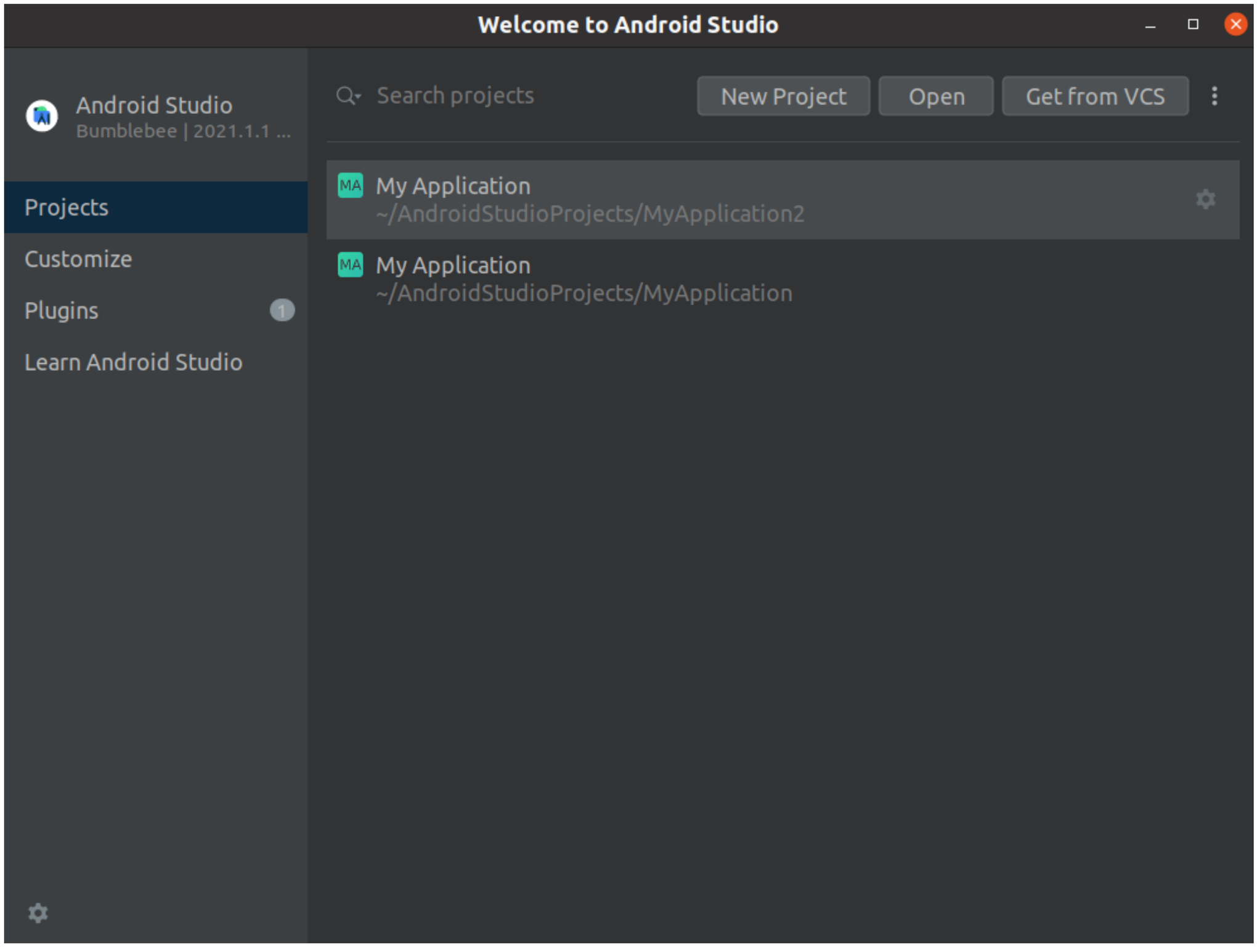
SEMINARIO DE LENGUAJES
OPCIÓN ANDROID + KOTLIN

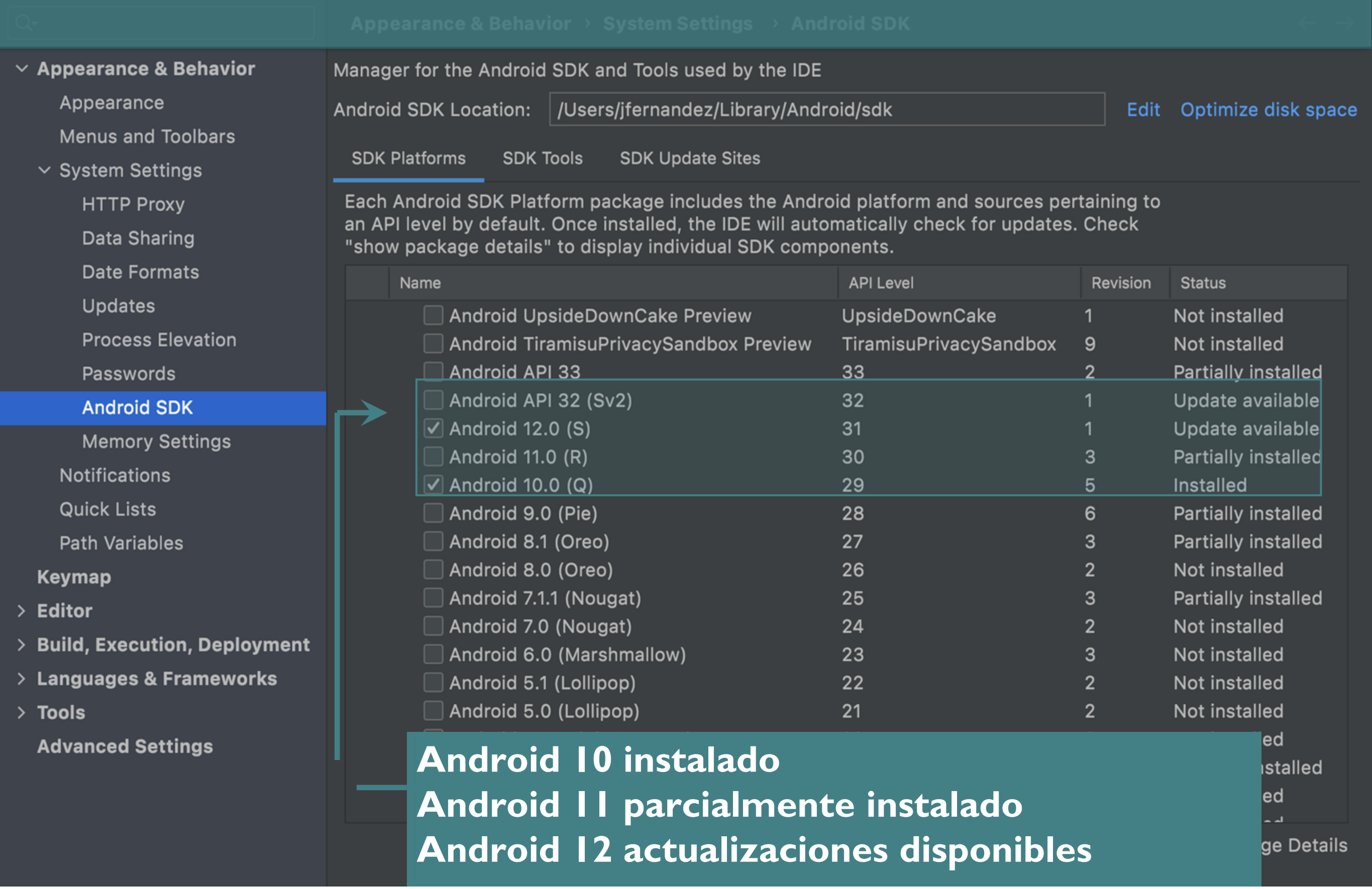
Primeros pasos con Android

Esp. Fernández Sosa Juan Francisco

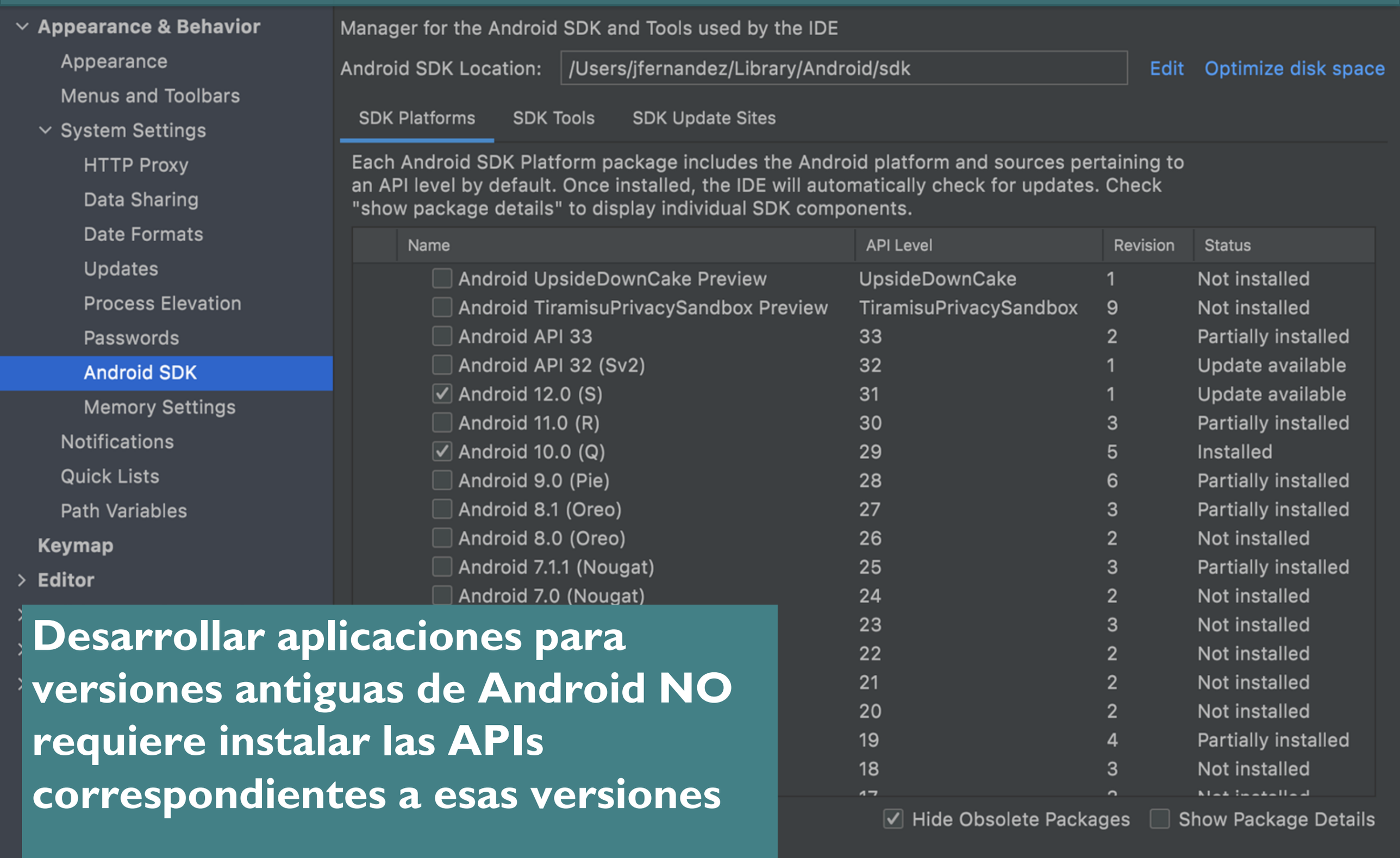
Hacer clic en *el menú derecho / SDK Manager*



