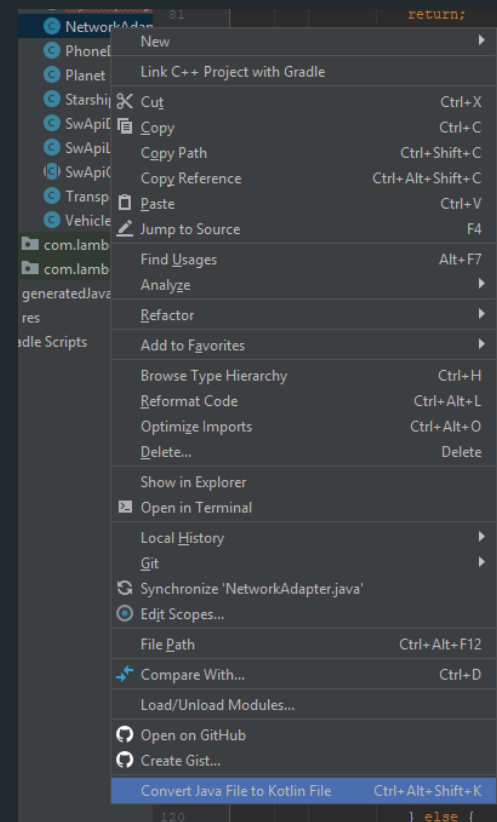
Create Kotlin File

A Student Can

convert Java code to Kotlin

Convert Java File

- Convert in place
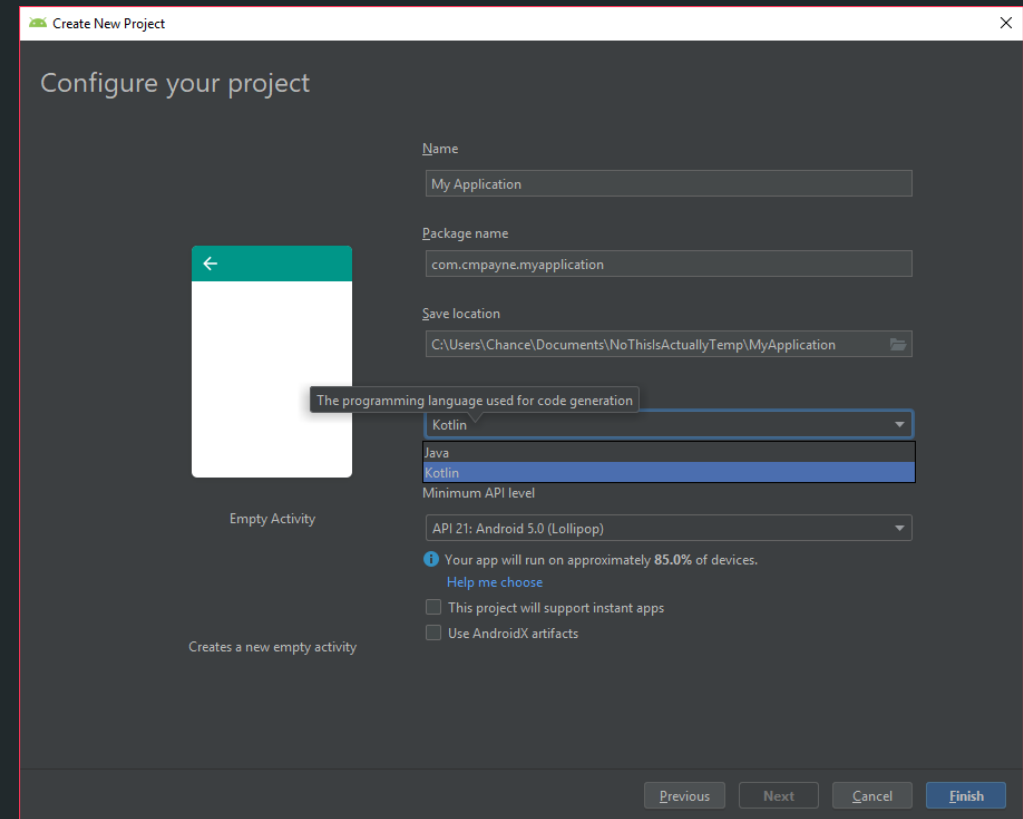
- May need to refactor other code

A Student Can

create a new app using Kotlin

Create a Kotlin App

- Select Kotlin Language

A Student Can

use Interface callbacks with Kotlin

Interface Callbacks

- object: implementation

- lambda

```kotlin
button.setOnClickListener(object: View.OnClickListener {
    override fun onClick(v: View?) {
        TODO("not implemented")
    }
})

button.setOnClickListener { TODO("not implemented") }
```

A Student Can

add the KotlinX Serialization library to an Android project

Installation

- Add imports to gradle file

- (it's kind of a mess)

```
buildscript {
    ext.kotlin_version = '1.3.20'
    repositories { jcenter() }

    dependencies {
        classpath "org.jetbrains.kotlin:kotlin-gradle-plugin:$kotlin_version"
        classpath "org.jetbrains.kotlin:kotlin-serialization:$kotlin_version"
    }
}

apply plugin: 'kotlinx-serialization'

        repositories {
            jcenter()
            // artifacts are published to this repository
            maven { url "https://kotlin.bintray.com/kotlinx" }
        }

dependencies {
    implementation "org.jetbrains.kotlin:kotlin-stdlib:$kotlin_version"
    implementation "org.jetbrains.kotlinx:kotlinx-serialization-runtime:0.10.0"
}
```

https://github.com/Kotlin/kotlinx.serialization#setup

A Student Can

set up a class for Kotlin serialization

Class Setup

- Nullable Values

- Correct Types

- Correct Names

```
import kotlinx.serialization.*

@Serializable
data class CharacterList(
    @Optional val error: String? = "",
    @Optional val limit: Int? = -1,
    @Optional val offset: Int? = -1,
    @Optional val number_of_page_results: Int? = -1,
    @Optional val number_of_total_results: Int? = -1,
    @Optional val status_code: Int? = -1,
    @Optional val results: List<Character>? = listOf<Character>(),
    @Optional val version: String? = "")
```

https://github.com/Kotlin/kotlinx.serialization/blob/master/docs/runtime_usage.md

A Student Can

encode and decode JSON

Deserialize JSON

- Json.parse(serializer, jsonString)

- serializer() method

  - Provided by @Serializable tag

```kotlin
import kotlinx.serialization.json.Json

val characters = Json.parse(CharacterList.serializer(), result)
```

Serialize JSON

- Json.stringify(serializer, kotlinObject)

```
import kotlinx.serialization.json.Json

Log.i("Result", Json.stringify(CharacterList.serializer(), characters))
```