

SEMINARIO DE LENGUAJES

OPCIÓN ANDROID



Primeros pasos con Android

Mg. Corbalán Leonardo, Esp. Delía Lisandro



Android Studio 2.2.3

Build #AI-145.3537739, built on December 2, 2016

JRE: 1.8.0_76-release-b03 amd64

JVM: OpenJDK 64-Bit Server VM by JetBrains s.r.o

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Android Studio es un IDE para la plataforma Android y reemplazó a Eclipse como el IDE oficial para el desarrollo de aplicaciones para Android. La primera versión estable fue publicada en diciembre de 2014.

Instrucciones sobre descarga e instalación en:
<https://developer.android.com/studio/index.html>

Hacer clic en *Configure* / *SDK Manager*

ome to Android Studio

icacion1

ndroidStudioProjects\Aplicacion1






cacion2



ndroidStudioProjects\Aplicacion2



Android Studio

Version 2.2.2

-  Start a new Android Studio project
-  Open an existing Android Studio project
-  Check out project from Version Control ▾
-  Import project (Eclipse ADT, Gradle, etc.)
-  Import an Android code sample

 Configure ▾  Get Help ▾

Hacer clic en *Configure* / *SDK Manager*

SDK Platforms SDK Tools SDK Update Sites

Each Android SDK Platform package includes the Android platform and sources pertaining to an API level by default. Once installed, Android Studio will automatically check for updates. Check "show package details" to display individual SDK components.

	Name	API Level	Revision	Status
<input type="checkbox"/>	Android 7.1.1 (Nougat)	25	1	Not installed
<input checked="" type="checkbox"/>	Android 7.0 (Nougat)	24	2	Installed
<input type="checkbox"/>	Android 6.0 (Marshmallow)	23	3	Partially installed
<input type="checkbox"/>	Android 5.1 (Lollipop)	22	2	Partially installed
<input type="checkbox"/>	Android 5.0 (Lollipop)	21	2	Not installed
<input type="checkbox"/>	Android 4.4W (KitKat Wear)	20	2	Not installed
<input type="checkbox"/>	Android 4.4 (KitKat)	19	4	Not installed
<input type="checkbox"/>	Android 4.3 (Jelly Bean)	18	3	Not installed
<input type="checkbox"/>	Android 4.2 (Jelly Bean)	17	3	Not installed
<input type="checkbox"/>	Android 4.1 (Jelly Bean)	16	5	Not installed
<input type="checkbox"/>	Android 4.0.3 (IceCreamSandwich)	15	5	Not installed
<input type="checkbox"/>	Android 4.0 (IceCreamSandwich)	14	4	Not installed
<input type="checkbox"/>	Android 3.2 (Honeycomb)	13	1	Not installed
<input type="checkbox"/>	Android 3.1 (Honeycomb)	12	3	Not installed
<input type="checkbox"/>	Android 3.0 (Honeycomb)	11	2	Not installed
<input type="checkbox"/>	Android 2.3.3 (Gingerbread)	10	2	Not installed
<input type="checkbox"/>	Android 2.3 (Gingerbread)	9	2	Not installed
<input type="checkbox"/>	Android 2.2 (Froyo)	8	3	Not installed
<input type="checkbox"/>	Android 2.1 (Eclair)	7	3	Not installed

Android 7.0 instalado

Android 6.0 parcialmente instalado

Android 5.1 parcialmente instalado

Show Package Details

Apply

Help

Hacer clic en *Configure* / *SDK Manager*

Android SDK Location: C:\Users\leona\AppData\Local\Android\Sdk

SDK Platforms SDK Tools SDK Update Sites

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<input type="checkbox"/>	Android 5.0 (Lollipop)	21	2	Not installed
<input type="checkbox"/>	Android 4.4W (KitKat Wear)	20	2	Not installed
<input type="checkbox"/>	Android 4.4 (KitKat)	19	4	Not installed
<input type="checkbox"/>	Android 4.3 (Jelly Bean)	18	3	Not installed
<input type="checkbox"/>	Android 4.2 (Jelly Bean)	17	3	Not installed
<input type="checkbox"/>	Android 4.1 (Jelly Bean)	16	5	Not installed
<input type="checkbox"/>	Android 4.0.3 (IceCreamSandwich)	15	5	Not installed
<input type="checkbox"/>	Android 4.0 (IceCreamSandwich)	14		
<input type="checkbox"/>	Android 3.2 (Honeycomb)	13		
<input type="checkbox"/>	Android 3.1 (Honeycomb)	12		
<input type="checkbox"/>	Android 3.0 (Honeycomb)	11		
<input type="checkbox"/>	Android 2.3.3 (Gingerbread)	10		
<input type="checkbox"/>	Android 2.3 (Gingerbread)	9		
<input type="checkbox"/>	Android 2.2 (Froyo)	8		
<input type="checkbox"/>	Android 2.1 (Eclair)	7		

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

Es recomendable instalar las APIs de las versiones 21 y superiores si se desea aprovechar **Instant Run** sobre un dispositivo con alguna de estas versiones de Android

Hacer clic en *Configure* / *SDK Manager*

Settings

Appearance & Behavior

Performance & Behavior

Android SDK Location: C:\Users\leona\AppData\Local\Android\Sdk [Edit](#)

SDK Platforms SDK Tools SDK Update Sites

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<input type="checkbox"/>	Android 5.1 (Lollipop)	22	2	Partially installed
<input type="checkbox"/>	Android 5.0 (Lollipop)	21	2	Not installed
<input type="checkbox"/>	Android 4.4W (KitKat Wear)	20	2	Not installed
<input type="checkbox"/>	Android 4.4 (KitKat)	19	4	Not installed
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<input type="checkbox"/>	Android 3.2 (Honeycomb)	13	1	Not installed
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<input type="checkbox"/>	Android 2.3 (Gingerbread)	9	3	Not installed
<input type="checkbox"/>	Android 2.2 (Froyo)	8	2	Not installed
<input type="checkbox"/>	Android 2.1 (Eclair)	7	3	Not installed

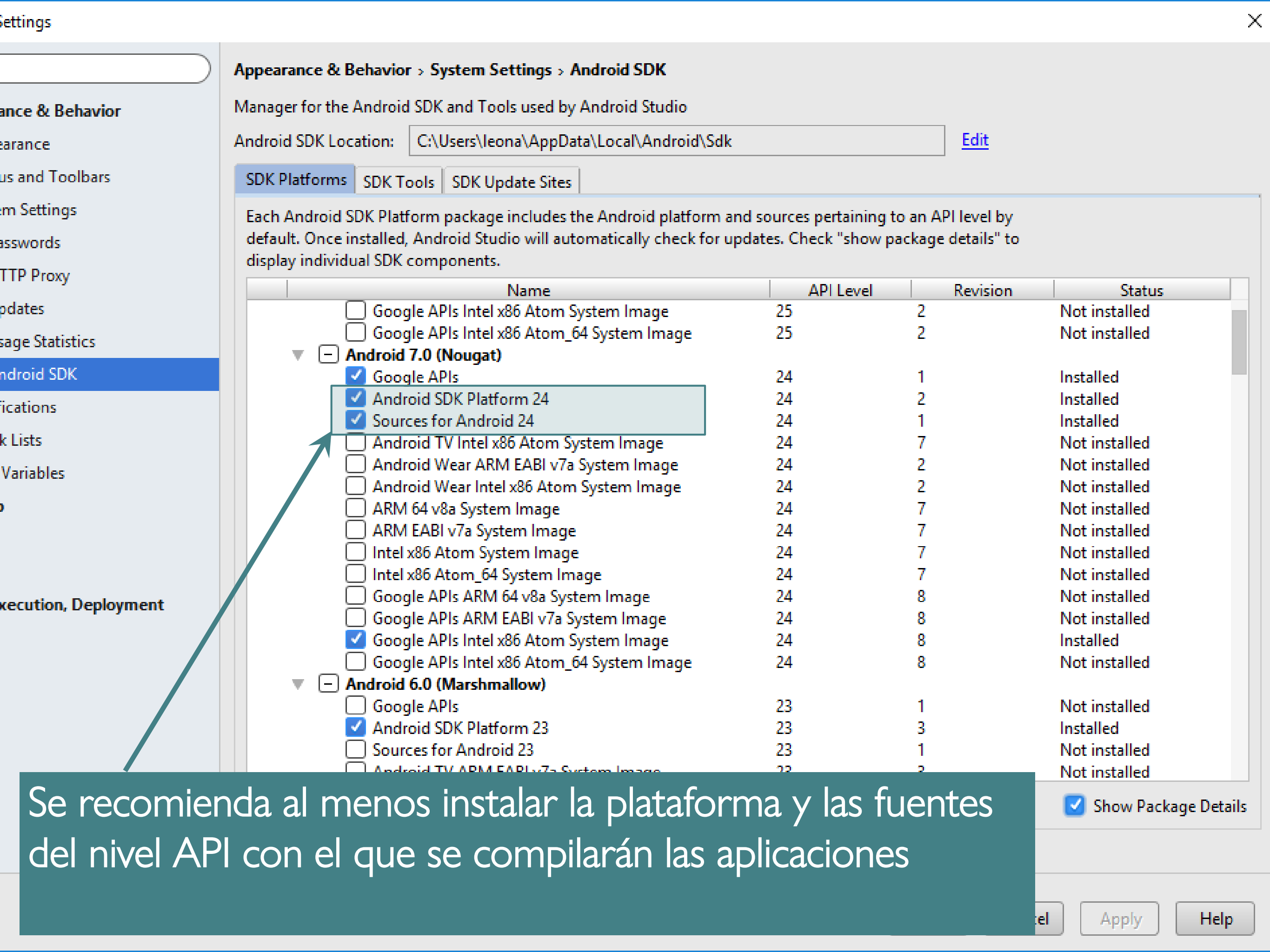
Looking for updates...

[Launch Standalone SDK Manager](#)

☐ Show Package Details

OK Cancel Apply Help

Hacer clic aquí



Appearance & Behavior > System Settings > Android SDK

Manager for the Android SDK and Tools used by Android Studio

Android SDK Location:

[Edit](#)

SDK Platforms

SDK Tools

SDK Update Sites

Each Android SDK Platform package includes the Android platform and sources pertaining to an API level by default. Once installed, Android Studio will automatically check for updates. Check "show package details" to display individual SDK components.