Hacer clic en ***Configure / SDK Manager***

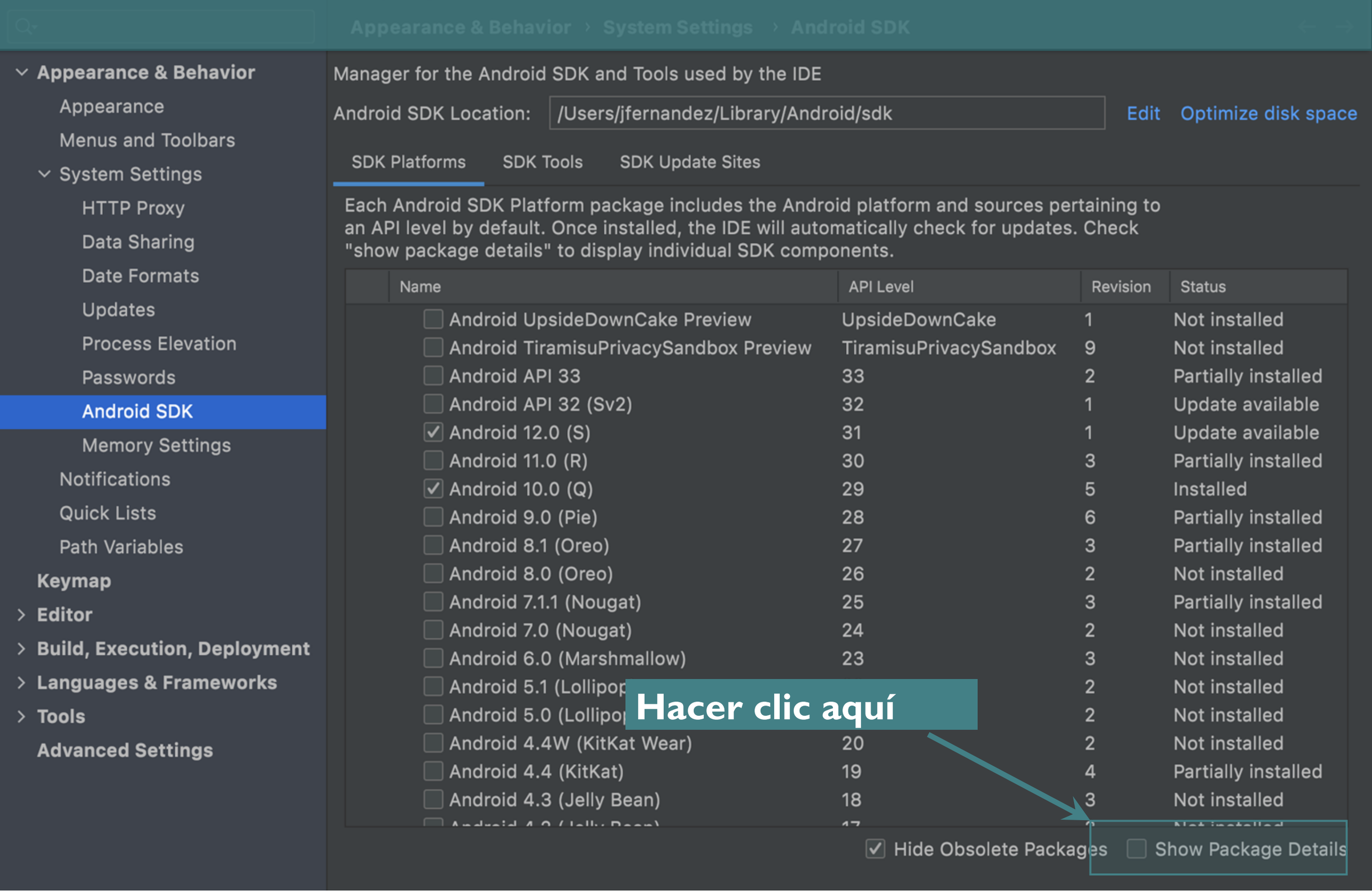


Hacer clic en *Configure / SDK Manager*

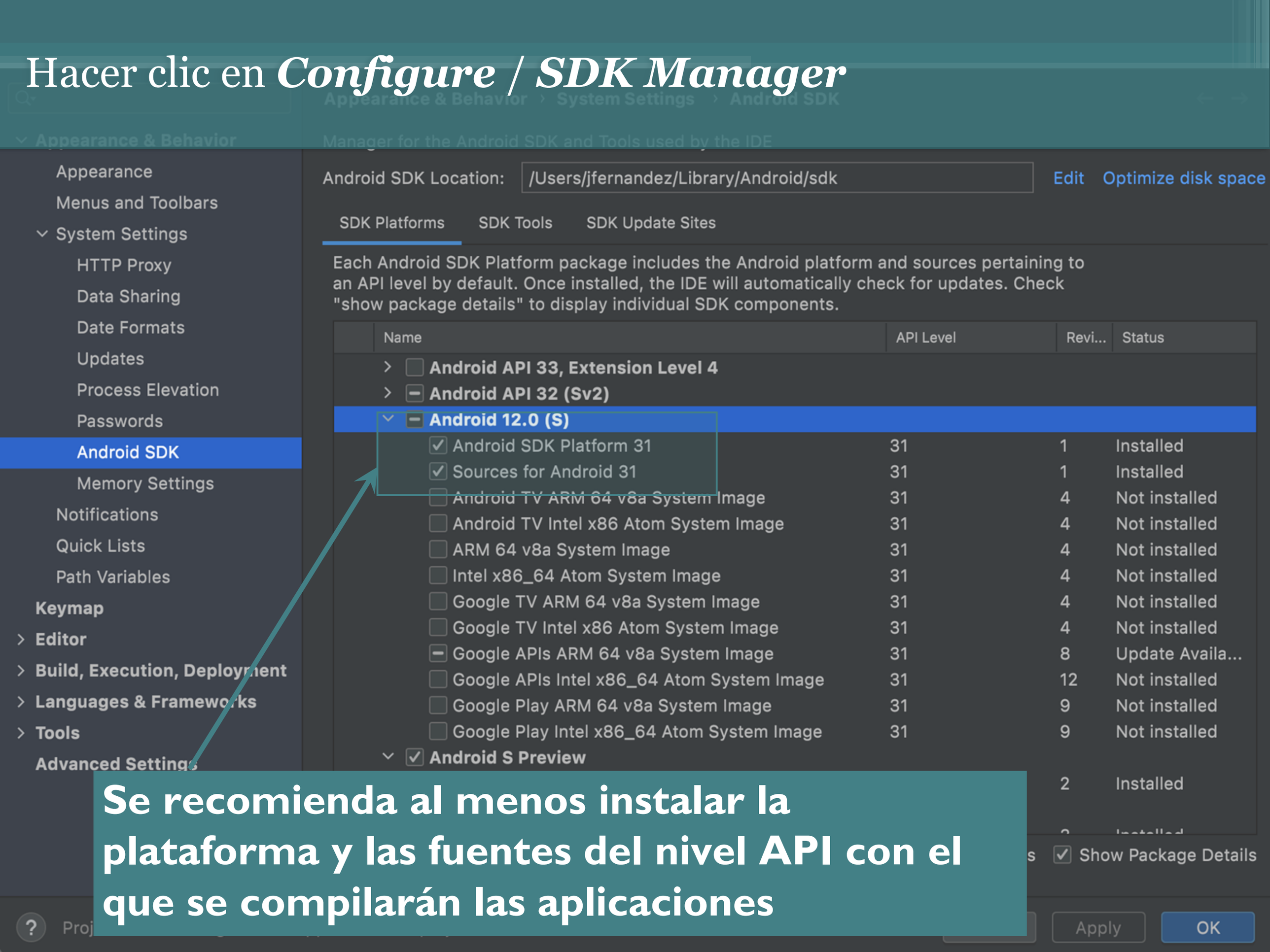


Desarrollar aplicaciones para versiones antiguas de Android NO requiere instalar las APIs correspondientes a esas versiones

Hacer clic en ***Configure / SDK Manager***



Hacer clic en ***Configure / SDK Manager***



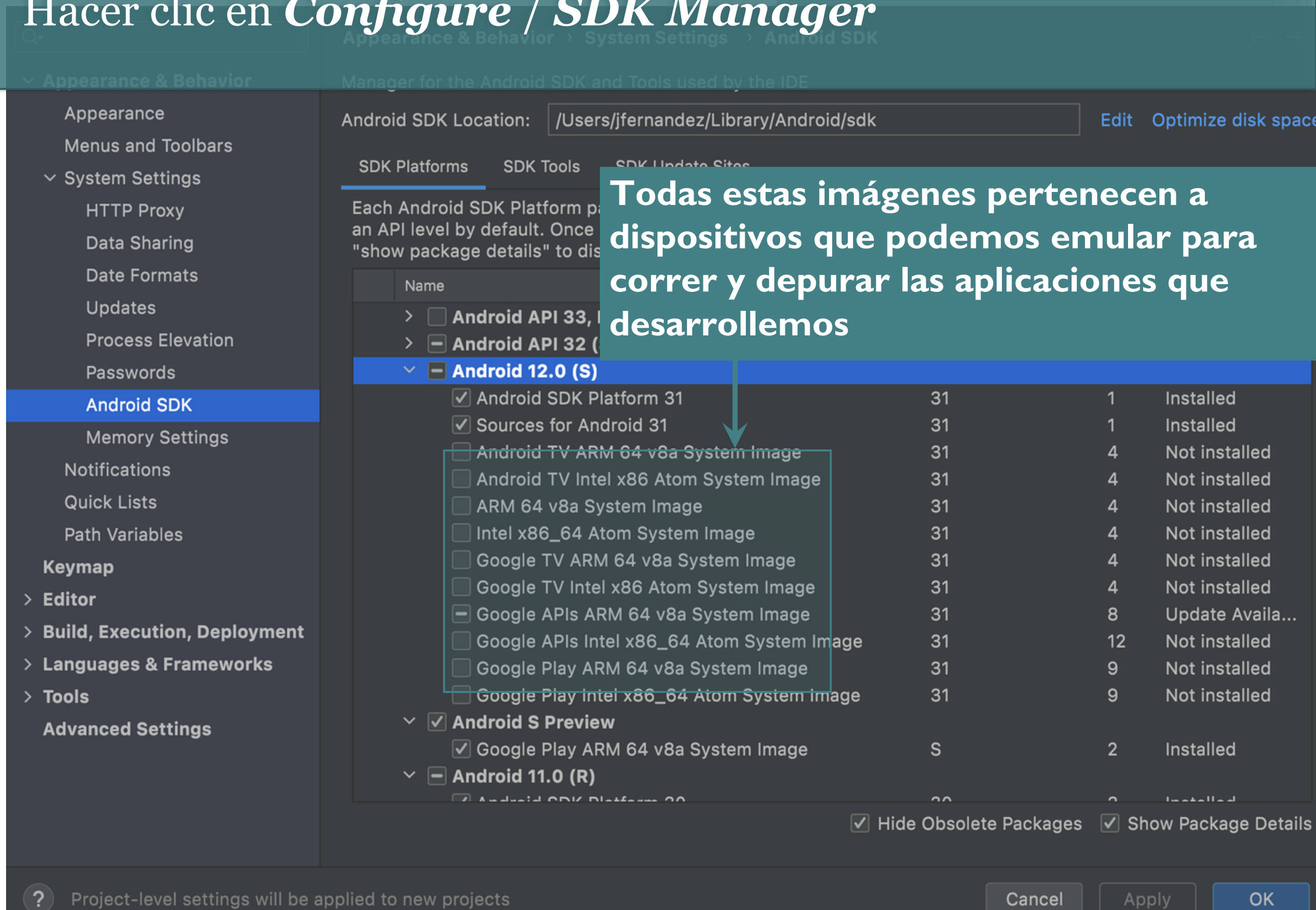
Se recomienda al menos instalar la plataforma y las fuentes del nivel API con el que se compilarán las aplicaciones

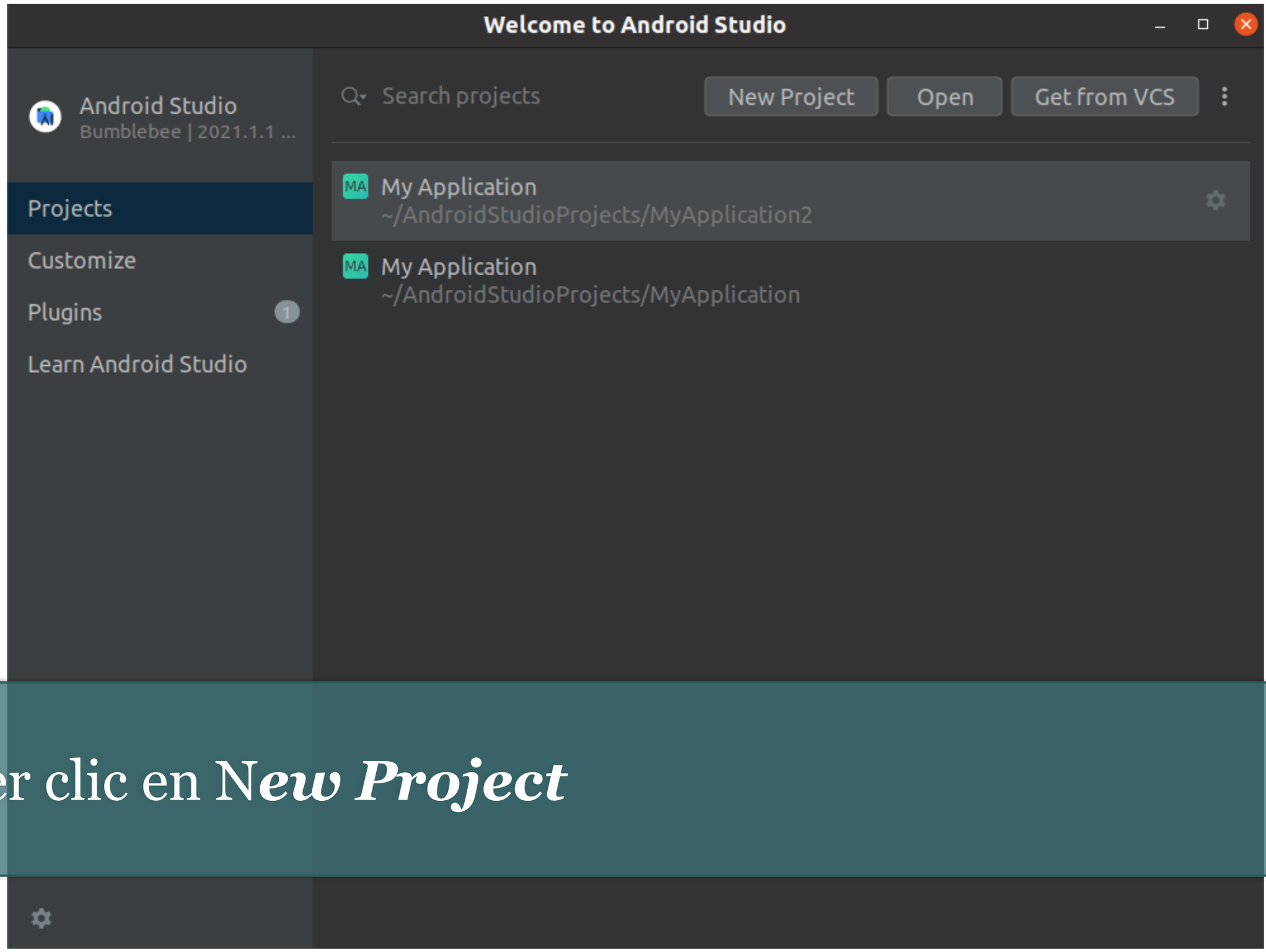
Hacer clic en *Configure / SDK Manager*

Opcionalmente puede instalar Google APIs para acceder a los servicios Google (map, sing-in, places, etc.)