	Name	API Level	Revision	Status
<input type="checkbox"/>	Google APIs Intel x86 Atom System Image	25	2	Not installed
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image	25	2	Not installed
▼ <input type="checkbox"/>	Android 7.0 (Nougat)			
<input checked="" type="checkbox"/>	Google APIs	24	1	Installed
<input checked="" type="checkbox"/>	Android SDK Platform 24	24	2	Installed
<input checked="" type="checkbox"/>	Sources for Android 24	24	1	Installed
<input type="checkbox"/>	Android TV Intel x86 Atom System Image	24	7	Not installed
<input type="checkbox"/>	Android Wear ARM EABI v7a System Image	24	2	Not installed
<input type="checkbox"/>	Android Wear Intel x86 Atom System Image	24	2	Not installed
<input type="checkbox"/>	ARM 64 v8a System Image	24	7	Not installed
<input type="checkbox"/>	ARM EABI v7a System Image	24	7	Not installed
<input type="checkbox"/>	Intel x86 Atom System Image	24	7	Not installed
<input type="checkbox"/>	Intel x86 Atom_64 System Image	24	7	Not installed
<input type="checkbox"/>	Google APIs ARM 64 v8a System Image	24	8	Not installed
<input type="checkbox"/>	Google APIs ARM EABI v7a System Image	24	8	Not installed
<input checked="" type="checkbox"/>	Google APIs Intel x86 Atom System Image	24	8	Installed
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image	24	8	Not installed
▼ <input type="checkbox"/>	Android 6.0 (Marshmallow)			
<input type="checkbox"/>	Google APIs	23	1	Not installed
<input checked="" type="checkbox"/>	Android SDK Platform 23	23	3	Installed
<input type="checkbox"/>	Sources for Android 23	23	1	Not installed
<input type="checkbox"/>	Android TV ARM EABI v7a System Image	23	2	Not installed

☒ Show Package Details

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

Cancel

Apply

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Settings

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Manager for the Android SDK and Tools used by Android Studio

Android SDK Location: C:\Users\leona\AppData\Local\Android\Sdk

SDK Platforms | SDK Tools | SDK Update Sites

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<input type="checkbox"/>	Google APIs Intel x86 Atom System Image	25	2	Not installed
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▼ <input type="checkbox"/>	Android 7.0 (Nougat)			
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<input checked="" type="checkbox"/>	Sources for Android 24	24	1	Installed
<input type="checkbox"/>	Android TV Intel x86 Atom System Image	24	7	Not installed
<input type="checkbox"/>	Android Wear ARM EABI v7a System Image	24	2	Not installed
<input type="checkbox"/>	Android Wear Intel x86 Atom System Image			
<input type="checkbox"/>	ARM 64 v8a System Image			
<input type="checkbox"/>	ARM EABI v7a System Image			
<input type="checkbox"/>	Intel x86 Atom System Image			
<input type="checkbox"/>	Intel x86 Atom_64 System Image			
<input type="checkbox"/>	Google APIs ARM 64 v8a System Image			
<input type="checkbox"/>	Google APIs ARM EABI v7a System Image			
<input checked="" type="checkbox"/>	Google APIs Intel x86 Atom System Image			
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image			
▼ <input type="checkbox"/>	Android 6.0 (Marshmallow)			
<input type="checkbox"/>	Google APIs			
<input checked="" type="checkbox"/>	Android SDK Platform 23	23	3	Installed
<input type="checkbox"/>	Sources for Android 23	23	1	Not installed
<input type="checkbox"/>	Android TV ARM EABI v7a System Image	23	3	Not installed

☒ Show Package Details

Launch Standalone SDK Manager

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

Appearance & Behavior

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Appearance & Behavior > System Settings > Android SDK

Manager for the Android SDK and Tools used by Android Studio

Android SDK Location: C:\Use

SDK Platforms

SDK Tools

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

Each Android SDK Platform package contains a default system image. Once installed, Android Studio will display individual SDK components.

<input type="checkbox"/>	Google APIs			
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image	25	2	Not installed
▼ <input checked="" type="checkbox"/>	Android 7.0 (Nougat)			
<input checked="" type="checkbox"/>	Google APIs	24	1	Installed
<input checked="" type="checkbox"/>	Android SDK Platform 24	24	2	Installed
<input checked="" type="checkbox"/>	Sources for Android 24	24	1	Installed
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<input type="checkbox"/>	Android Wear ARM EABI v7a System Image	24	2	Not installed
<input type="checkbox"/>	Android Wear Intel x86 Atom System Image	24	2	Not installed
<input type="checkbox"/>	ARM 64 v8a System Image	24	7	Not installed
<input type="checkbox"/>	ARM EABI v7a System Image	24	7	Not installed
<input type="checkbox"/>	Intel x86 Atom System Image	24	7	Not installed
<input type="checkbox"/>	Intel x86 Atom_64 System Image	24	7	Not installed
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<input type="checkbox"/>	Google APIs ARM EABI v7a System Image	24	8	Not installed
<input checked="" type="checkbox"/>	Google APIs Intel x86 Atom System Image	24	8	Installed
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image	24	8	Not installed
▼ <input checked="" type="checkbox"/>	Android 6.0 (Marshmallow)			
<input type="checkbox"/>	Google APIs	23	1	Not installed
<input checked="" type="checkbox"/>	Android SDK Platform 23	23	3	Installed
<input type="checkbox"/>	Sources for Android 23	23	1	Not installed
<input type="checkbox"/>	Android TV ARM EABI v7a System Image	23	3	Not installed

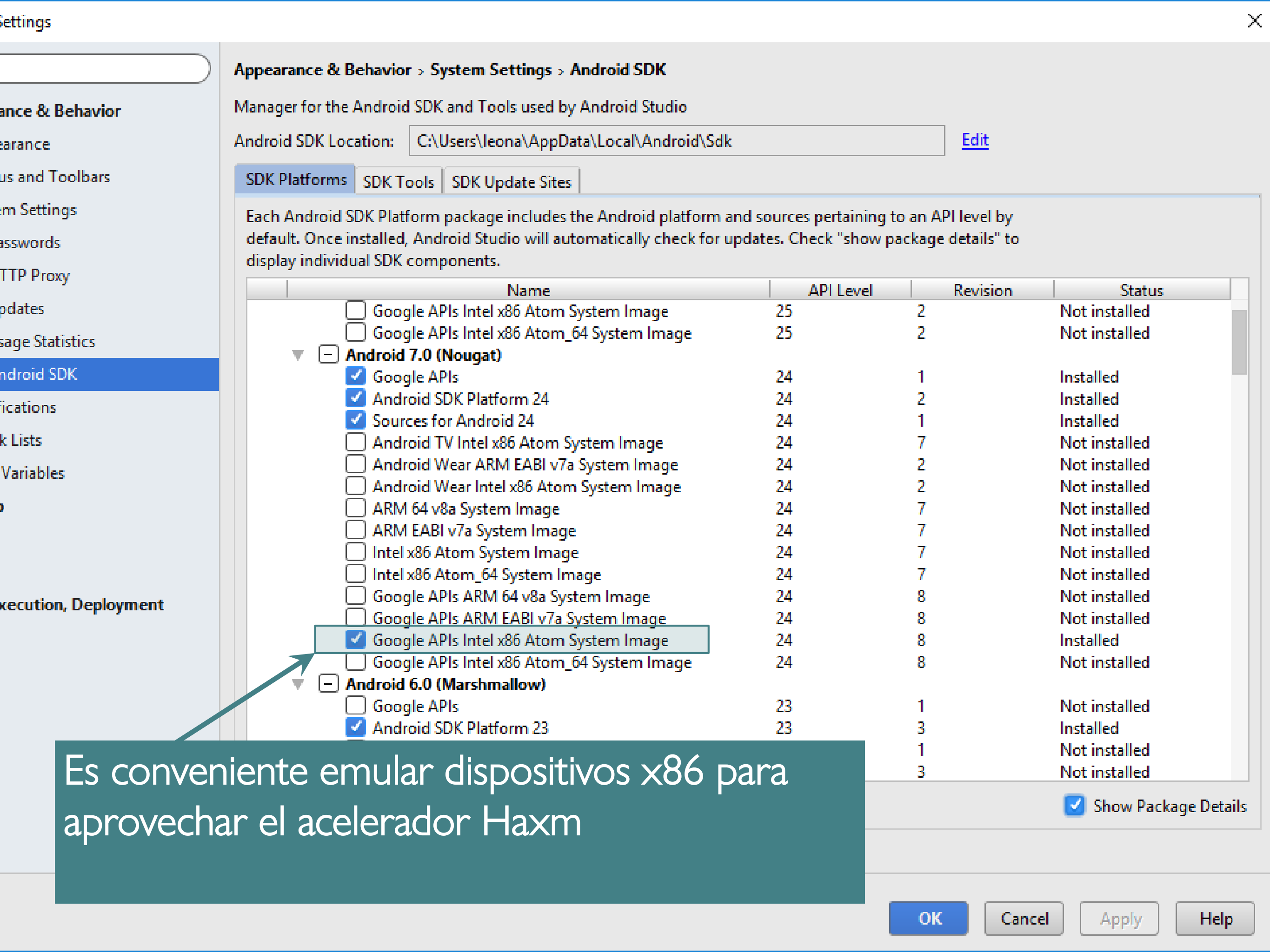
☒ Show Package Details[Launch Standalone SDK Manager](#)

OK

Cancel

Apply

Help



Appearance & Behavior > System Settings > Android SDK

Manager for the Android SDK and Tools used by Android Studio

Android SDK Location:

[Edit](#)

SDK Platforms

SDK Tools

SDK Update Sites

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<input type="checkbox"/>	ARM EABI v7a System Image	24	7	Not installed
<input type="checkbox"/>	Intel x86 Atom System Image	24	7	Not installed
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<input type="checkbox"/>	Google APIs ARM EABI v7a System Image	24	8	Not installed
<input checked="" type="checkbox"/>	Google APIs Intel x86 Atom System Image	24	8	Installed
<input type="checkbox"/>	Google APIs Intel x86 Atom_64 System Image	24	8	Not installed
▼ <input type="checkbox"/>	Android 6.0 (Marshmallow)			
<input type="checkbox"/>	Google APIs	23	1	Not installed
<input checked="" type="checkbox"/>	Android SDK Platform 23	23	3	Installed
			1	Not installed
			3	Not installed

☒ Show Package Details

Es conveniente emular dispositivos x86 para aprovechar el acelerador Haxm

OK

Cancel

Apply

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Execution, Deployment

Appearance & Behavior > System Settings > Android SDK

Manager for the Android SDK and Tools used by Android Studio

Android SDK Location: C:\Users\leona\AppData\Local\Android\Sdk

[Edit](#)

SDK Platforms

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SDK Update Sites

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	Name	API Level	Revision	Status
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▼ <input type="checkbox"/>	Android 7.0 (Nougat)			
			1	Installed
			2	Installed
			1	Installed
			7	Not installed
			2	Not installed
			2	Not installed
			7	Not installed
			7	Not installed
			7	Not installed
			7	Not installed
			8	Not installed
			8	Not installed
			9	Installed
<input type="checkbox"/>	Intel x86 Atom_64 System Image	24		
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	Google APIs	23		
<input checked="" type="checkbox"/>	Android SDK Platform 23	23		
<input type="checkbox"/>	Sources for Android 23	23		
<input type="checkbox"/>	Android TV ARM EABI v7a System Image	23		

Tener instalada la plataforma de la API 23, nos permite correr y depurar las aplicaciones que desarrollamos en un dispositivo con Android 6.0