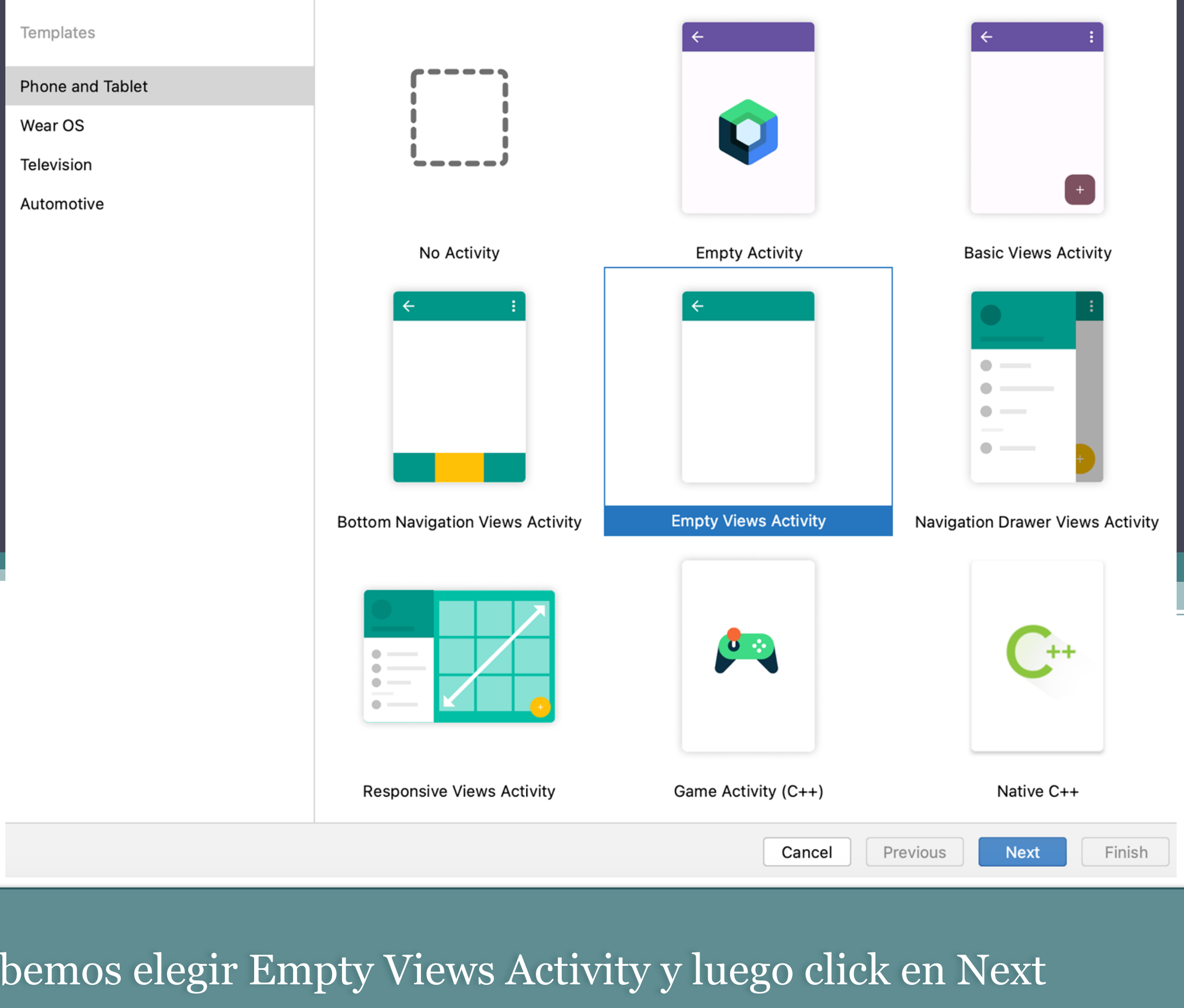
Hacer clic en *Configure / SDK Manager*

Todas estas imágenes pertenecen a dispositivos que podemos emular para correr y depurar las aplicaciones que desarrollemos

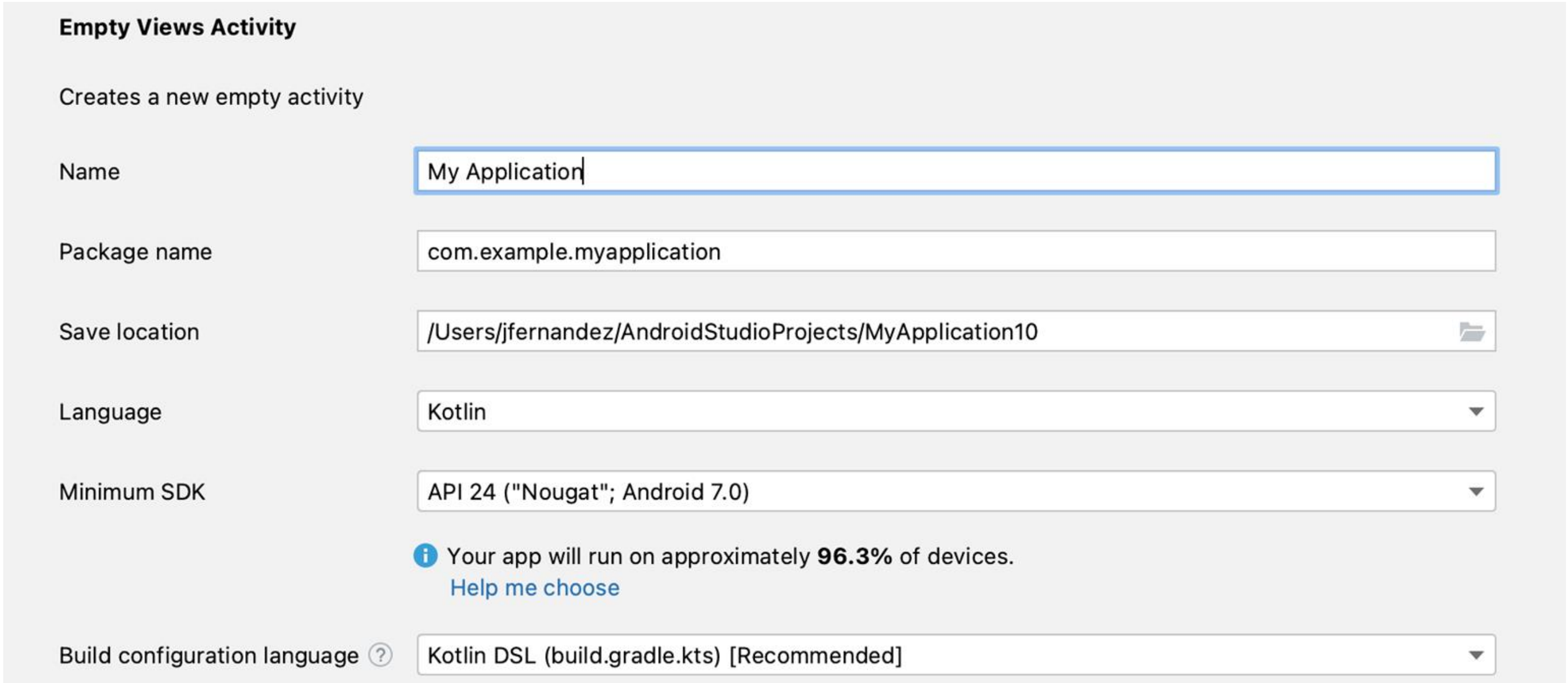




Hacer clic en N***ew Project***



Debemos elegir Empty Views Activity y luego click en Next



Poner un nombre a la aplicación, seleccionar Kotlin como lenguaje y elegir Minimum SDK: ***API 24***

	ANDROID PLATFORM VERSION	API LEVEL	CUMULATIVE DISTRIBUTION
4.4	KitKat	19	
5	Lollipop	21	99.6%
5.1	Lollipop	22	99.4%
6	Marshmallow	23	98.2%
7	Nougat	24	96.3%
7.1	Nougat	25	95.0%
8	Oreo	26	93.7%
8.1	Oreo	27	91.8%
9	Pie	28	86.4%
10	Q	29	75.9%
11	R	30	59.8%
12	S	31	38.2%
13		33	22.4%

ast updated: October 1, 2023

Nougat

User Interface

Multi-window Support
Notifications
Quick Settings Tile API
Custom Pointer API

Performance

Profile-guided JIT/AOT Compilation
Quick Path to App Install
Sustained Performance API
Frame Metrics API

Battery Life

Doze on the Go
Project Svelte: Background Optimizations
SurfaceView

Wireless & Connectivity

Data Saver
Number Blocking
Call Screening

Graphics

Vulkan API

System

Direct Boot
Multi-locale Support, More Languages
APK Signature Scheme v2
Scoped Directory Access

https://developer.android.com/about/versions/nougat/android-7.0.html

Android for Work

Work profile security challenge
Turn off work
Always on VPN
Customized provisioning

Accessiblity

Vision Settings on the Welcome scr

Security

Key Attestation
Network Security Config
Default Trusted Certificate Authorit

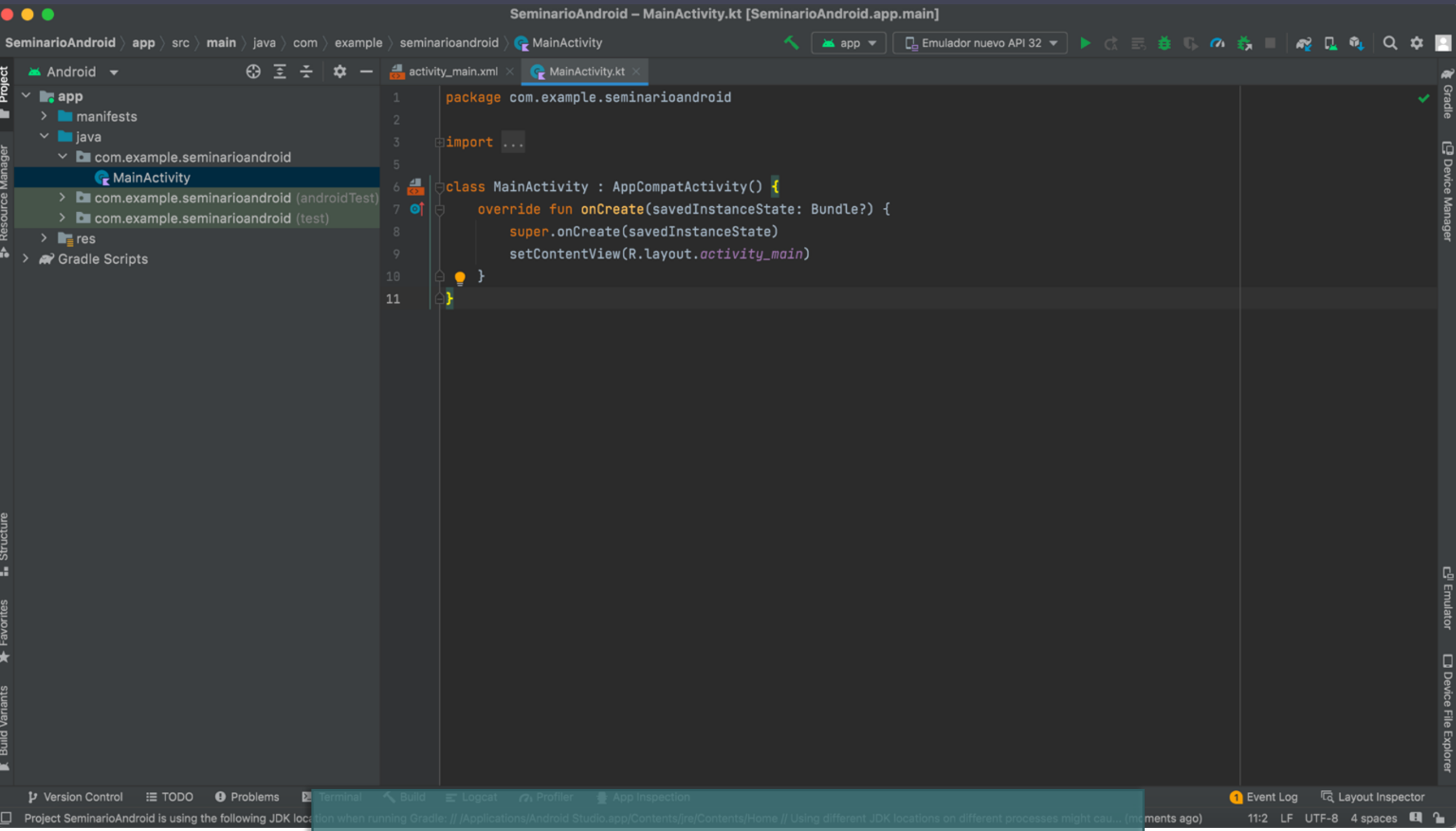
VR

Platform support and optimizations
VR Mode

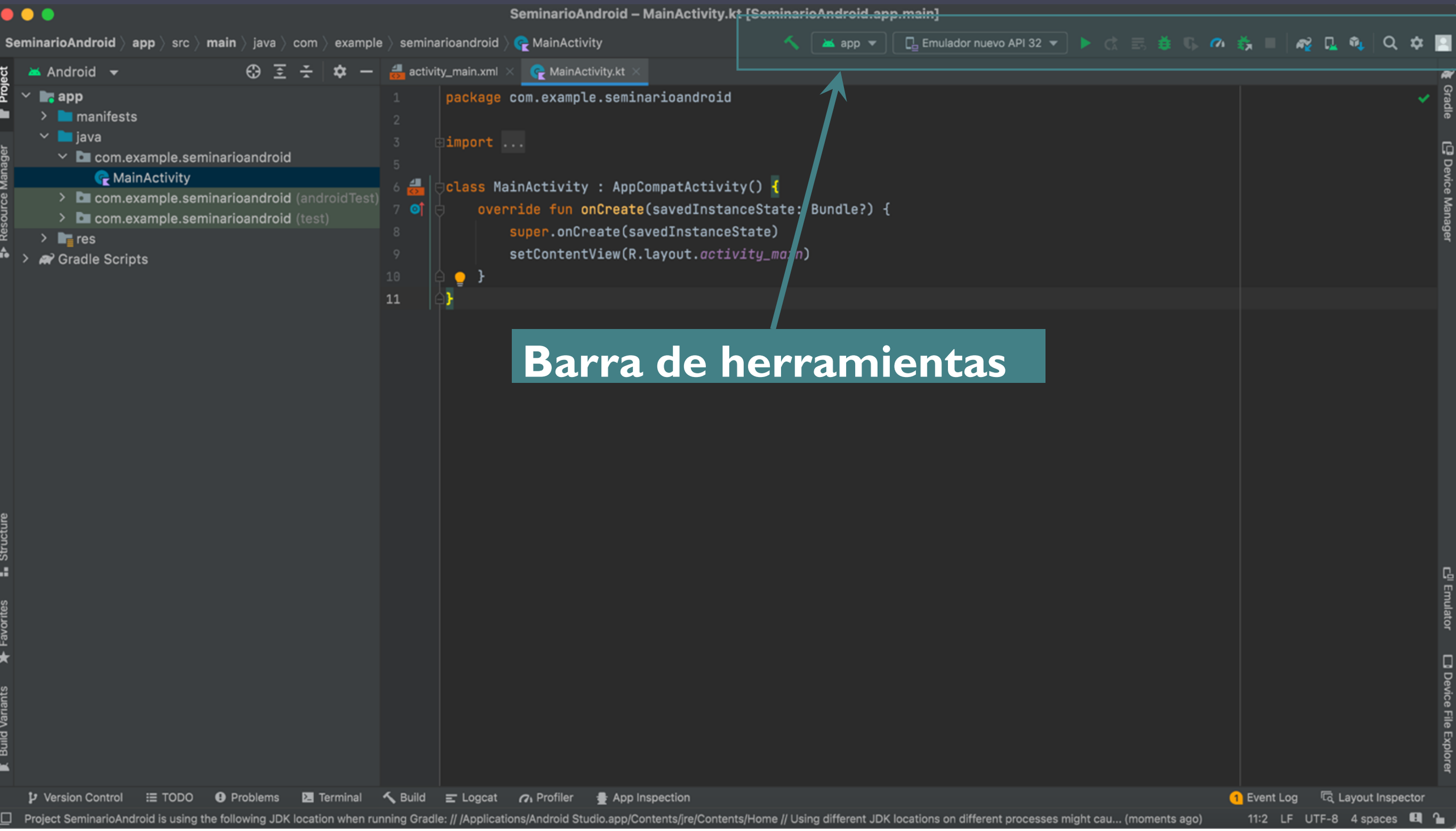
Printing Framework

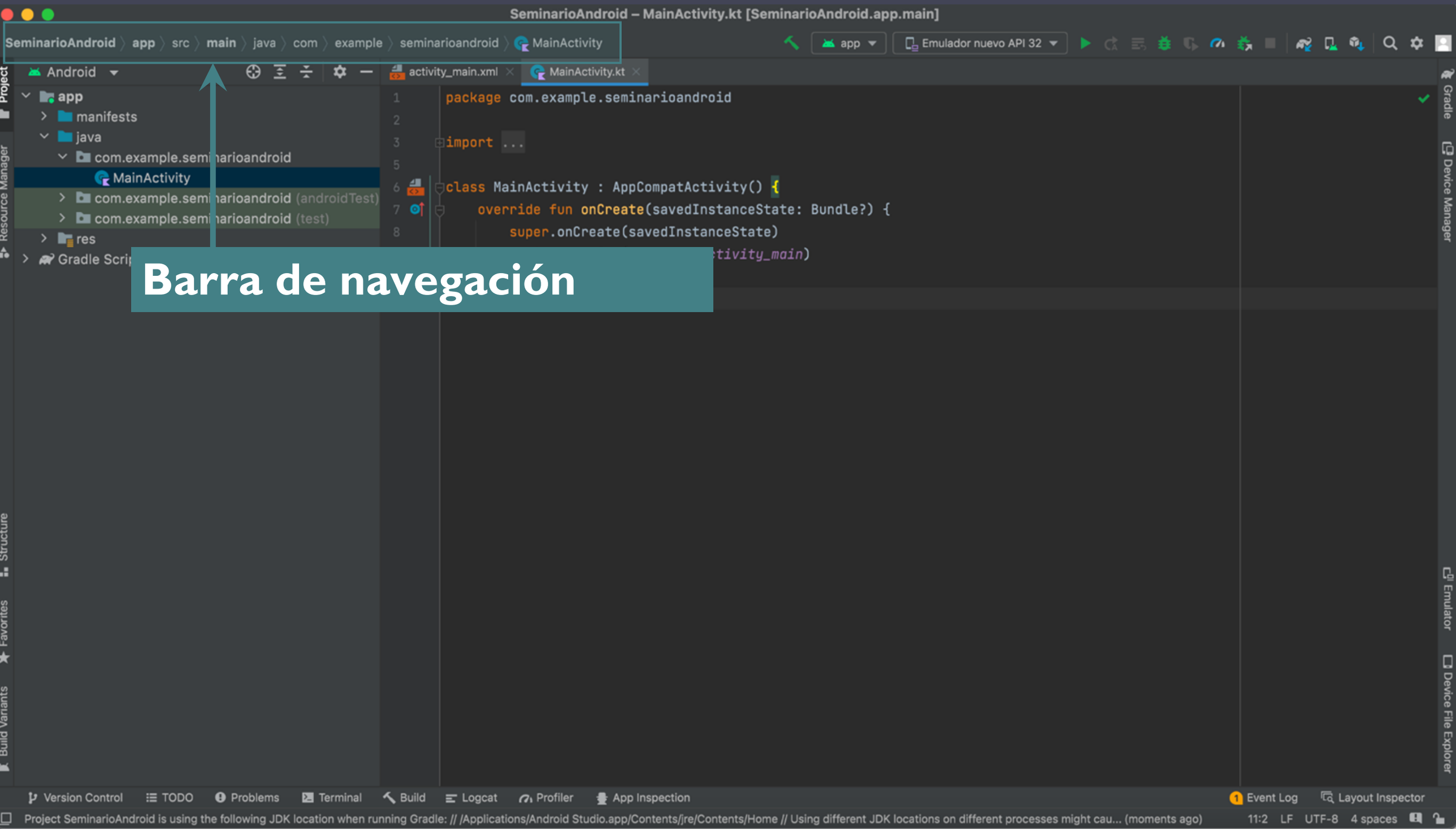
Print service enhancements

Si se selecciona ***help me choose*** en la ventana anterior se despliega esta información que puede ayudarnos a elegir la versión mínima soportada por nuestra aplicación



Conociendo la interfaz del IDE


SeminarioAndroid – MainActivity.kt [SeminarioAndroid.app.main]
SeminarioAndroid 〉 app 〉 src 〉 main 〉 java 〉 com 〉 example 〉 seminarioandroid 〉 MainActivity
app
Emulador nuevo API 32
Android
activity_main.xml
MainActivity.kt
app
manifests
java
com.example.seminarioandroid
MainActivity
com.example.seminarioandroid (androidTest)
com.example.seminarioandroid (test)
res
Gradle Scripts
1 package com.example.seminarioandroid
2
3 import ...
5
6 class MainActivity : AppCompatActivity() {
7 override fun onCreate(savedInstanceState: Bundle?) {
8 super.onCreate(savedInstanceState)
9 setContentView(R.layout.activity_main)
10 }
11 }
Barra de herramientas
Project
Resource Manager
Structure
Favorites
Build Variants
Gradle
Device Manager
Emulator
Device File Explorer
Version Control
TODO
Problems
Terminal
Build
Logcat
Profiler
App Inspection
Event Log
Layout Inspector
Project SeminarioAndroid is using the following JDK location when running Gradle: // /Applications/Android Studio.app/Contents/jre/Contents/Home // Using different JDK locations on different processes might cau... (moments ago)
11:2
LF
UTF-8
4 spaces


SeminarioAndroid – MainActivity.kt [SeminarioAndroid.app.main]
SeminarioAndroid 〉 app 〉 src 〉 main 〉 java 〉 com 〉 example 〉 seminarioandroid 〉 MainActivity
app
Emulador nuevo API 32
Android
activity_main.xml
MainActivity.kt
app
manifests
java
com.example.seminarioandroid
MainActivity
com.example.seminarioandroid (androidTest)
com.example.seminarioandroid (test)
res
Gradle Scrip
package com.example.seminarioandroid
import ...
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
tivity_main)
Barra de navegación
Project
Resource Manager
Gradle
Device Manager
Structure
Favorites
Build Variants
Emulator
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Version Control
TODO
Problems
Terminal
Build
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Profiler
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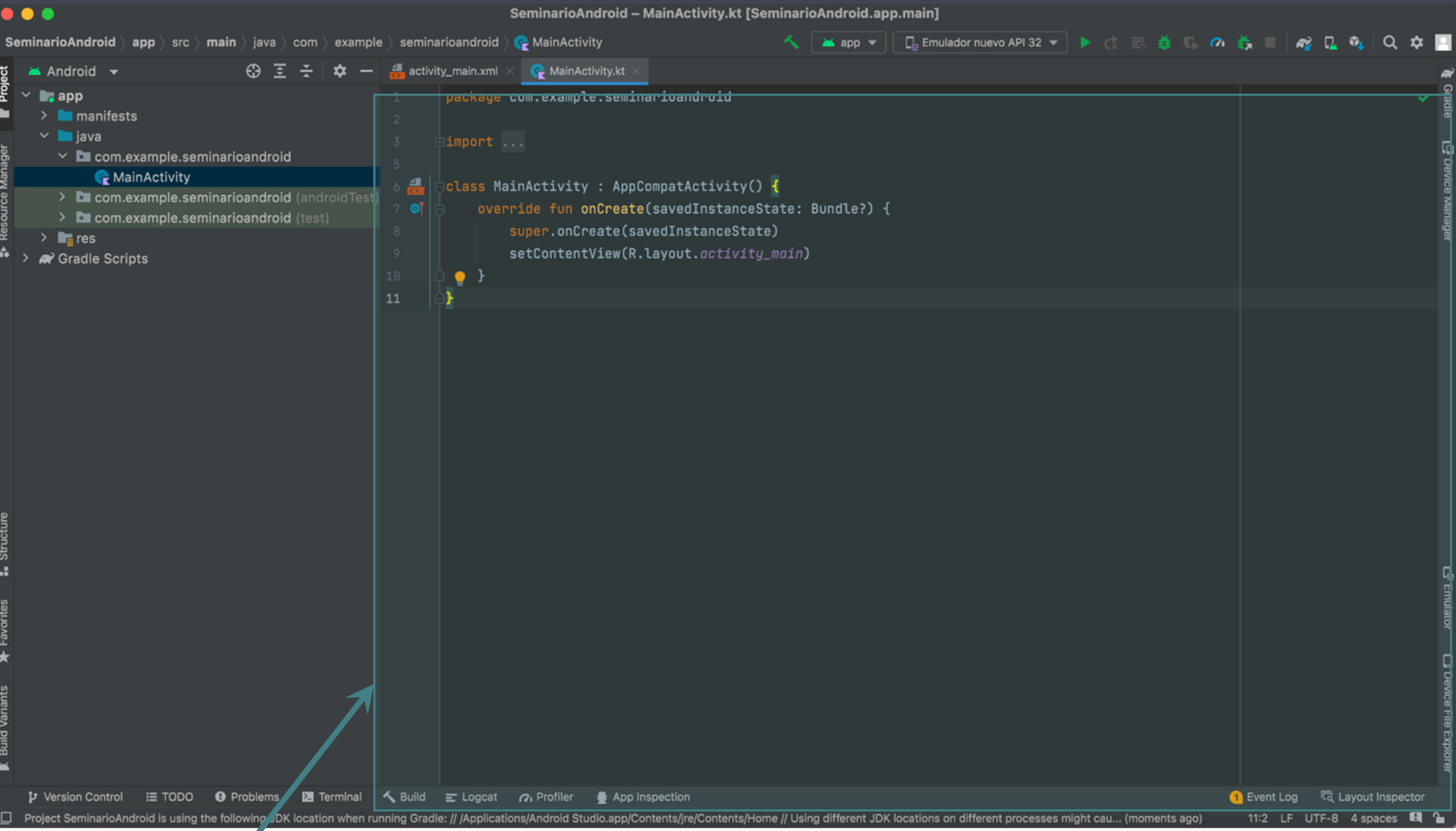
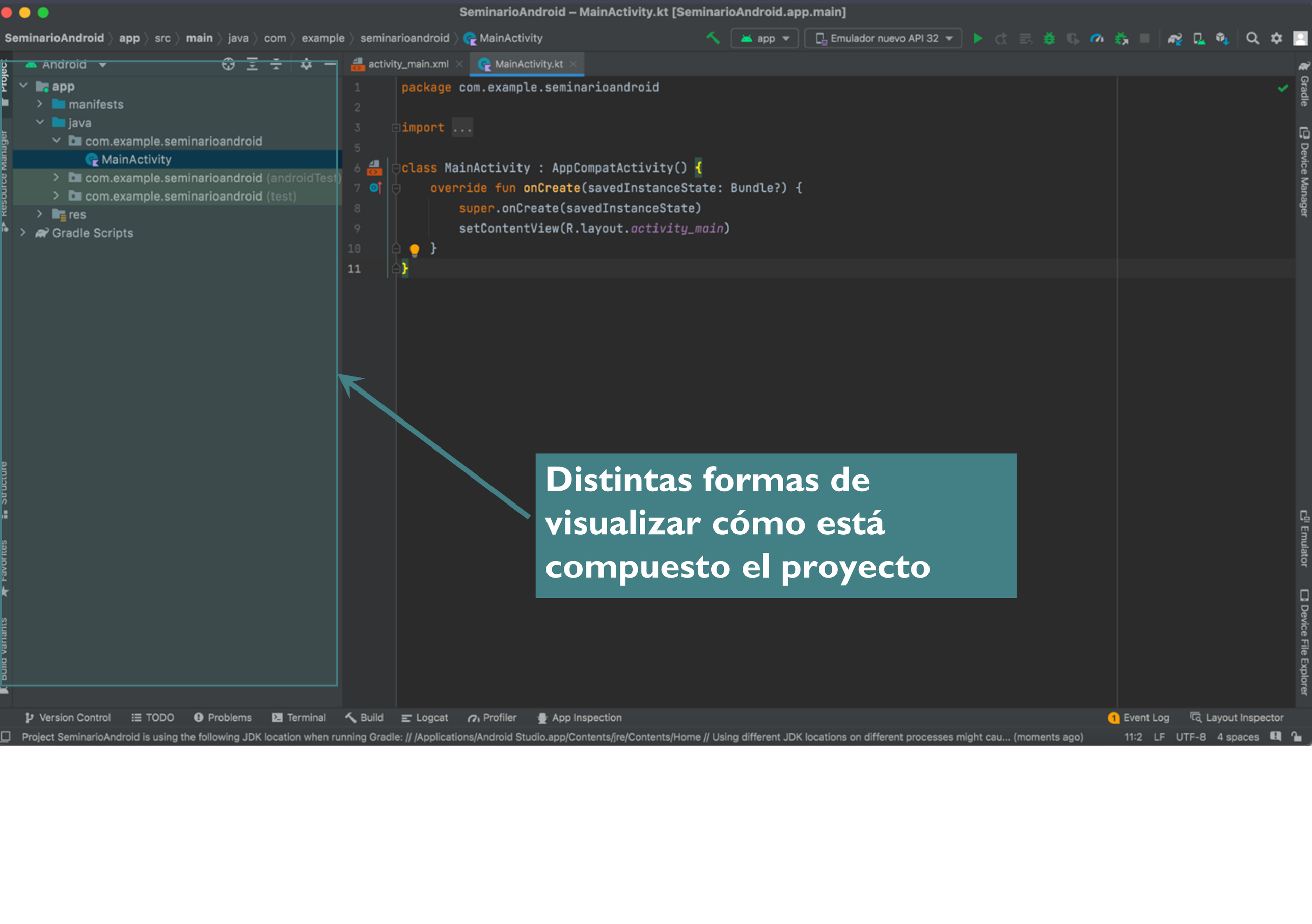
Event Log
Layout Inspector
Project SeminarioAndroid is using the following JDK location when running Gradle: // /Applications/Android Studio.app/Contents/jre/Contents/Home // Using different JDK locations on different processes might cau... (moments ago)
11:2
LF
UTF-8
4 spaces