Presionar en el botón Cancel

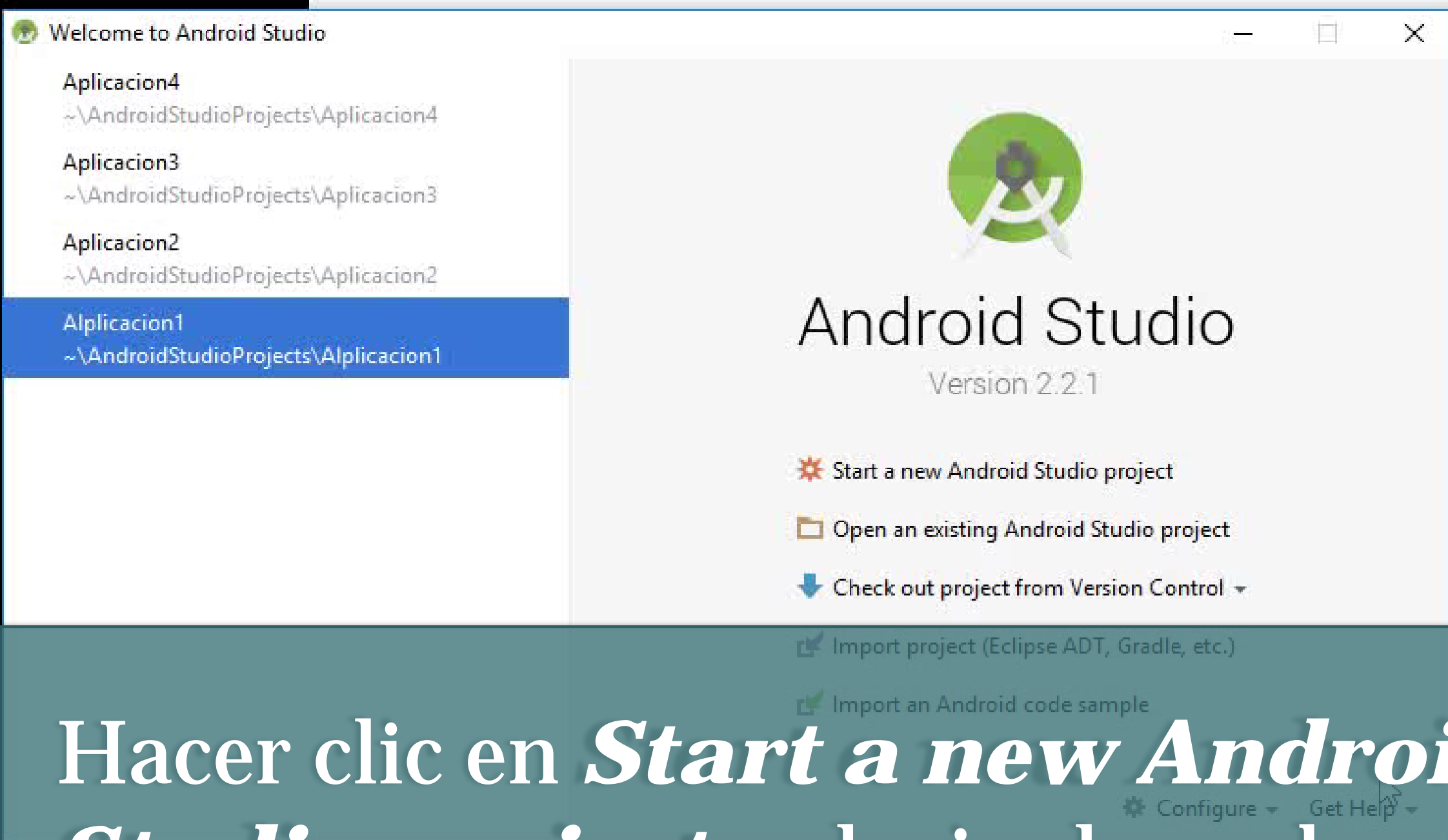
[Launch Standalone SDK Manager](#)☒ Show Package Details

OK

Cancel

Apply

Help



Hacer clic en ***Start a new Android Studio project*** y elegir el nombre de la aplicación



Target Android Devices

Select the form factors your app will run on

Different platforms may require separate SDKs

☒ Phone and Tablet

Minimum SDK API 15: Android 4.0.3 (IceCreamSandwich)

Lower API levels target more devices, but have fewer features available.

By targeting API 15 and later, your app will run on approximately **97,4%** of the devices that are active on the Google Play Store.

[Help me choose](#)

☐ Wear

Minimum SDK API 21: Android 5.0 (Lollipop)

☐ TV

Minimum SDK API 21: Android 5.0 (Lollipop)

☐ Android Auto

Tildar *Phone and Tablet* y
Elegir Minimum SDK: *API 15*

Previous

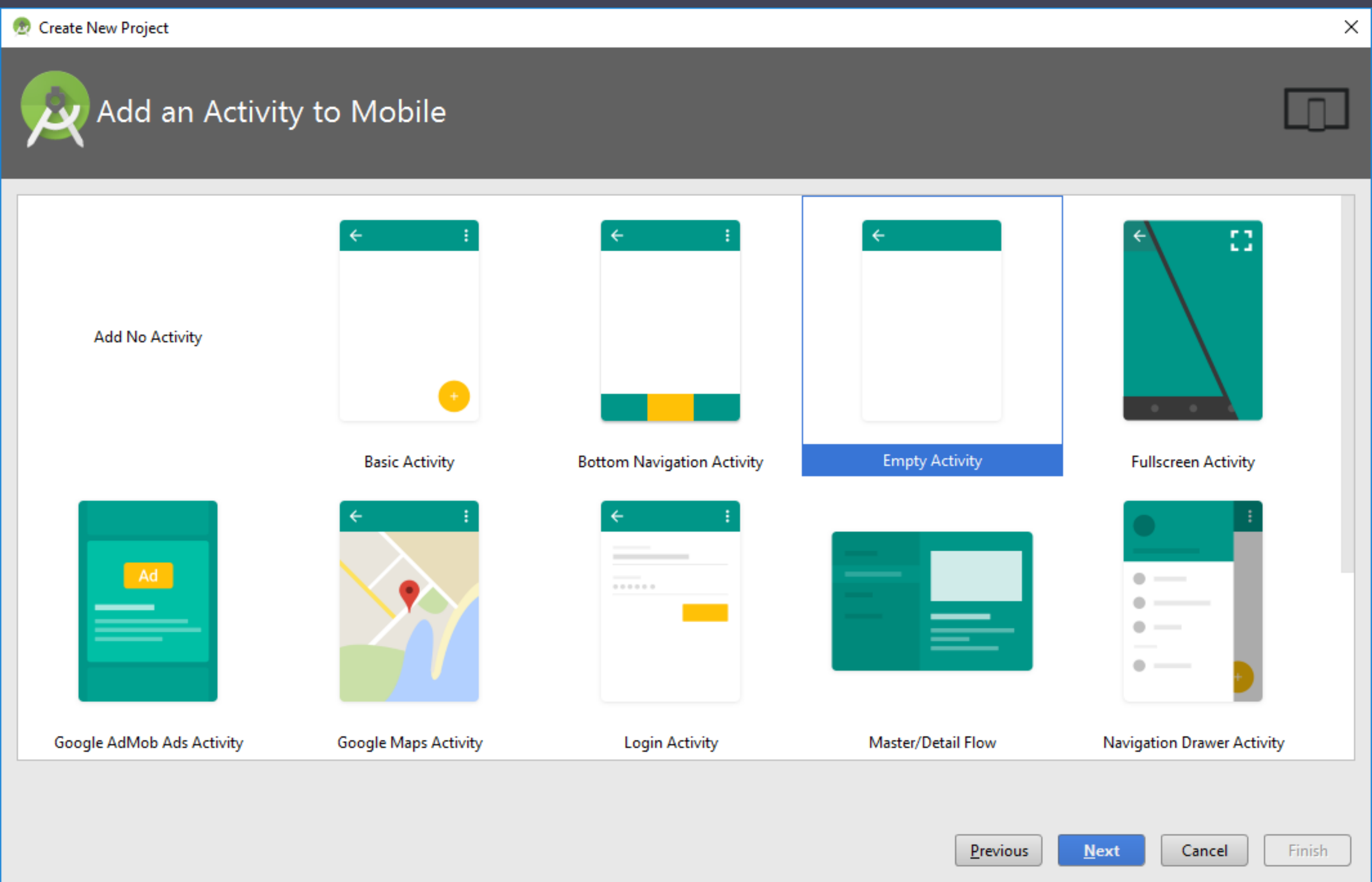
Next

Cancel

Finish

Android Platform Version		API Level	Cumulative Distribution	Ice Cream Sandwich	
4.0	Ice Cream Sandwich	15		Contacts Provider	Accessibility
4.1	Jelly Bean	16	99,2%	Social APIs User profile Invite intent Large photos	Explore-by-touch mode Accessibility for views Accessibility services Improved text-to-speech engine support
4.2	Jelly Bean	17	96,0%	Calendar Provider	User Interface
4.3	Jelly Bean	18	91,4%	Calendar APIs Event intents	Spell checker services Improved action bar Grid layout Texture view Switch widget Improved popup menus System themes Controls for system UI visibility Hover event support Hardware acceleration for all windows
4.4	KitKat	19	90,1%	Voicemail Provider	
5.0	Lollipop	21	71,3%	Add voicemails to the device	
				Multimedia	
5.1	Lollipop	22	62,6%	Media effects for images and videos Remote control client Improved media player	
				Camera	Enterprise
6.0	Marshmallow	23	39,3%	Face detection Focus and metering areas Continuous auto focus Camera broadcast intents	VPN services Device policies Certificate management
				Connectivity	Device Sensors
7.0	Nougat	24	8,1%	Android Beam for NDEF push with NFC Wi-Fi P2P connections Bluetooth health profile Network usage and controls	Improved sensors Temperature sensor Humidity sensor
7.1	Nougat	25	1,5%		

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



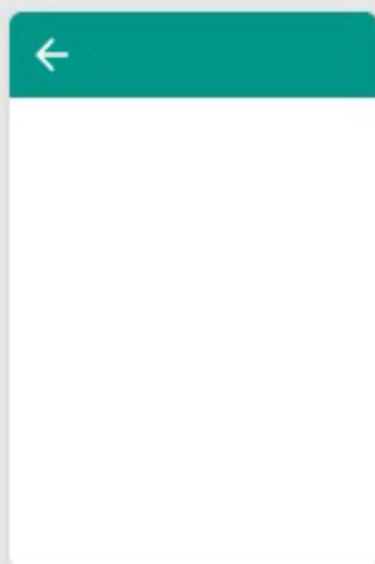
En esta ventana elegir Empty Activity



Customize the Activity



Creates a new empty activity



Activity Name: MainActivity

☒ Generate Layout File

Layout Name: activity_main

☒ Backwards Compatibility (AppCompat)

Empty Activity

Dejar el ***Activity Name*** que propone y presionar ***Finish***

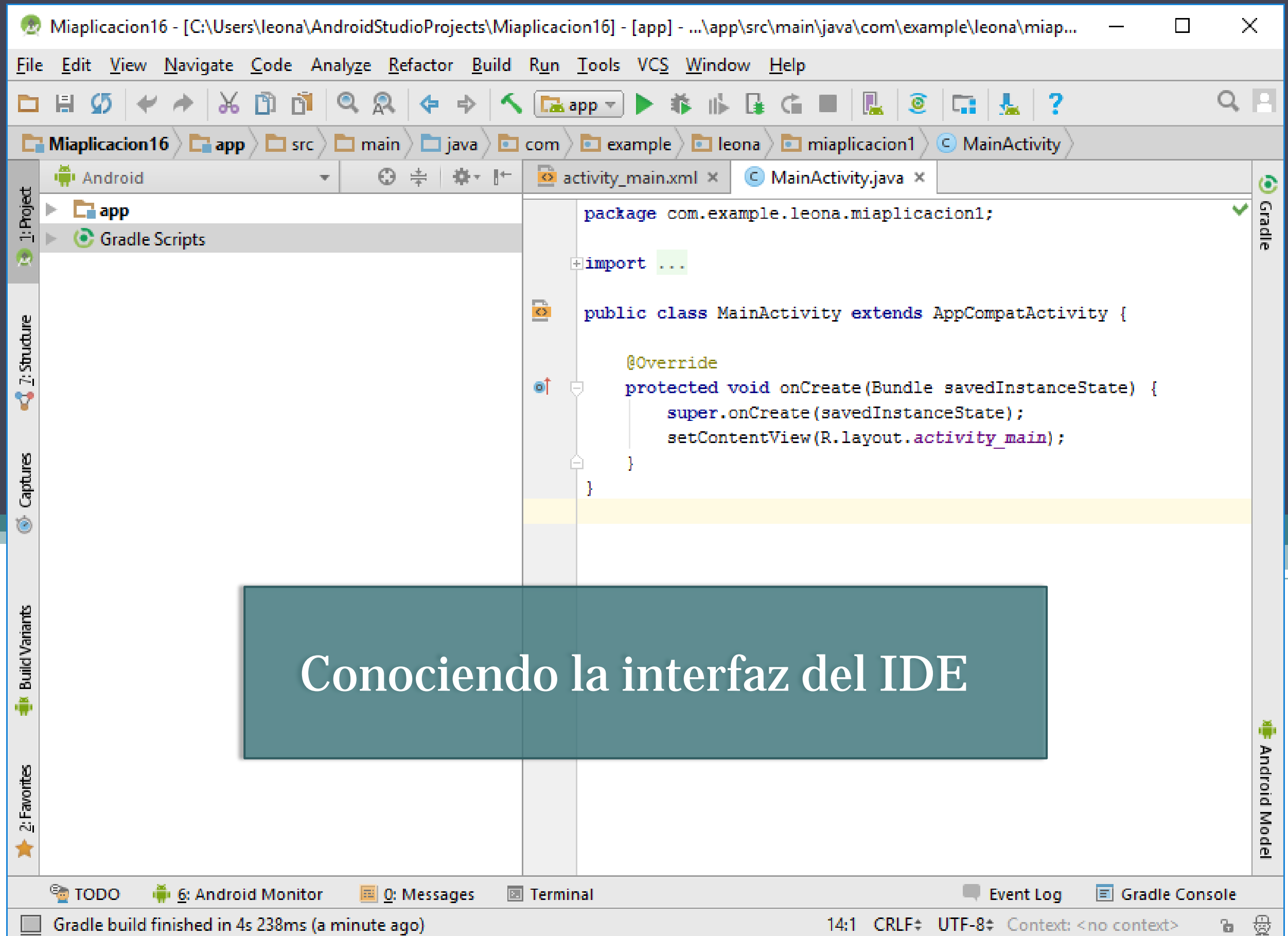
The name of the activity class to create