Ventana del editor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app
Emulador nuevo API 32
Android
app
manifests
java
com.example.seminarioandroid
MainActivity
com.example.seminarioandroid (androidTest)
com.example.seminarioandroid (test)
res
Gradle Scripts
activity_main.xml
MainActivity.kt
1 package com.example.seminarioandroid
2
3 import ...
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6 class MainActivity : AppCompatActivity() {
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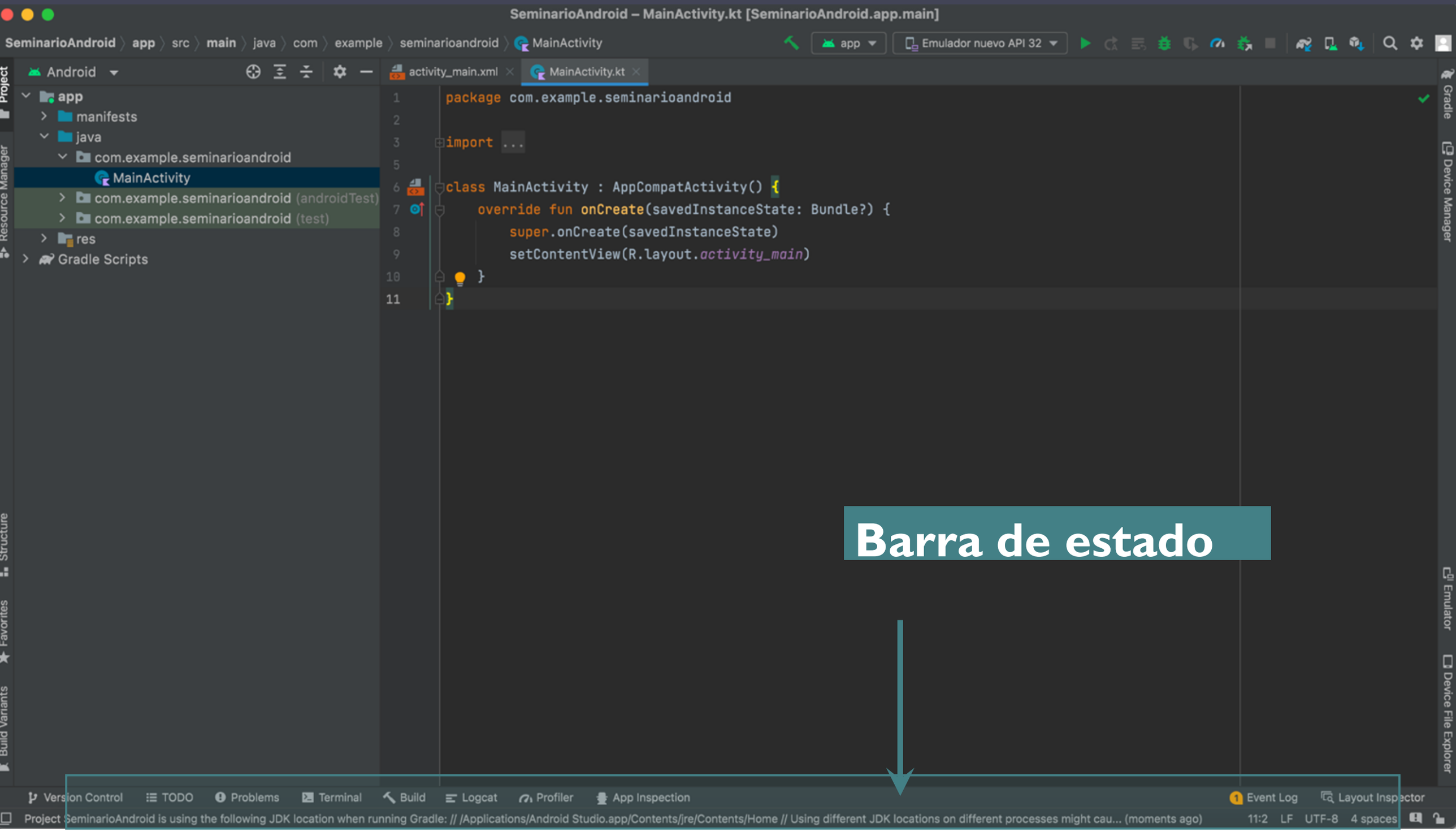
8 super.onCreate(savedInstanceState)
9 setContentView(R.layout.activity_main)
10 }
11 }
Distintas formas de visualizar cómo está compuesto el proyecto
Version Control
TODO
Problems
Terminal
Build
Logcat
Profiler
App Inspection
Event Log
Layout Inspector
Project SeminarioAndroid is using the following JDK location when running Gradle: // /Applications/Android Studio.app/Contents/jre/Contents/Home // Using different JDK locations on different processes might cau... (moments ago)
11:2
LF
UTF-8
4 spaces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app
Emulador nuevo API 32
Android
activity_main.xml
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MainActivity
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com.example.seminarioandroid (test)
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Gradle Scripts
package com.example.seminarioandroid
import ...
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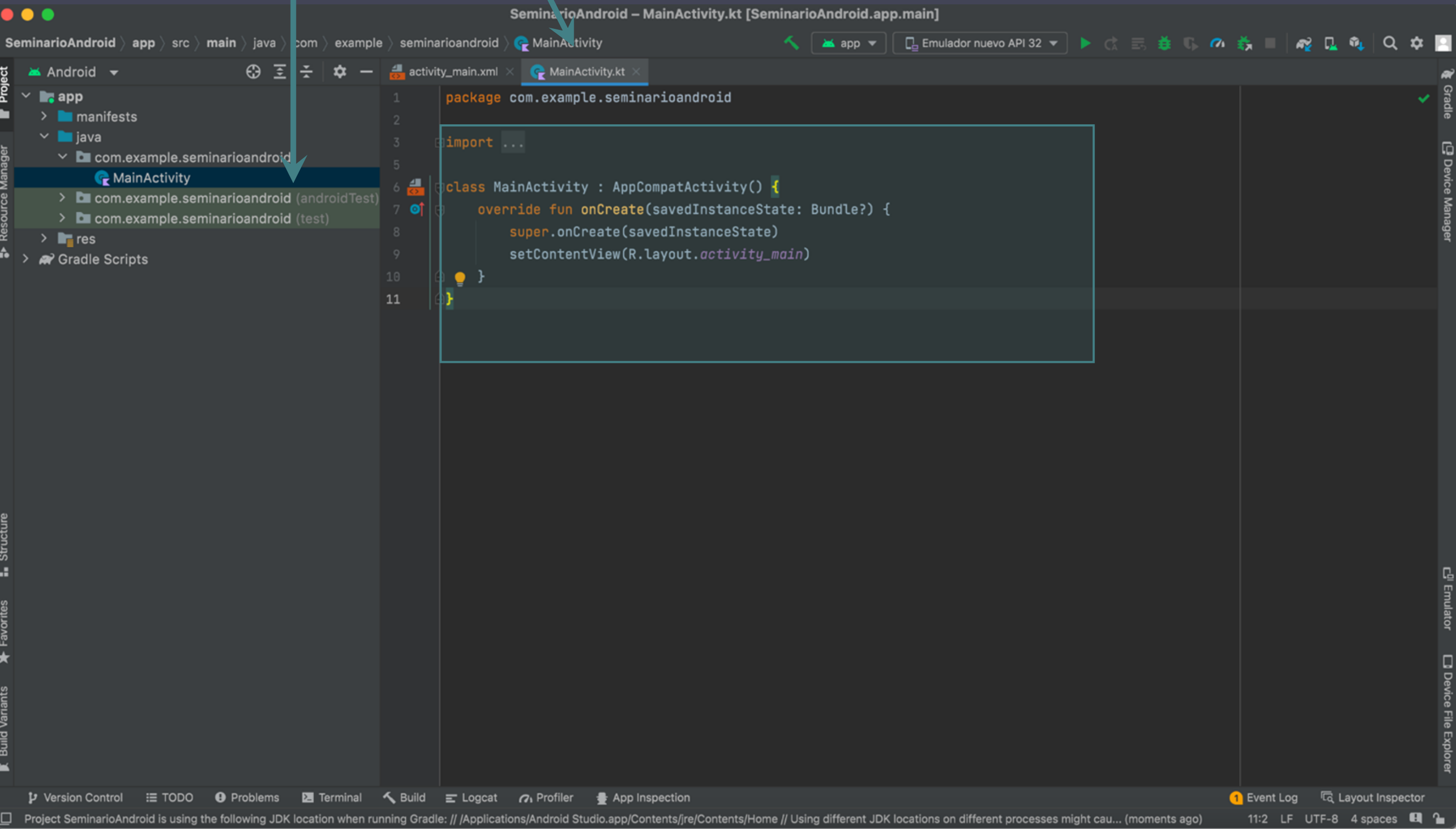
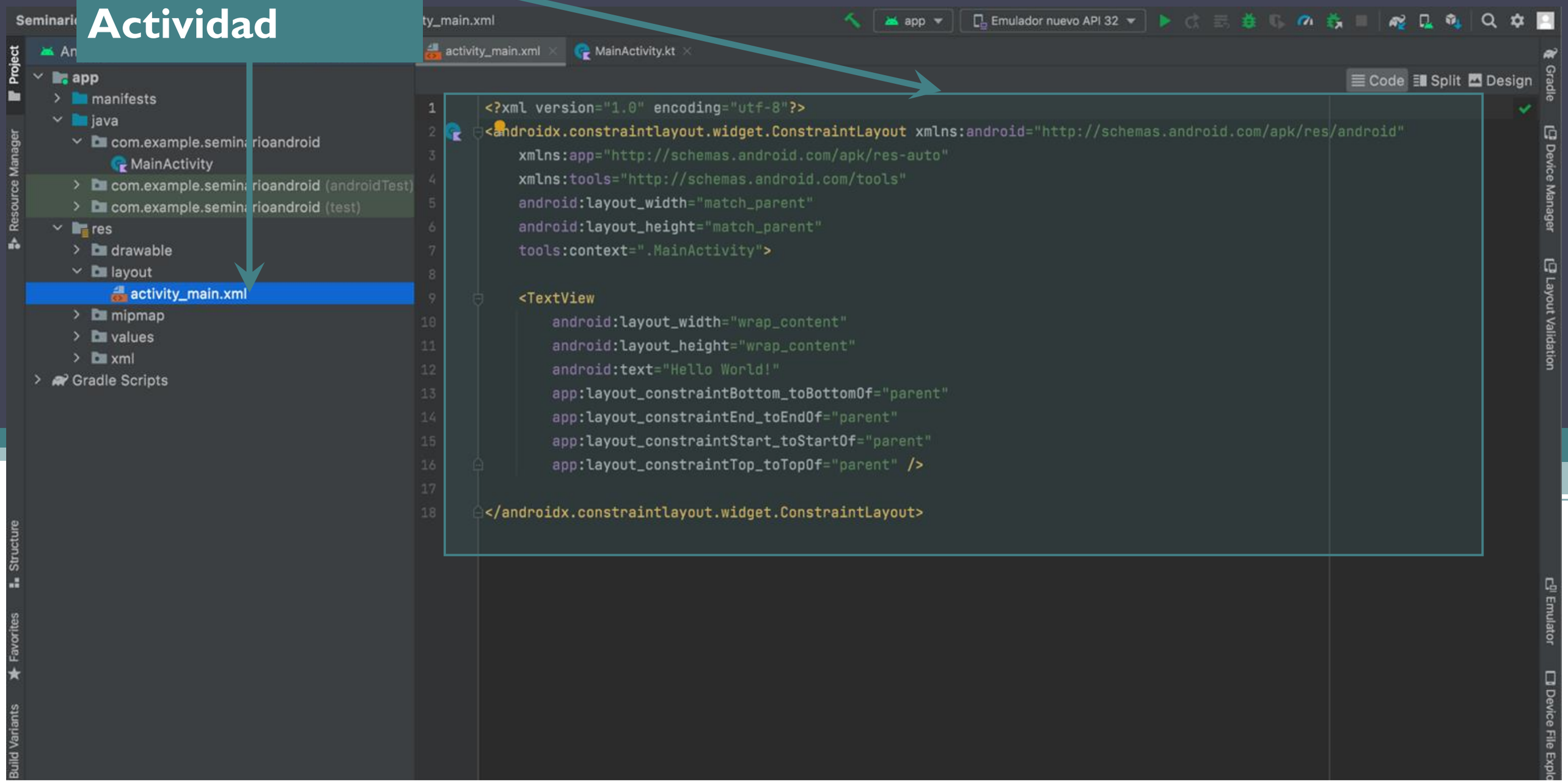
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
}
}
Barra de estado
Version Control
TODO
Problems
Terminal
Build
Logcat
Profiler
App Inspection
Event Log
Layout Inspector
Project SeminarioAndroid is using the following JDK location when running Gradle: // /Applications/Android Studio.app/Contents/jre/Contents/Home // Using different JDK locations on different processes might cau... (moments ago)
11:2
LF
UTF-8
4 spaces