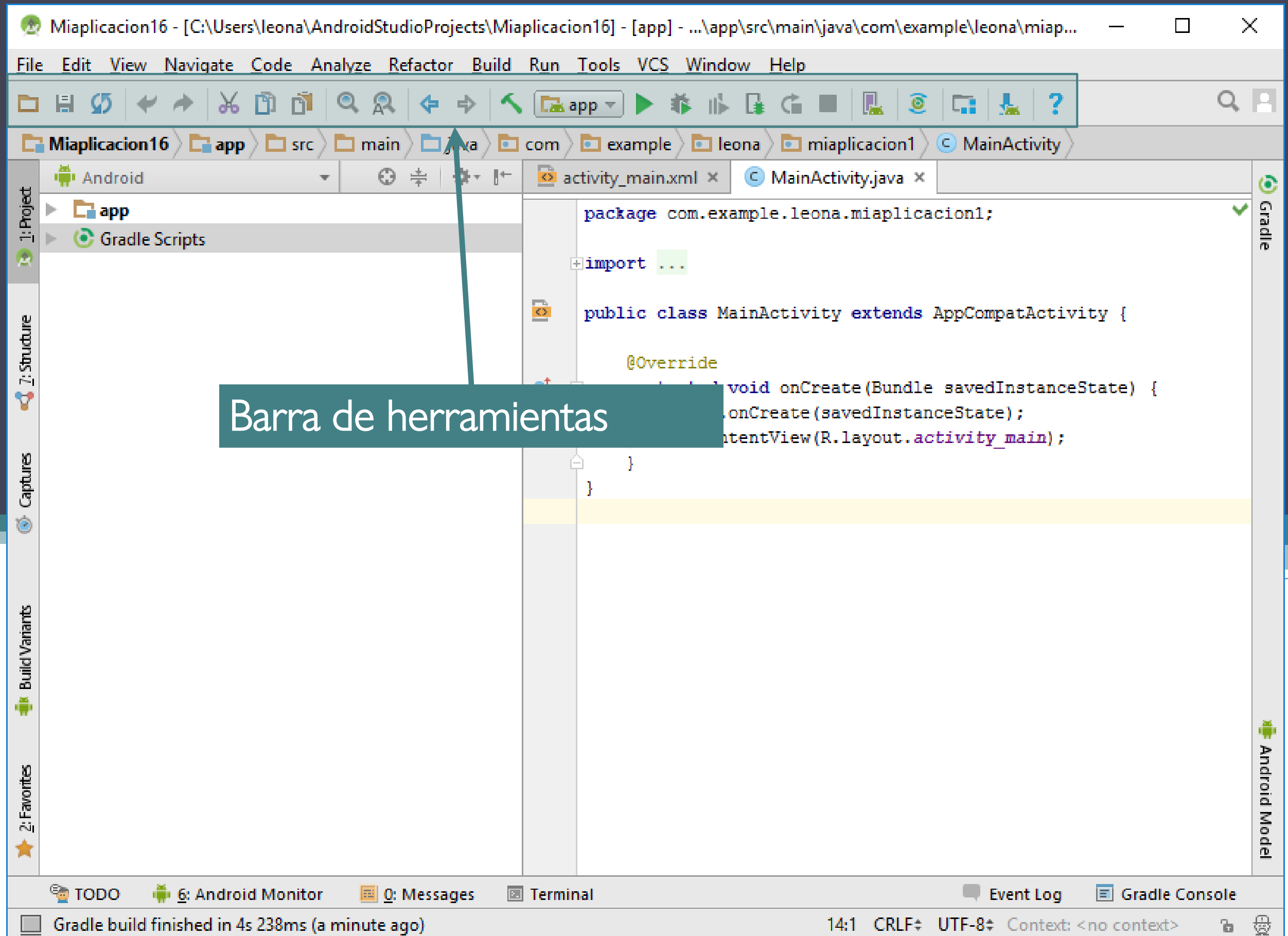
Previous

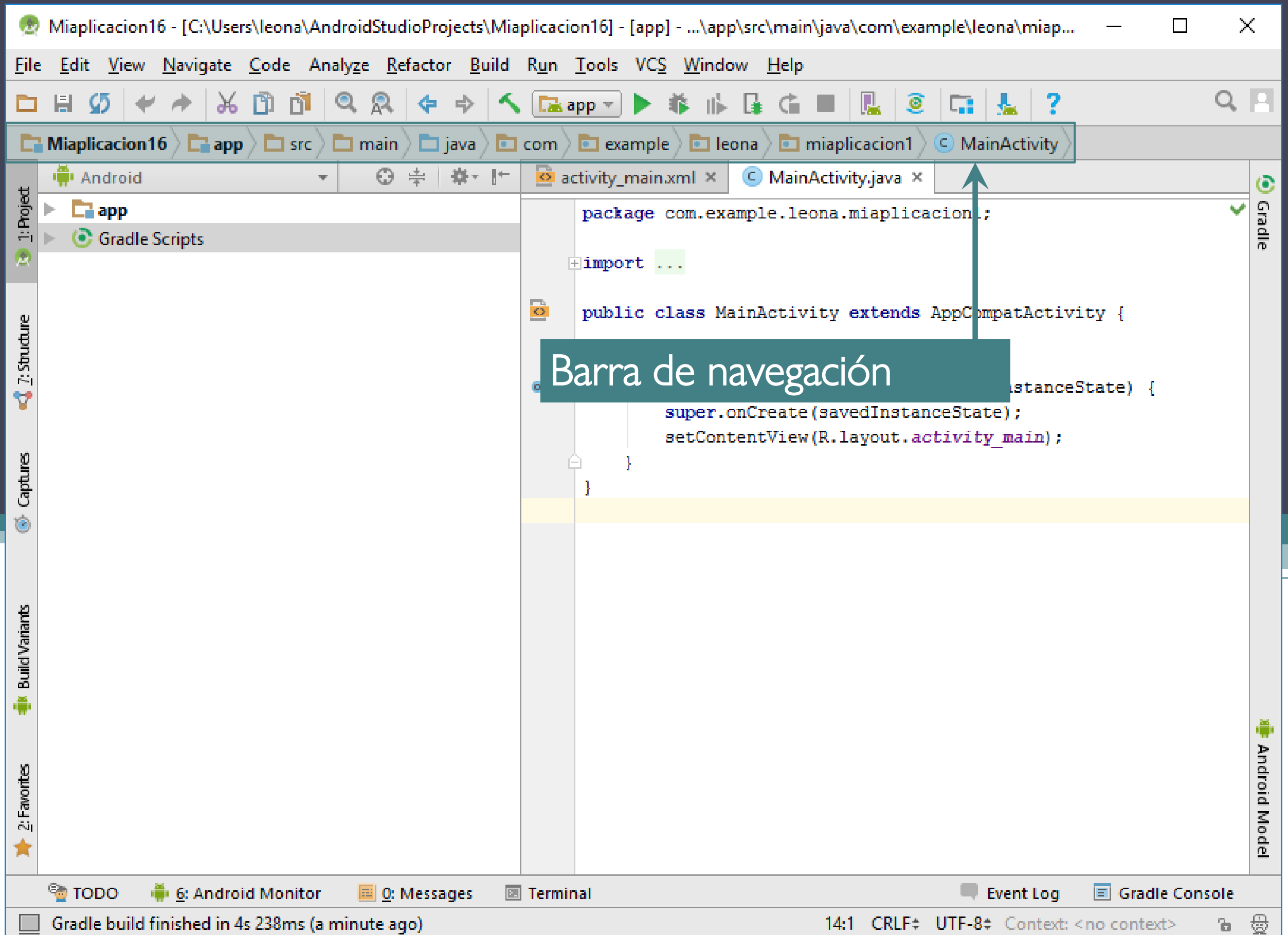
Next

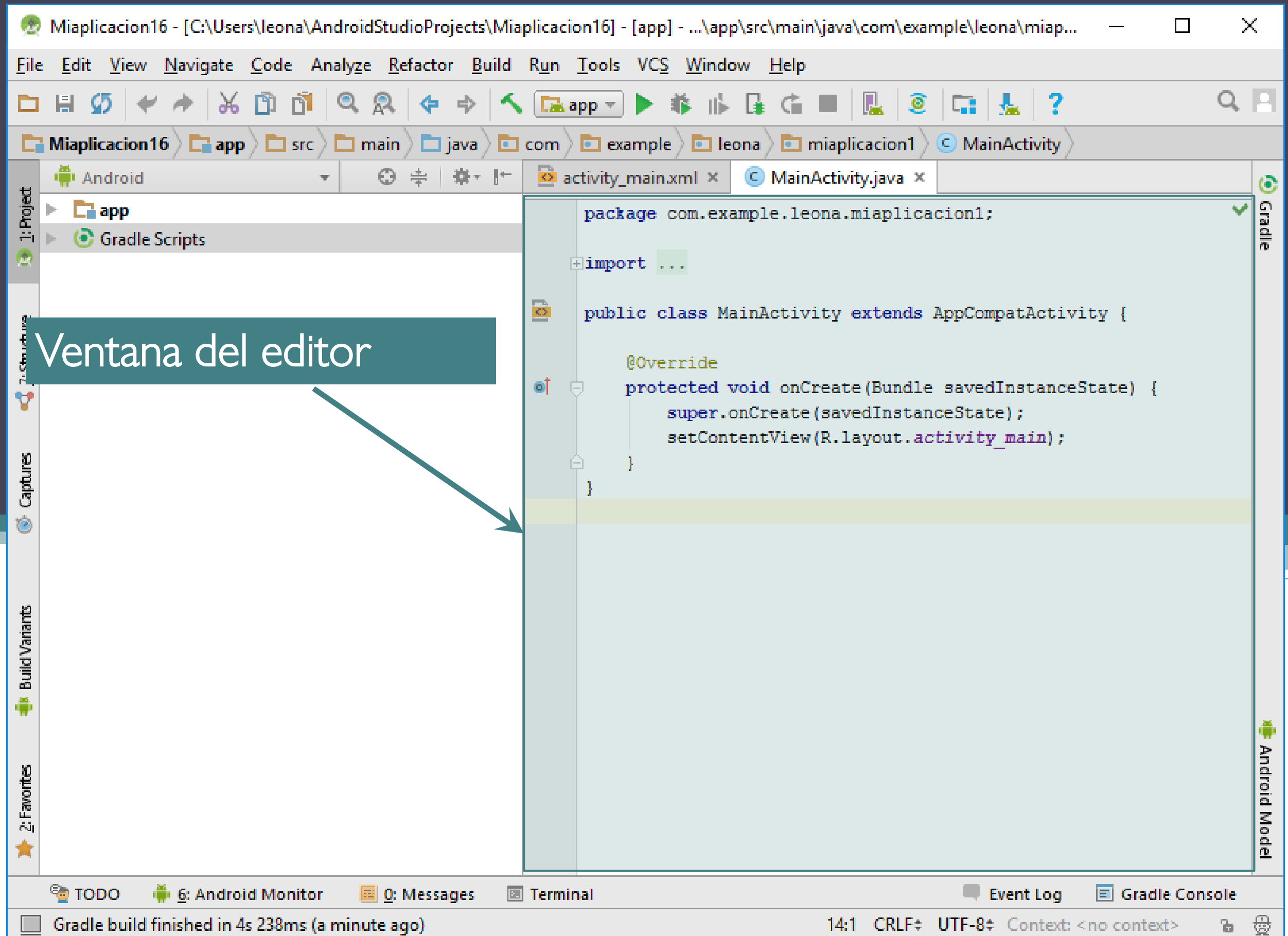
Cancel

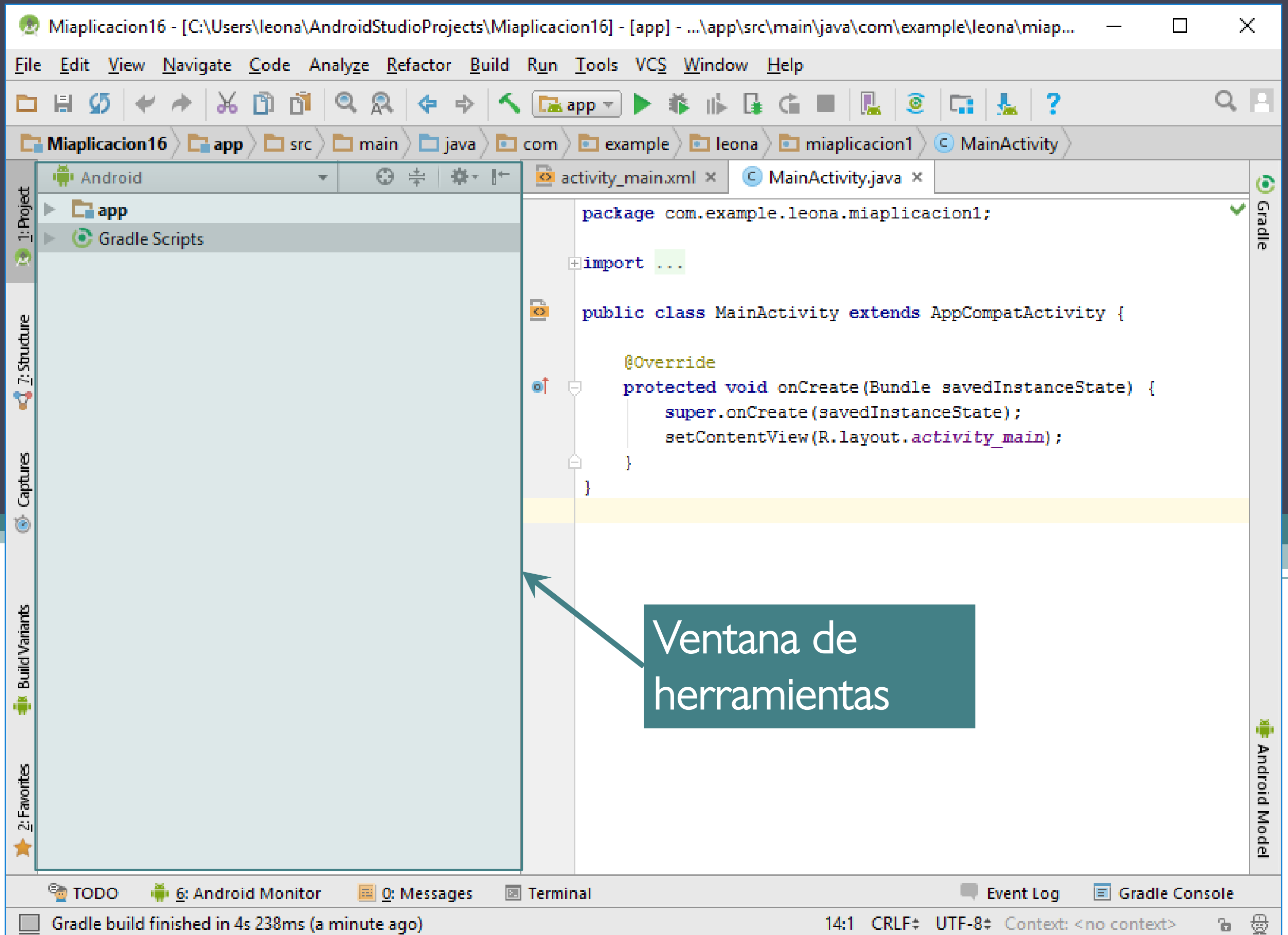
Finish

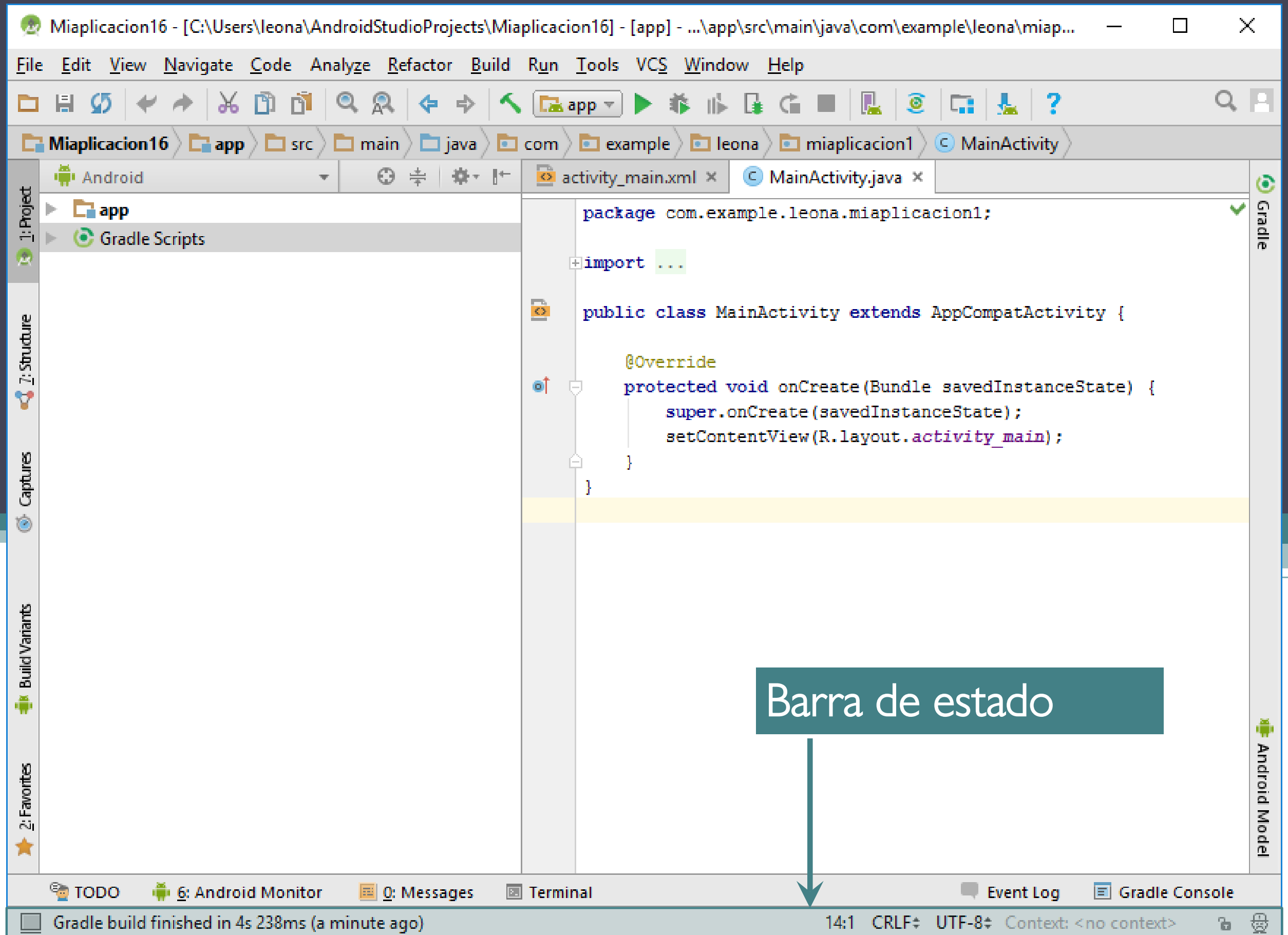


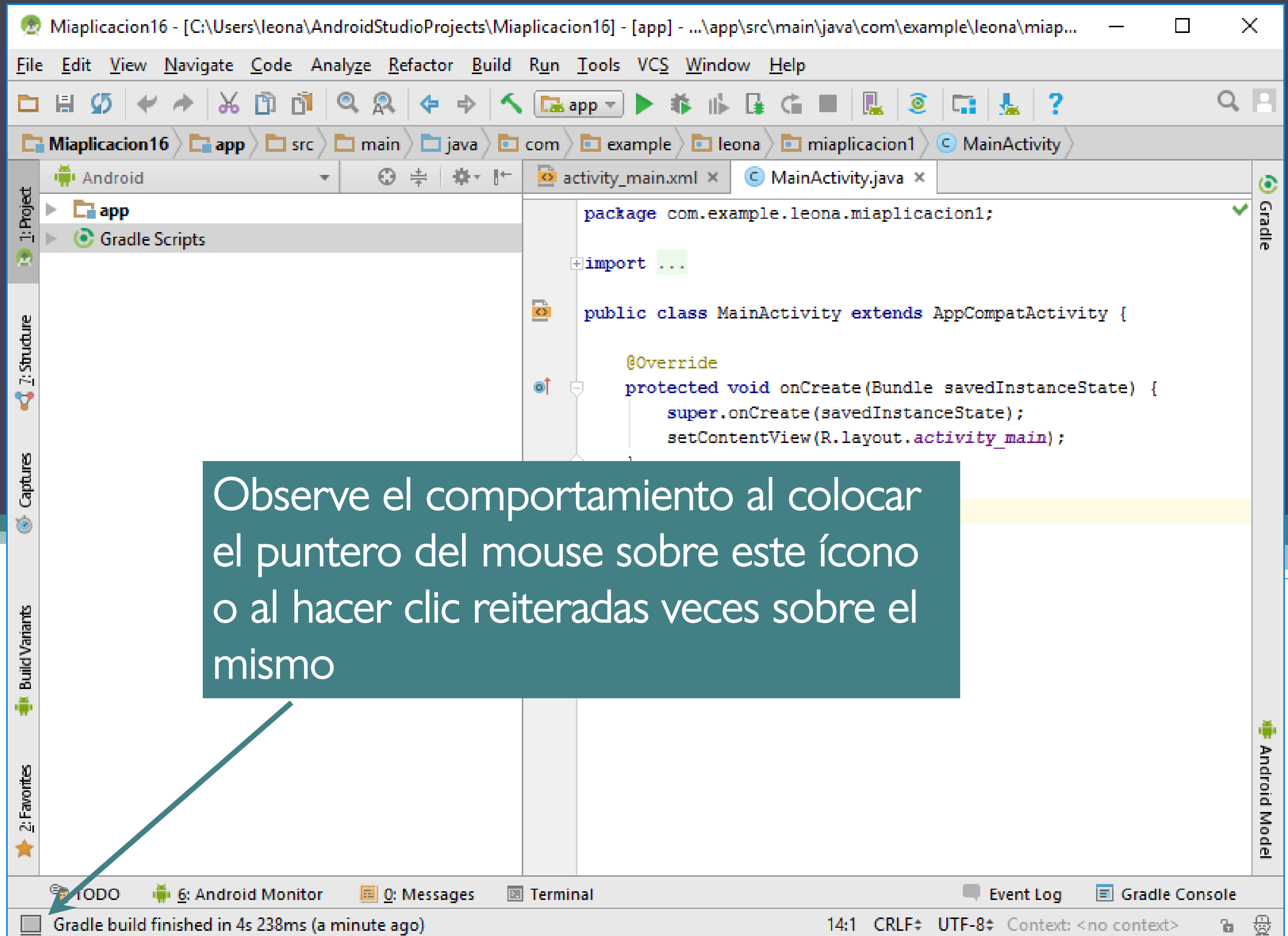












Definición de la clase que constituye la Actividad

```
com.example.leona.miaplicacion1;
```

```
import ...  
  
public class MainActivity extends AppCompatActivity {  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
    }  
}
```

TODO 6: Android Monitor 0: Messages Terminal Event Log Gradle Console

Gradle build finished in 4s 238ms (43 minutes ago)

6:14 CRLF+ UTF-8+ Context: <no context>

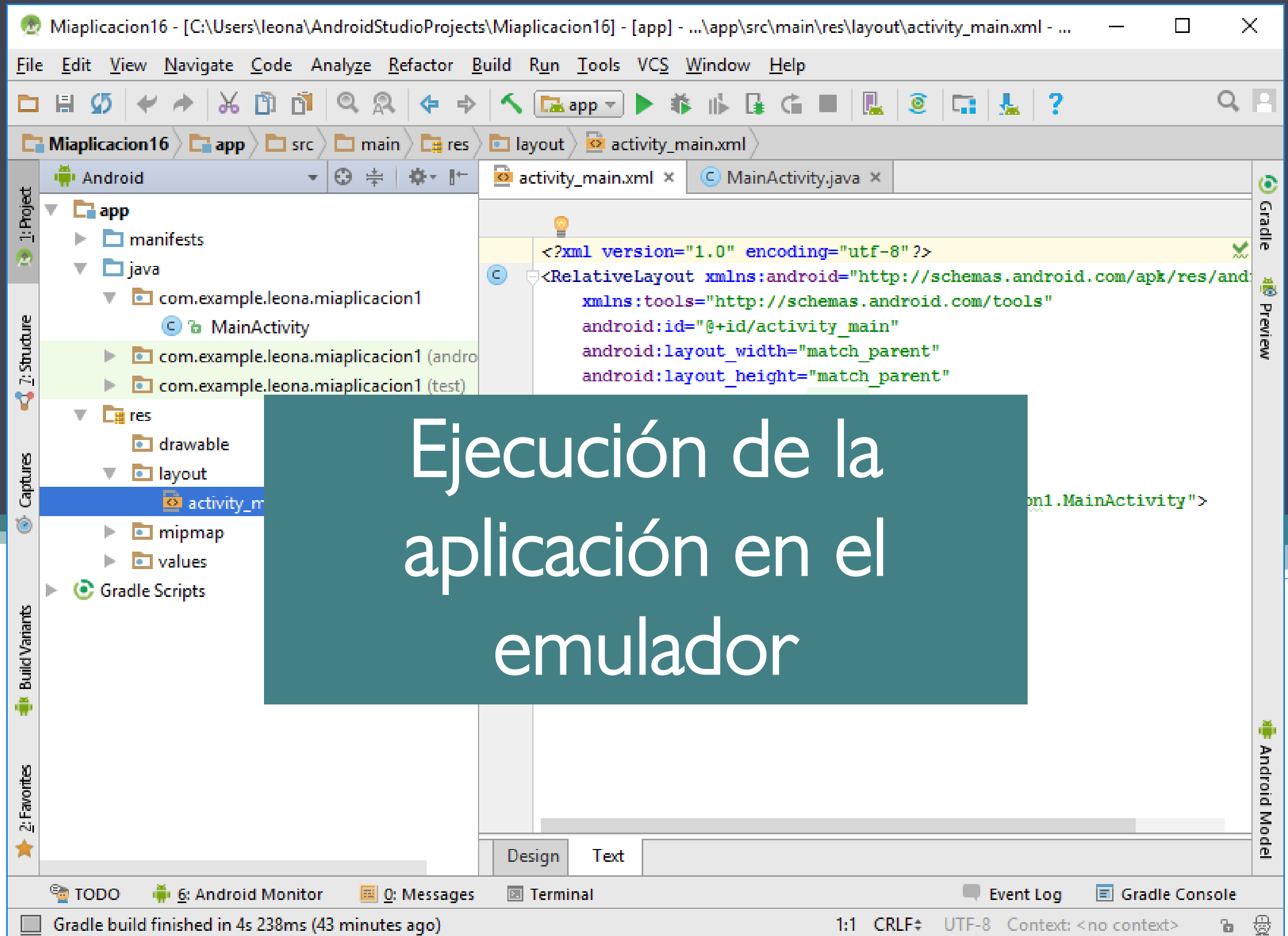
Definición de la vista de la Actividad

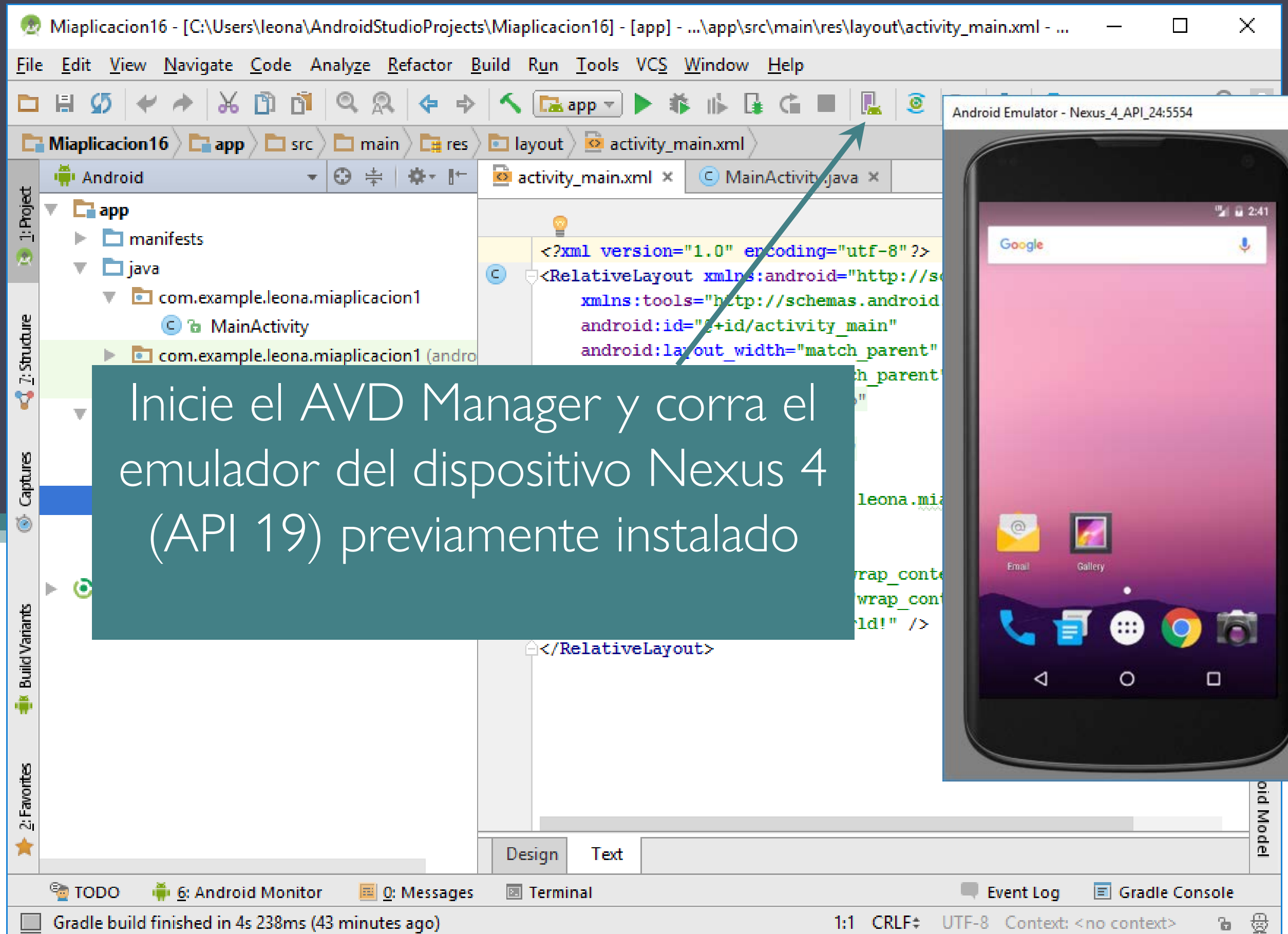
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="16dp"
    android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:paddingTop="16dp"
    tools:context="com.example.leona.miaplicacion1.MainActivity">