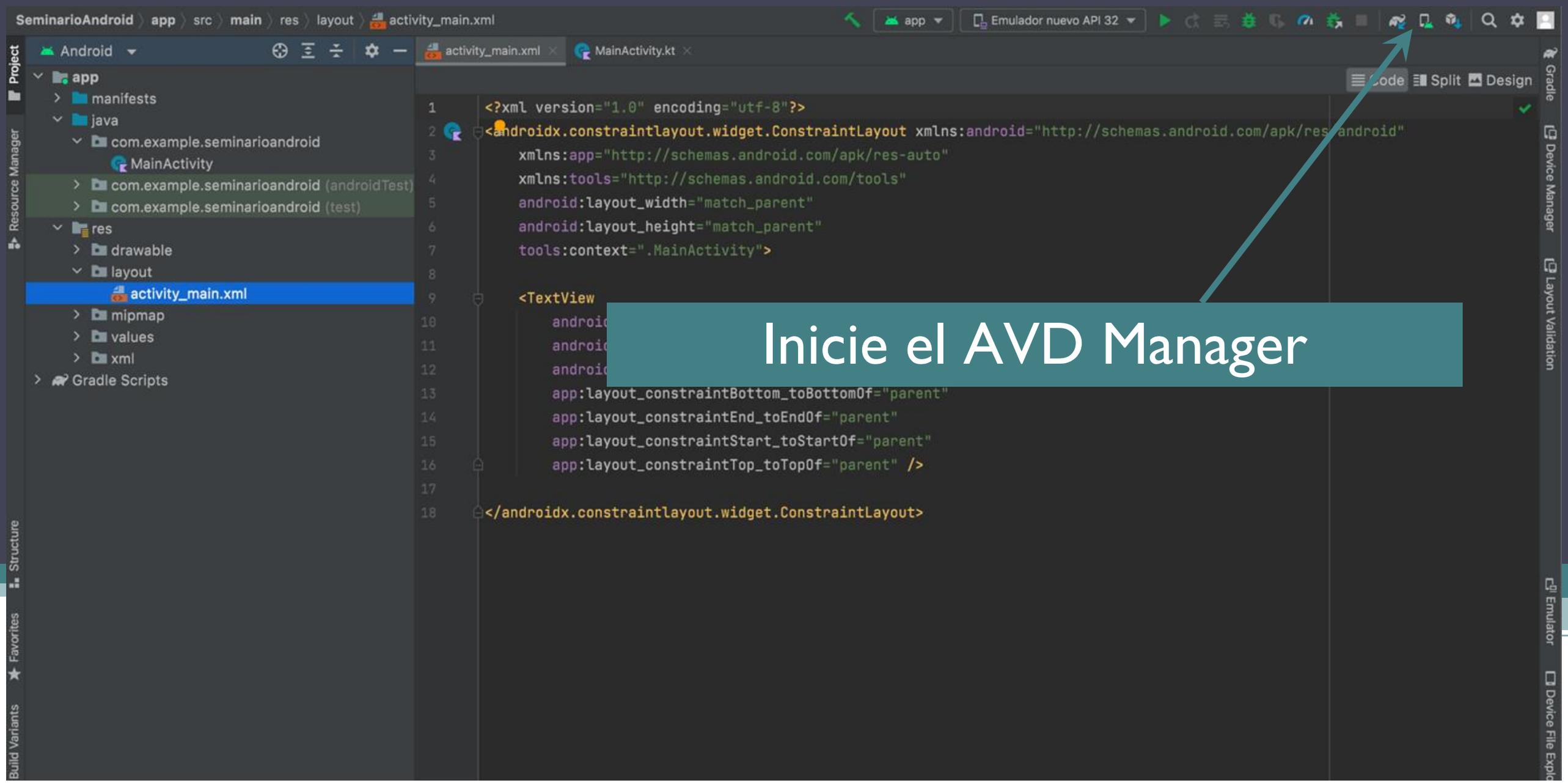
Definición de la clase que constituye la Actividad



Definición de la vista de la Actividad



Ejecución de la aplicación en el emulador


SeminarioAndroid
app
src
main
res
layout
activity_main.xml
app
Emulador nuevo API 32
Android
activity_main.xml
MainActivity.kt
Code
Split
Design
app
manifests
java
com.example.seminarioandroid
MainActivity
com.example.seminarioandroid (androidTest)
com.example.seminarioandroid (test)
res
drawable
layout
activity_main.xml
mipmap
values
xml
Gradle Scripts
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<TextView
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
Inicie el AVD Manager
Project
Resource Manager
Gradle
Device Manager
Layout Validation
Structure
Favorites
Build Variants
Emulator
Device File Explo

activity_main.xml | MainActivity.kt

Code | Split | Design

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <androidx.constraintlayout.widget.ConstraintLayout xmlns:android
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
14         app:layout_constraintEnd_toEndOf="parent"
15         app:layout_constraintStart_toStartOf="parent"
16         app:layout_constraintTop_toTopOf="parent" />
17
18 </androidx.constraintlayout.widget.ConstraintLayout>
```

Device Manager

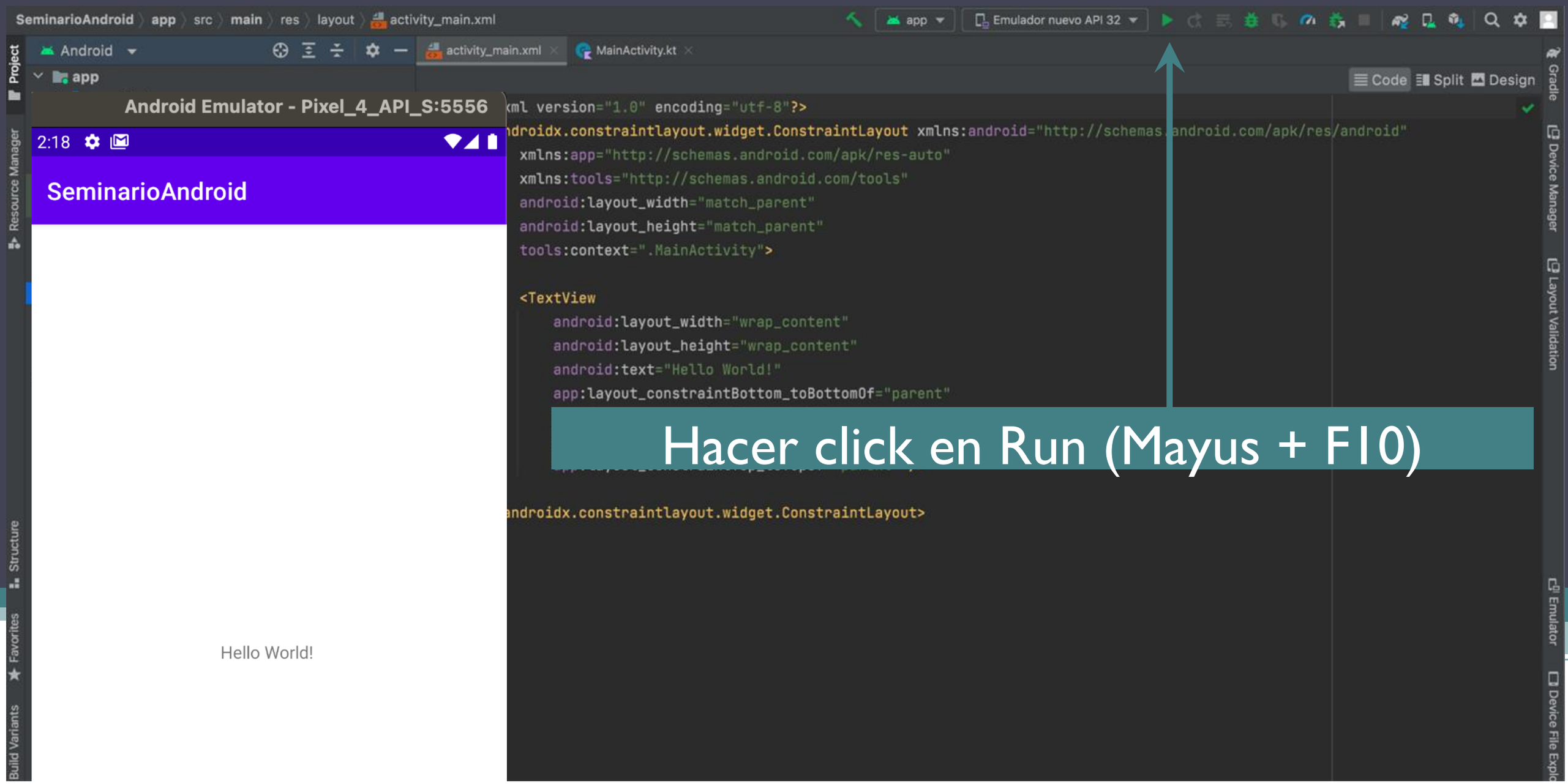
Virtual | Physical

Create device | ?

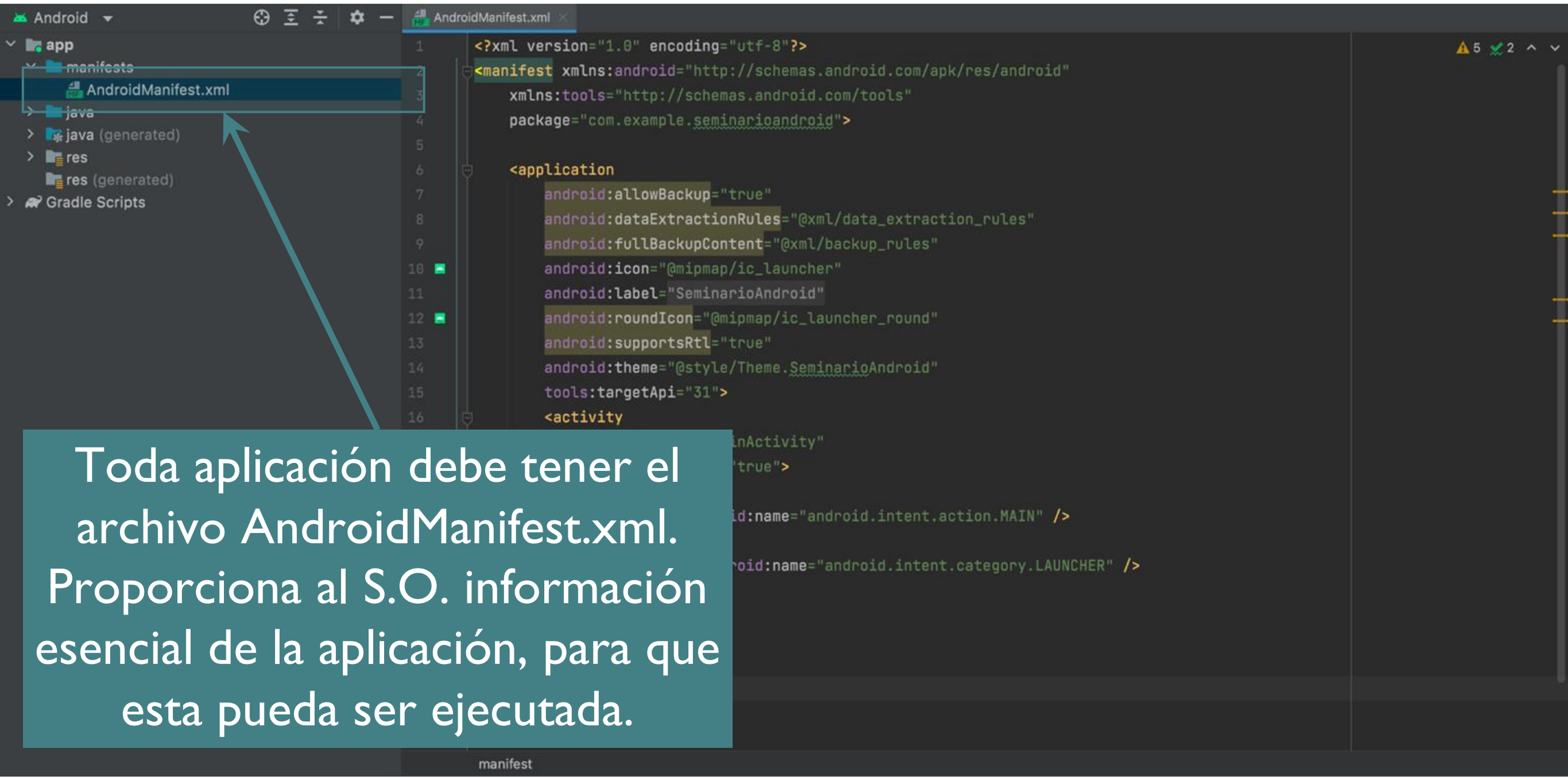
Device	API	Size on Disk	Actions
Emulador nuev... Android API 32 Goo...	32	28 GB	
Pixel 2 API S Android 12.0 Google...	30	9.6 GB	
Pixel 3 API 31 Android 12.0 Google...	31	0.0 MB	
Pixel 4 API S Android 12.0 Google...	30	8.0 GB	

Crear un nuevo dispositivo virtual. Ej Pixel 2, con un SDK previamente instalado.

Listado de Emuladores/Dispositivos Virtuales instalados

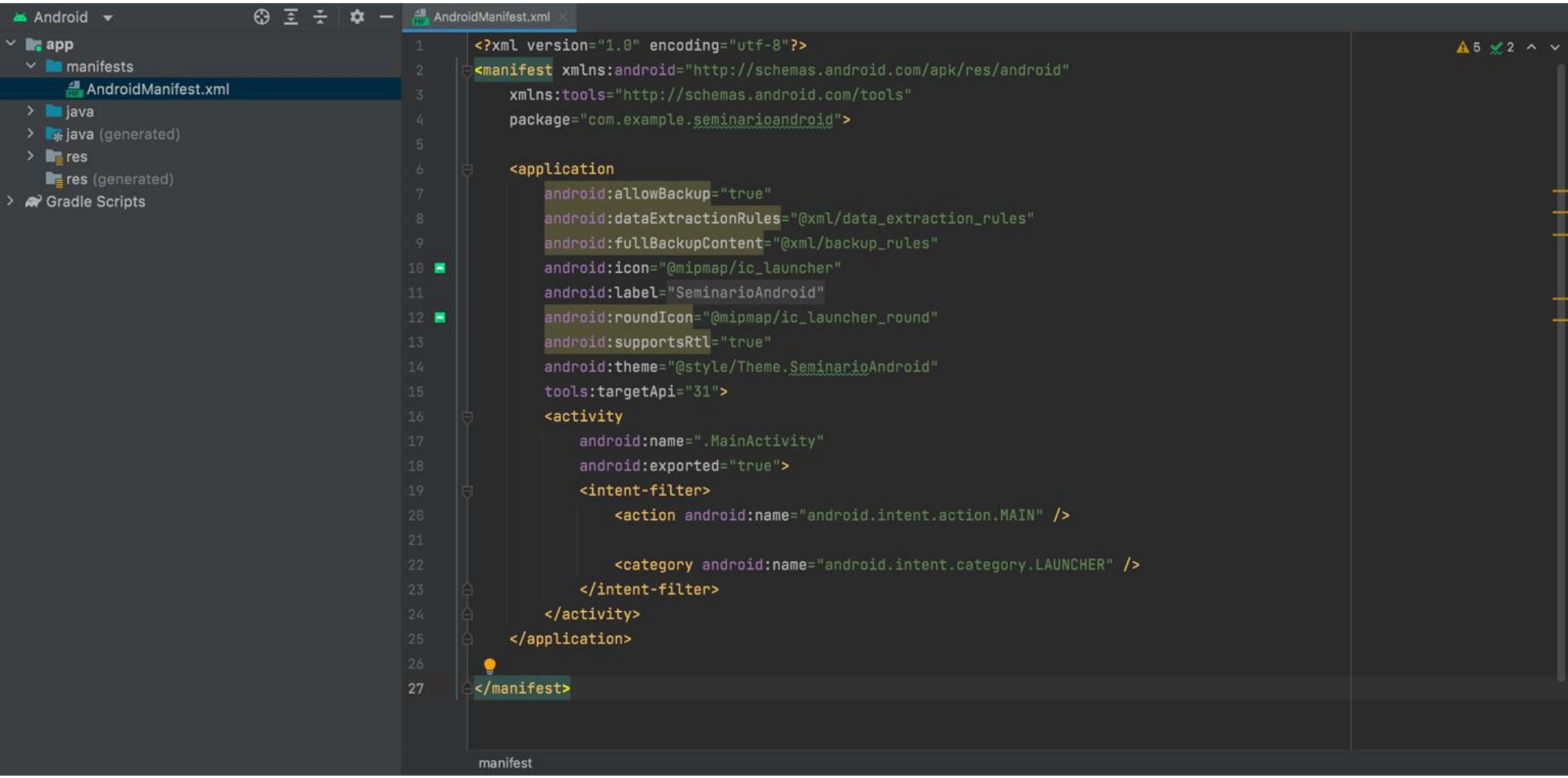

SeminarioAndroid › app › src › main › res › layout › activity_main.xml
app
Emulador nuevo API 32
Android
activity_main.xml
MainActivity.kt
app
Code
Split
Design
Android Emulator - Pixel_4_API_S:5556
2:18
SeminarioAndroid
Hello World!
xml version="1.0" encoding="utf-8"?>
ndroidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Hello World!"
app:layout_constraintBottom_toBottomOf="parent"
androidx.constraintlayout.widget.ConstraintLayout>
Hacer click en Run (Mayus + F10)
Project
Resource Manager
Structure
Favorites
Build Variants
Gradle
Device Manager
Layout Validation
Emulator
Device File Explo

AndroidManifest.xml

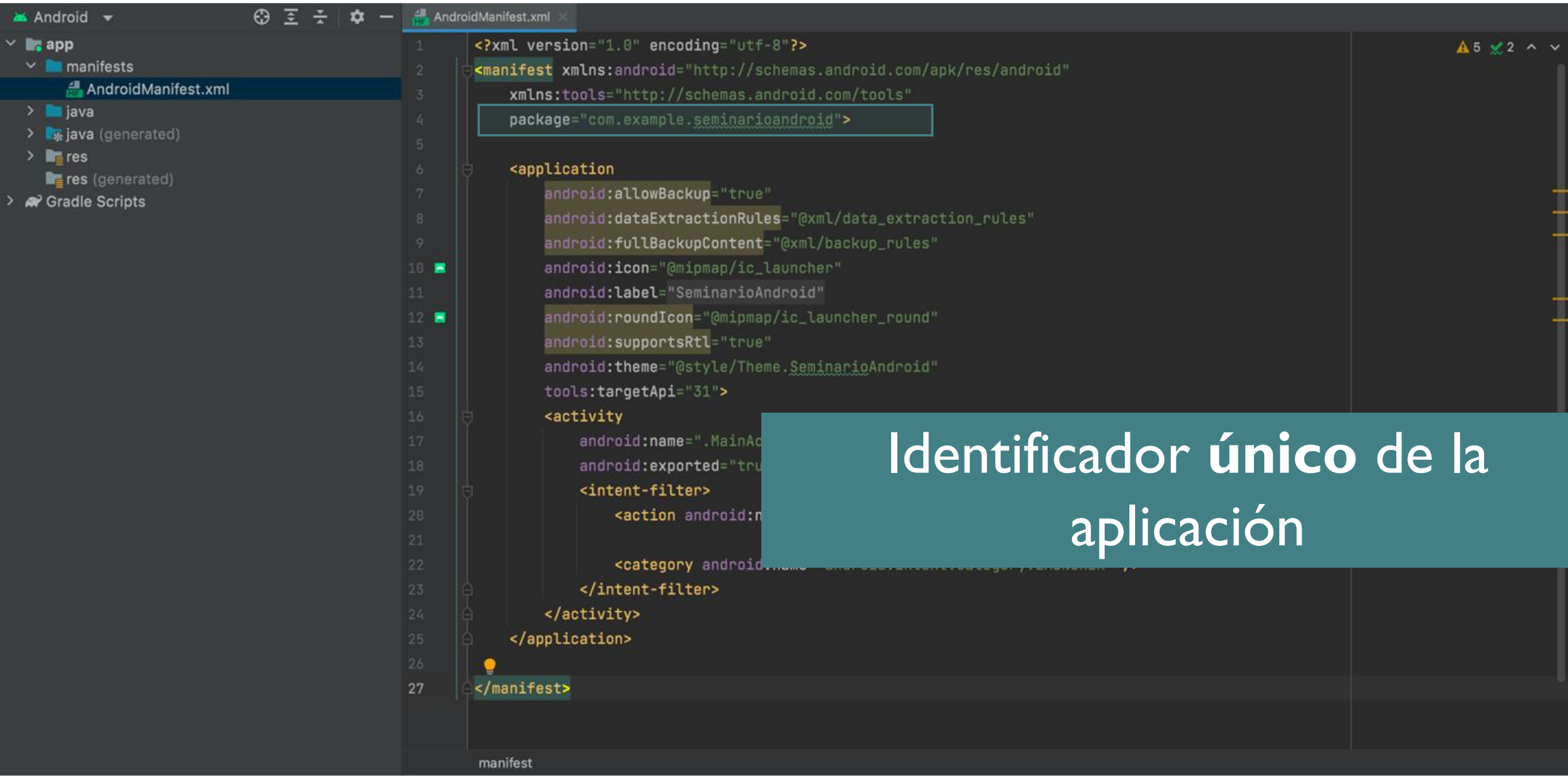


Toda aplicación debe tener el archivo AndroidManifest.xml. Proporciona al S.O. información esencial de la aplicación, para que esta pueda ser ejecutada.

AndroidManifest.xml



AndroidManifest.xml



Identificador **único** de la aplicación