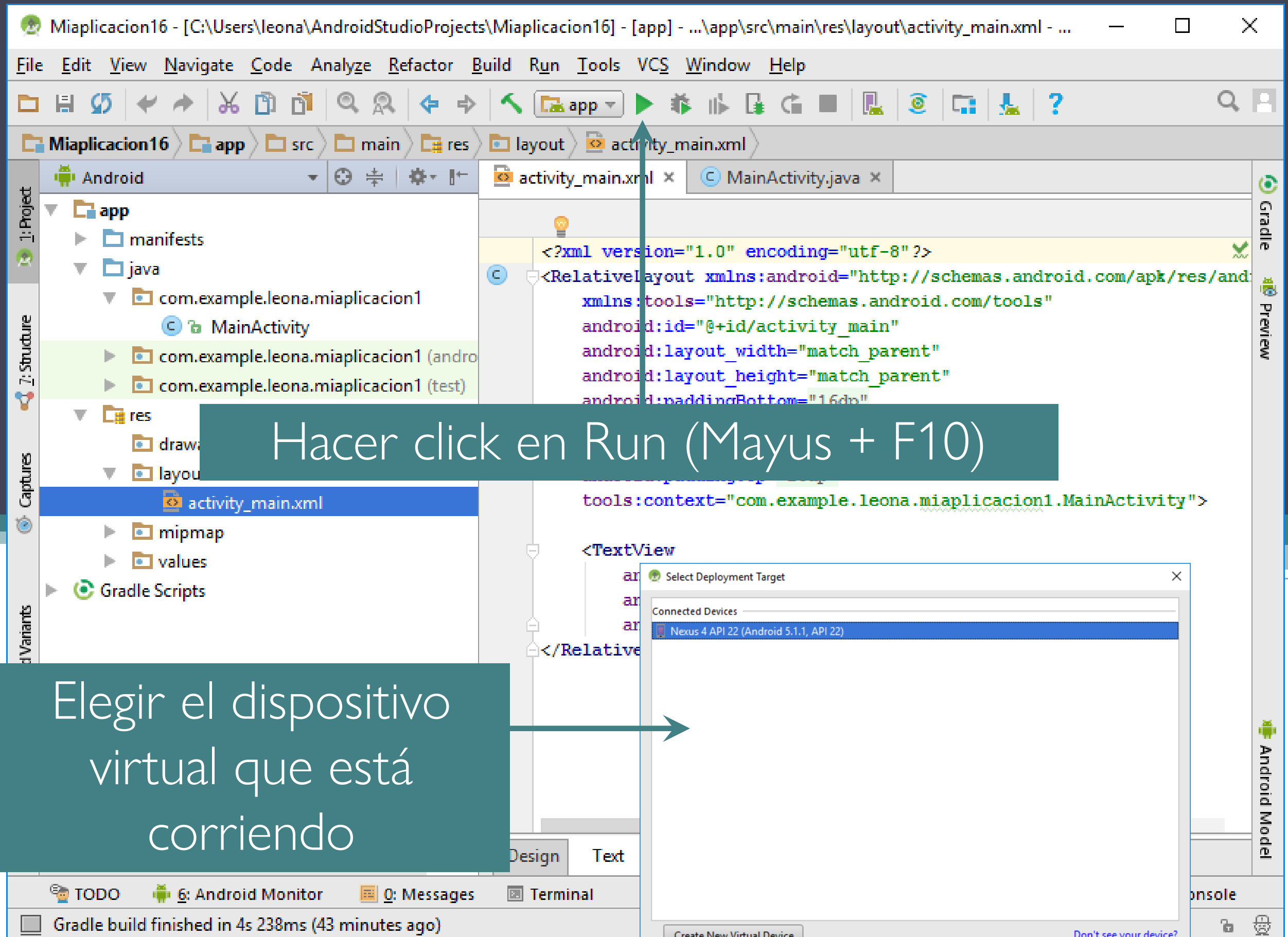
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!" />

</RelativeLayout>
```

Gradle build finished in 4s 238ms (43 minutes ago)







Android Studio interface showing the development of an Android application named "Miaplicacion16". The main editor displays the XML layout file "activity_main.xml" with the following code:

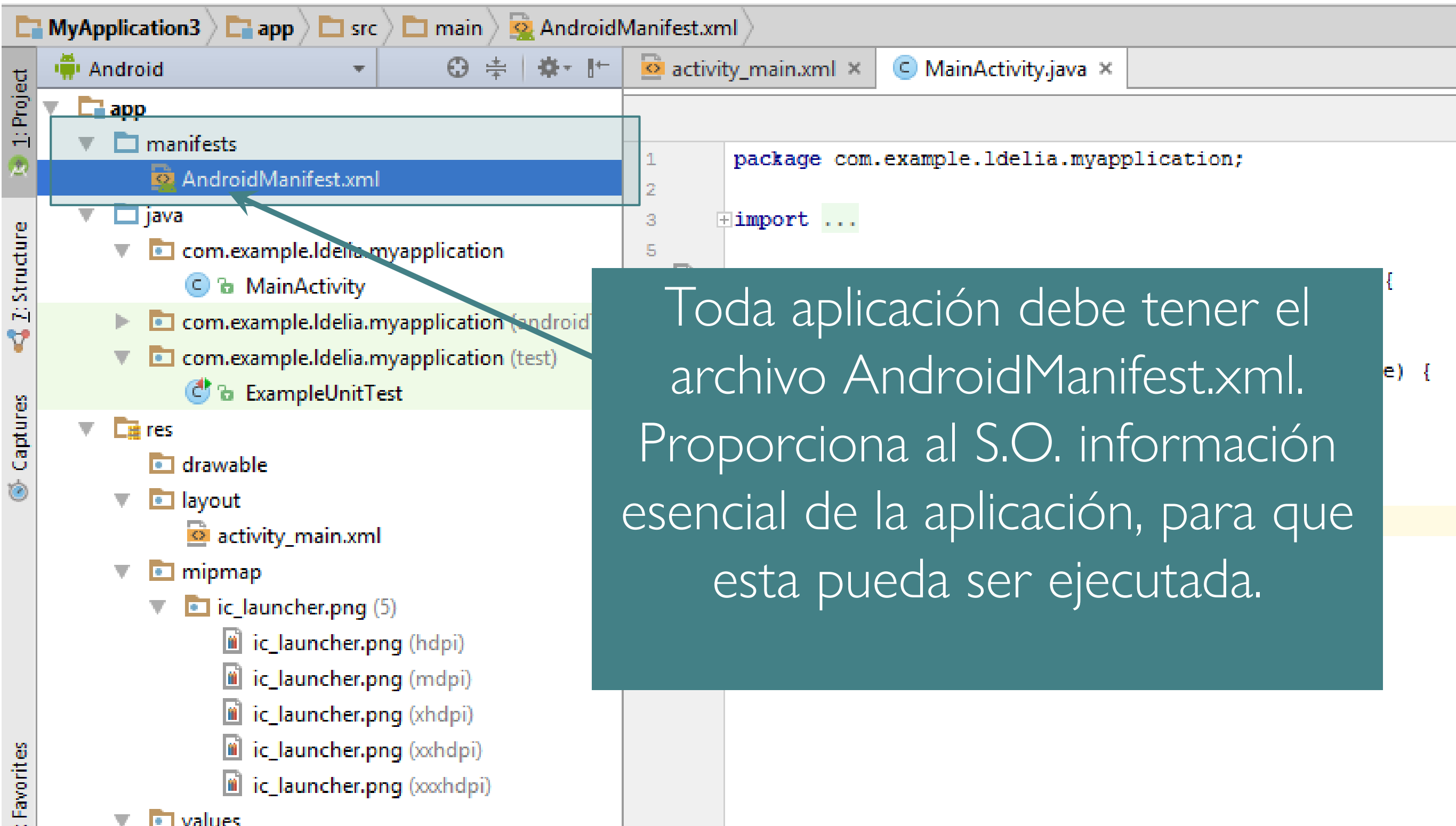
```
<?xml version="1.0" encoding="utf-8"
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="16dp"
    <TextView
        android:layout_width="wrap_
```

The interface includes a Project view on the left showing the package structure, a Run toolbar at the top, and a Logcat window at the bottom displaying system logs. A red square icon in the Run toolbar is highlighted with a green arrow, indicating the stop button. A text overlay states:

Es posible detener la aplicación haciendo clic aquí

The Android Emulator window on the right shows the application running on a Nexus 4 device, displaying the text "Mi aplicacion1" and "Hello World!". The bottom status bar indicates the Gradle build finished in 14s 483ms (a minute ago).

AndroidManifest.xml



AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

Identificador único de la aplicación

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN">
14
15                <category android:name="android.intent.category.LAUNCHER">
16
17            </intent-filter>
18        </activity>
19    </application>
20 </manifest>
```

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

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

Ícono de la aplicación

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN">
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

Título de la aplicación

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help

The screenshot shows the AndroidManifest.xml file in the editor. The following code is visible:

```
<?xml version="1.0" encoding="utf-8" android:windowBackground="@color/white">
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.application3"
    android:versionCode="1"
    android:versionName="1.0">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
```

Two overlays are shown: the 'Settings' dialog on the left and the 'الإعدادات' (Settings) dialog on the right. The 'Settings' dialog shows the 'WIRELESS & NETWORKS' section with 'Wi-Fi' turned ON and 'Bluetooth' turned OFF. The 'الإعدادات' dialog shows the 'اللاسلكي والشبكات' (Wireless & Networks) section with 'لاسلكي' (Wireless) turned ON and 'بلوتوث' (Bluetooth) turned OFF. The 'android:supportsRtl="true"' attribute in the code is highlighted with a blue box, and an arrow points from this box to the text below.

Si la opción está habilitada, en caso de que el usuario configure el dispositivo con un idioma de lectura de derecha a izquierda (Right To Left) la interfaz se acomodará automáticamente

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15            </intent-filter>
16        </activity>
17    </application>
18
19 </manifest>
```

Tema de estilos de la aplicación.
En clases posteriores estudiaremos este tema

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

activity_main.xml x MainActivity.java

```
1 <?xml version="1.0" encoding="utf-8" ?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.lol"
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

Además, describe como está compuesta la aplicación.

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

AndroidManifest.xml

application3] - [app] - ...\\app\\src\\main\\AndroidManifest.xml - Android Studio 2.3