AndroidManifest.xml

Cuando esta propiedad vale *true* se hace un respaldo de los datos de la aplicación en la cuenta de GoogleDrive del usuario

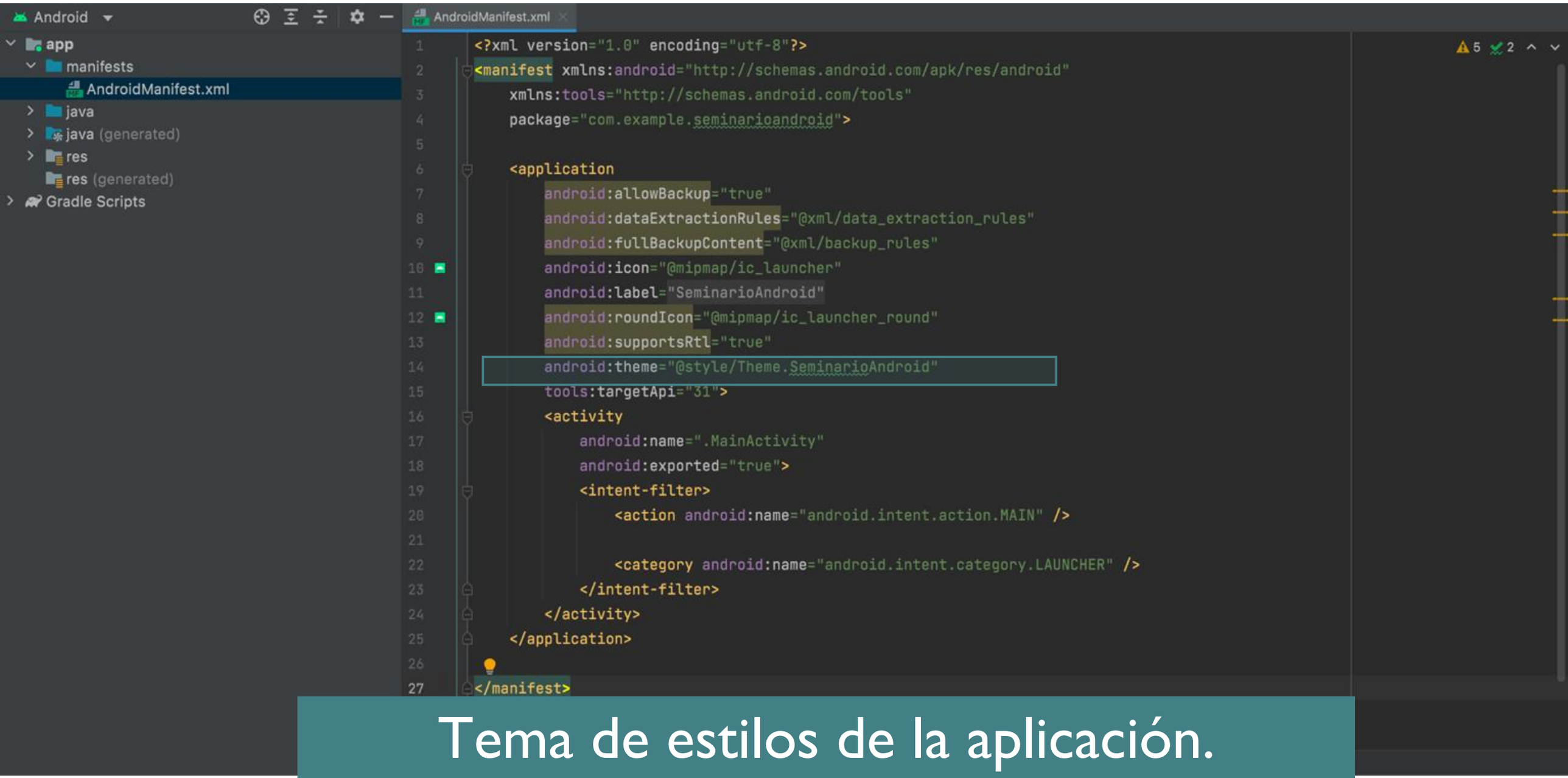
AndroidManifest.xml

Ícono de la aplicación

AndroidManifest.xml

AndroidManifest.xml

AndroidManifest.xml



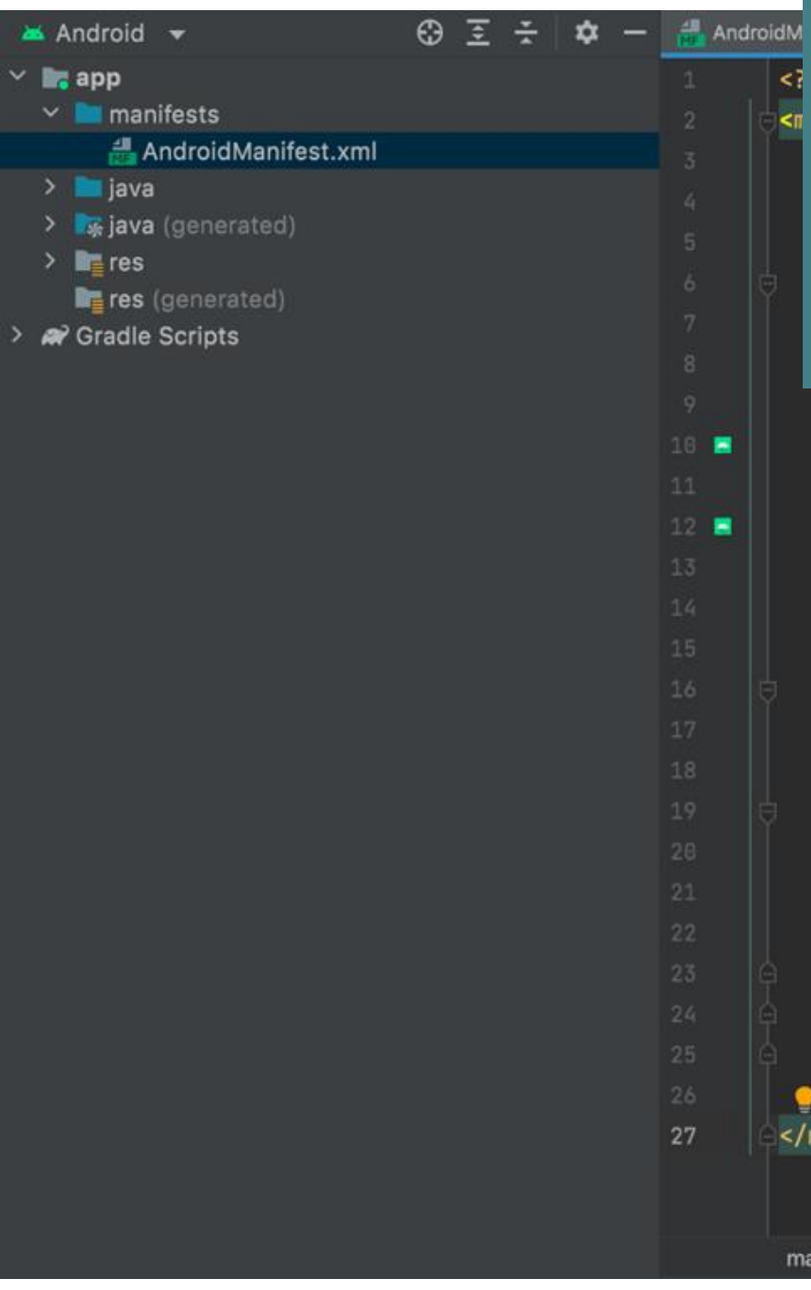
Tema de estilos de la aplicación.

En clases posteriores estudiaremos este tema

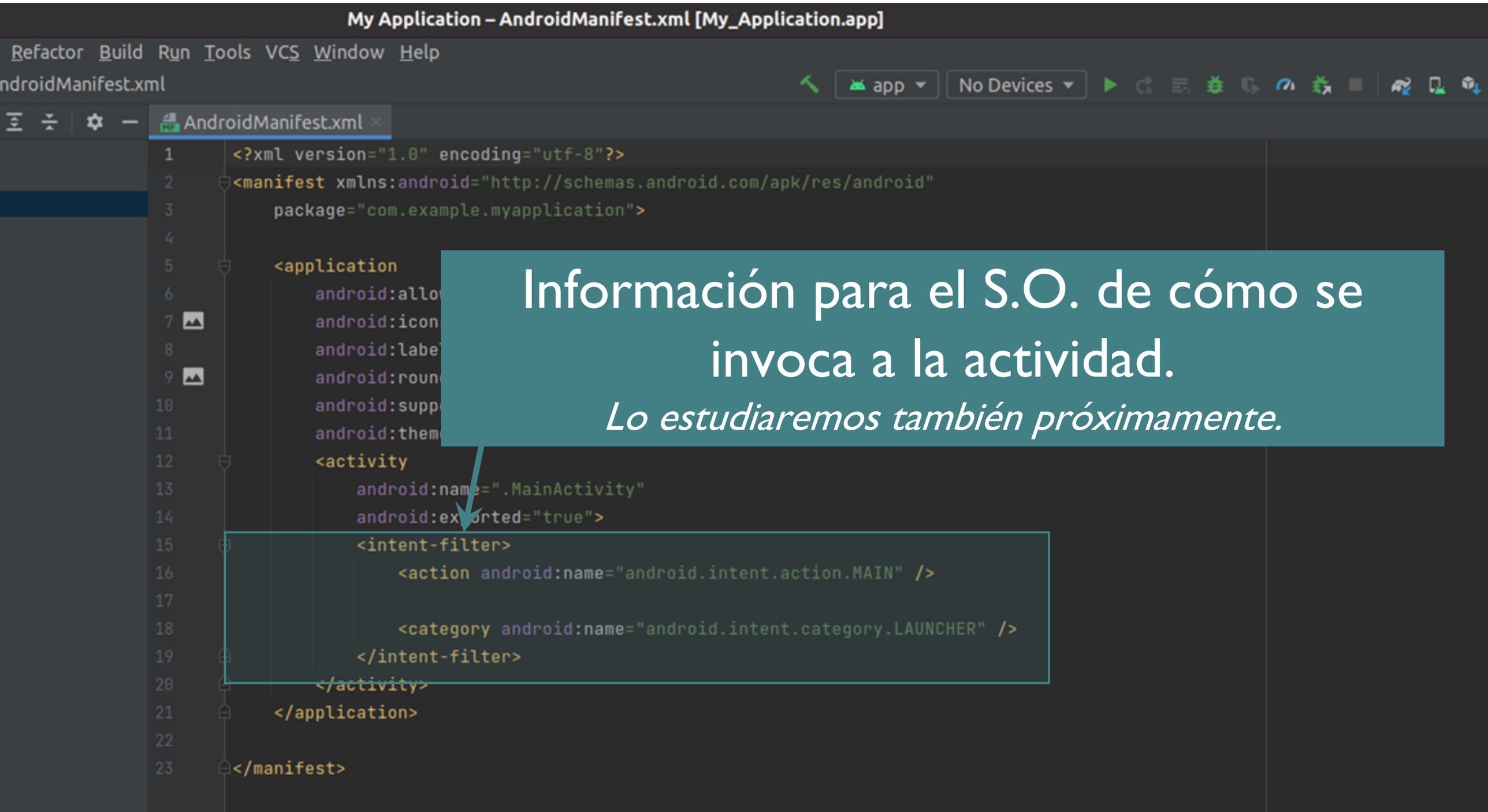
AndroidManifest.xml

Además, describe cómo está compuesta la aplicación.

Más adelante estudiaremos que existen 4 tipos de "componentes de aplicación" posibles (Activities, Services, Broadcast receivers, Content Providers)

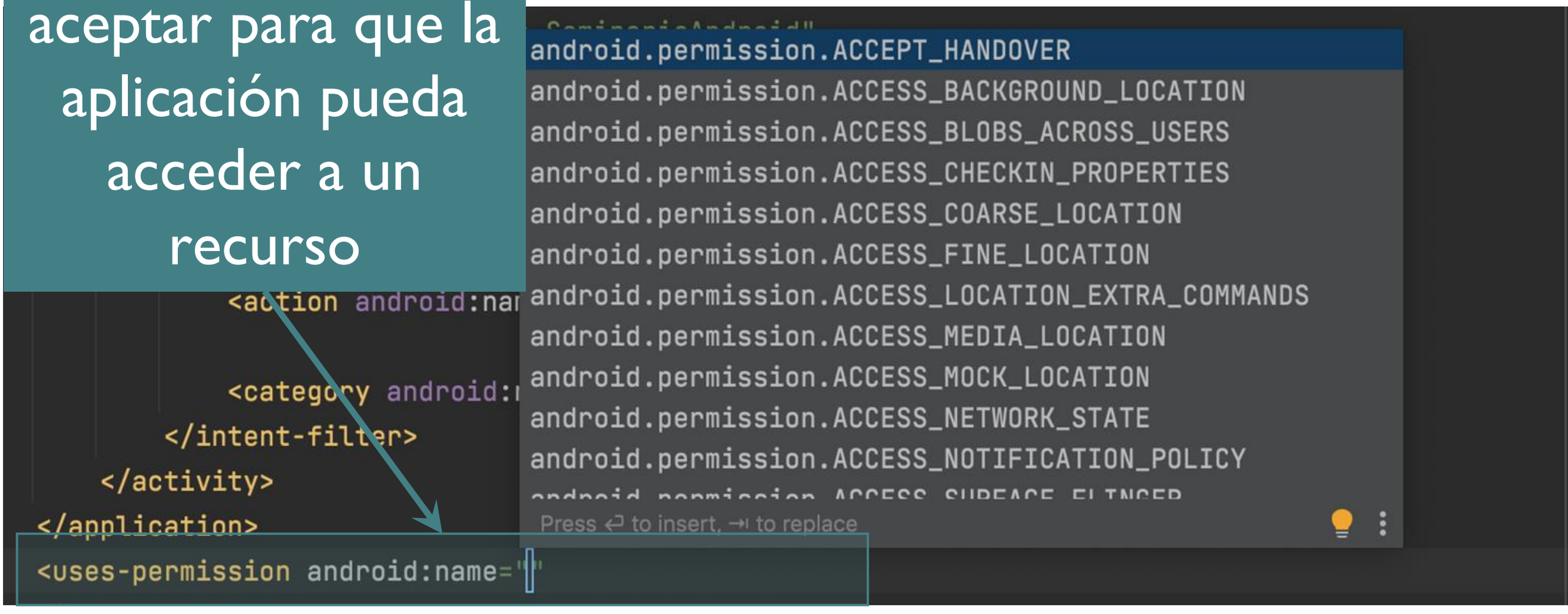


AndroidManifest.xml



Permisos de usuario en AndroidManifest.xml

Permisos que el usuario debe aceptar para que la aplicación pueda acceder a un recurso

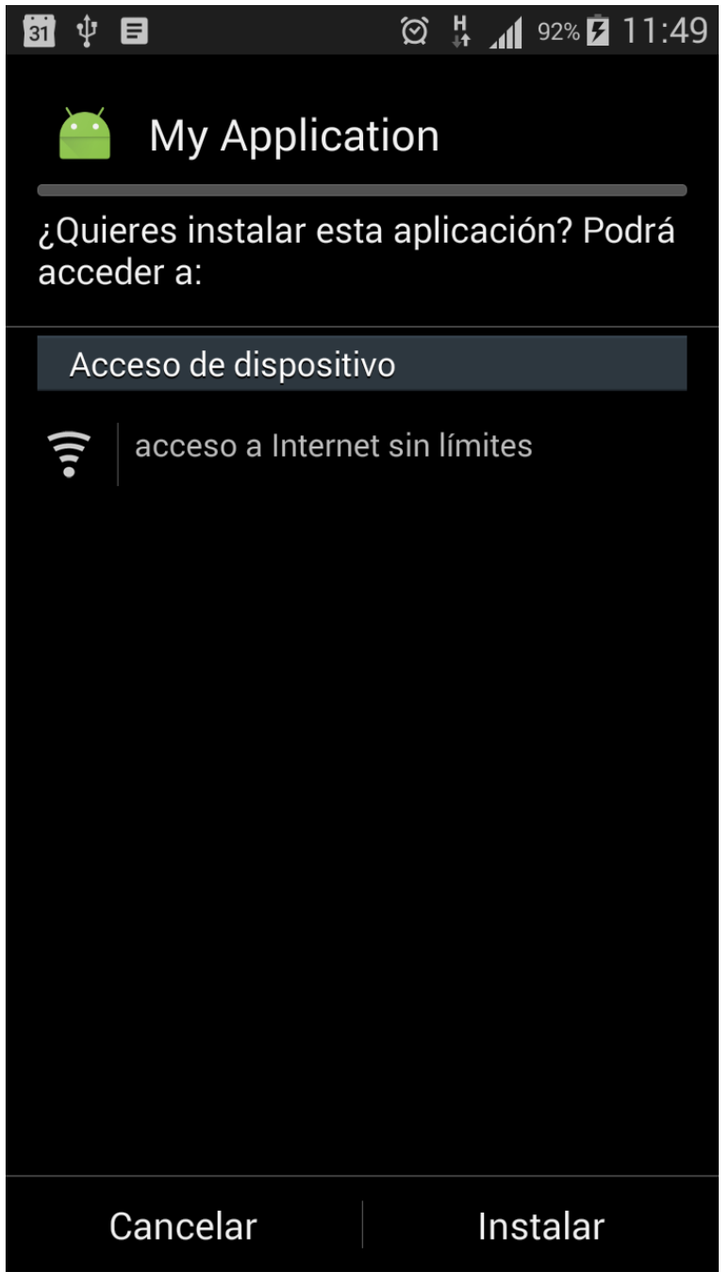


Permisos de usuario en AndroidManifest.xml

Gestión de permisos antes de Android 6

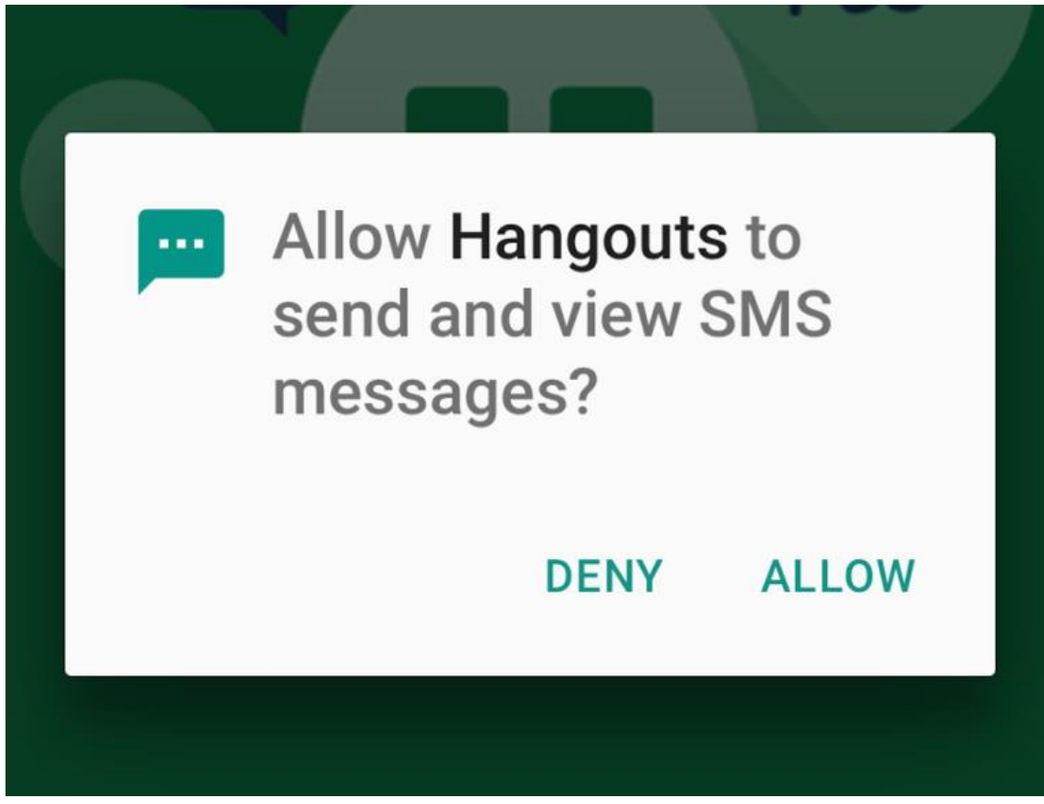
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.ldelia.myapplication">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        an
        an
        an
        <a
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

    </application>

    <uses-permission android:name="android.permission.INTERNET"></uses-permission>
</manifest>
```

Ejemplo de acceso a internet



Permisos de usuario en AndroidManifest.xml

- En versiones inferiores a Android 6 el usuario acepta los permisos en el momento de la instalación
- Desde Android 6 los usuarios aceptan los permisos cuando la aplicación se está ejecutando.
  - Simplifica el proceso de instalación.
  - El usuario tiene mayor control. Puede aceptar algunos permisos y otros no



Durante el curso se seguirá analizando el contenido del archivo AndroidManifest, a medida que se introduzcan nuevos conceptos