Run Tools VCS Window Help



Manifest.xml

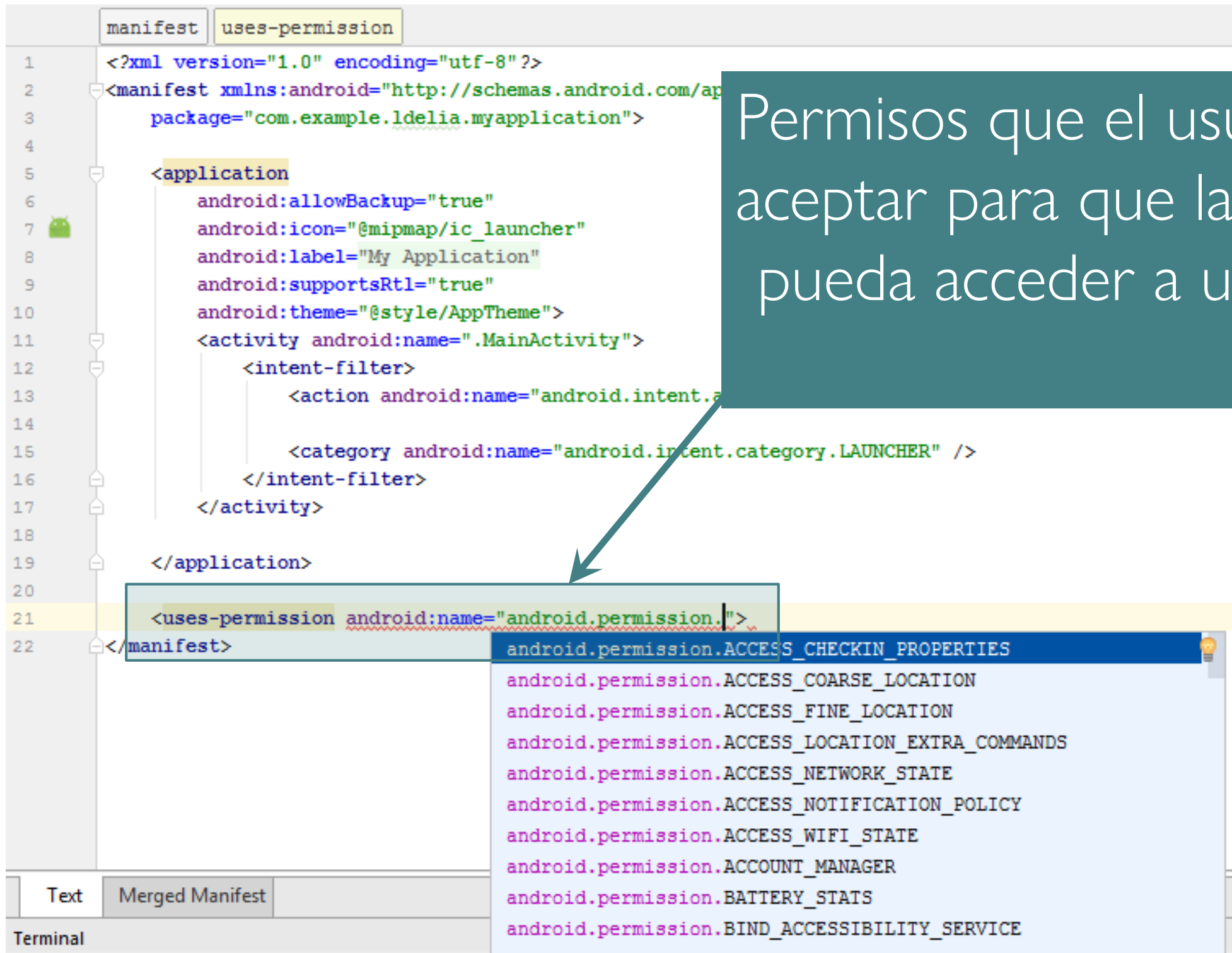
activity_main.xml x MainActivity.java x AndroidManifest.xml x

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.lidel"
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme"
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.action.MAIN" />
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18    </application>
19
20 </manifest>
```

Información para el S.O. de cómo se invoca a la actividad.

Lo estudiaremos también próximamente.

Permisos de usuario en AndroidManifest.xml



manifest uses-permission

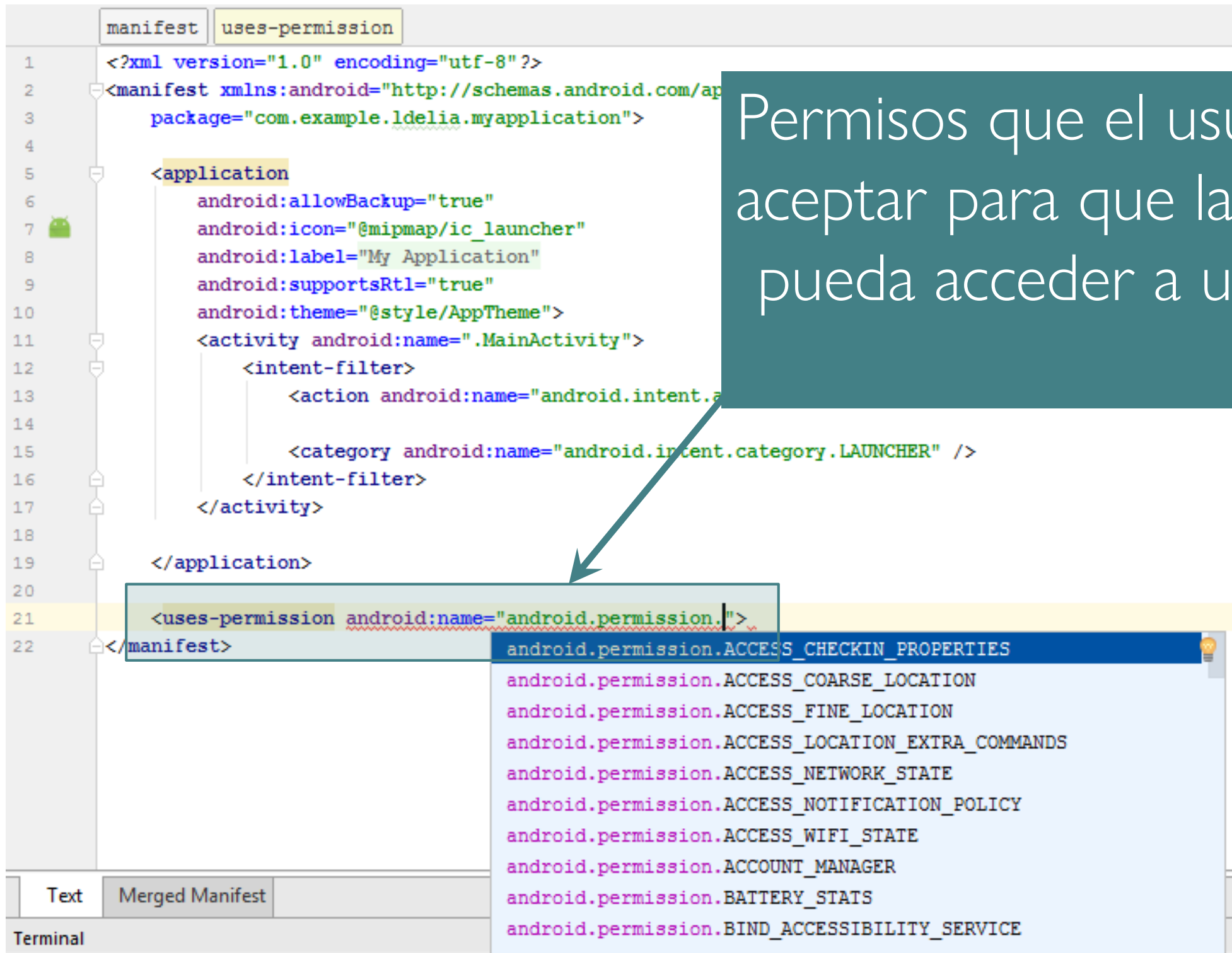
```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.a
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18
19    </application>
20
21    <uses-permission android:name="android.permission.
22 </manifest>
```

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

android.permission.ACCESS_CHECKIN_PROPERTIES
android.permission.ACCESS_COARSE_LOCATION
android.permission.ACCESS_FINE_LOCATION
android.permission.ACCESS_LOCATION_EXTRA_COMMANDS
android.permission.ACCESS_NETWORK_STATE
android.permission.ACCESS_NOTIFICATION_POLICY
android.permission.ACCESS_WIFI_STATE
android.permission.ACCOUNT_MANAGER
android.permission.BATTERY_STATS
android.permission.BIND_ACCESSIBILITY_SERVICE

Text Merged Manifest Terminal

Permisos de usuario en AndroidManifest.xml



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk
3     package="com.example.ldelia.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:supportsRtl="true"
10        android:theme="@style/AppTheme">
11        <activity android:name=".MainActivity">
12            <intent-filter>
13                <action android:name="android.intent.a
14
15                <category android:name="android.intent.category.LAUNCHER" />
16            </intent-filter>
17        </activity>
18
19    </application>
20
21    <uses-permission android:name="android.permission.
22 </manifest>
```

manifest uses-permission

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

android.permission.ACCESS_CHECKIN_PROPERTIES
android.permission.ACCESS_COARSE_LOCATION
android.permission.ACCESS_FINE_LOCATION
android.permission.ACCESS_LOCATION_EXTRA_COMMANDS
android.permission.ACCESS_NETWORK_STATE
android.permission.ACCESS_NOTIFICATION_POLICY
android.permission.ACCESS_WIFI_STATE
android.permission.ACCOUNT_MANAGER
android.permission.BATTERY_STATS
android.permission.BIND_ACCESSIBILITY_SERVICE

Permisos de usuario en AndroidManifest.xml

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

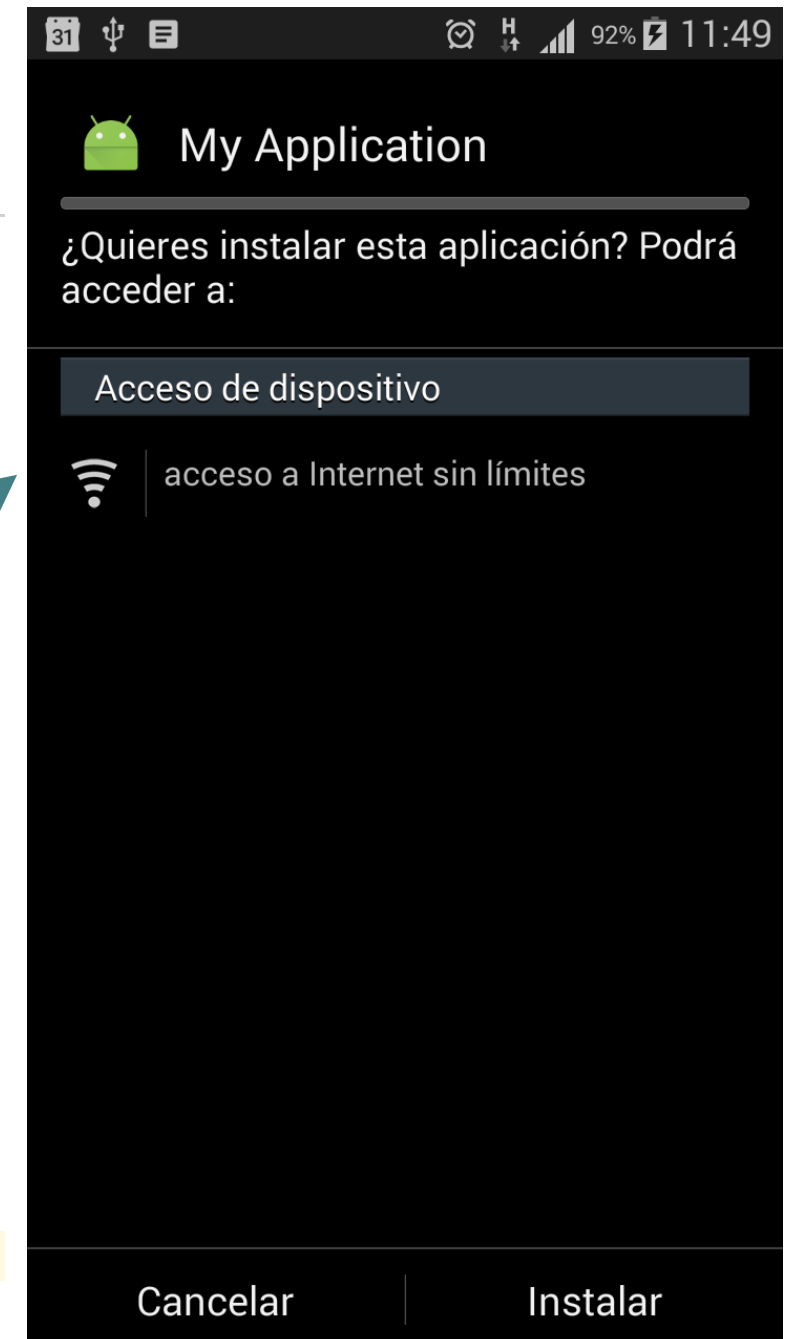
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/AppTheme">

        <activity
            android:name=".MainActivity"
            android:label="@string/app_name"
            android:launchMode="singleTop"
            android:theme="@style/AppTheme"
            android:windowSoftInputMode="adjustResize">
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </activity>

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

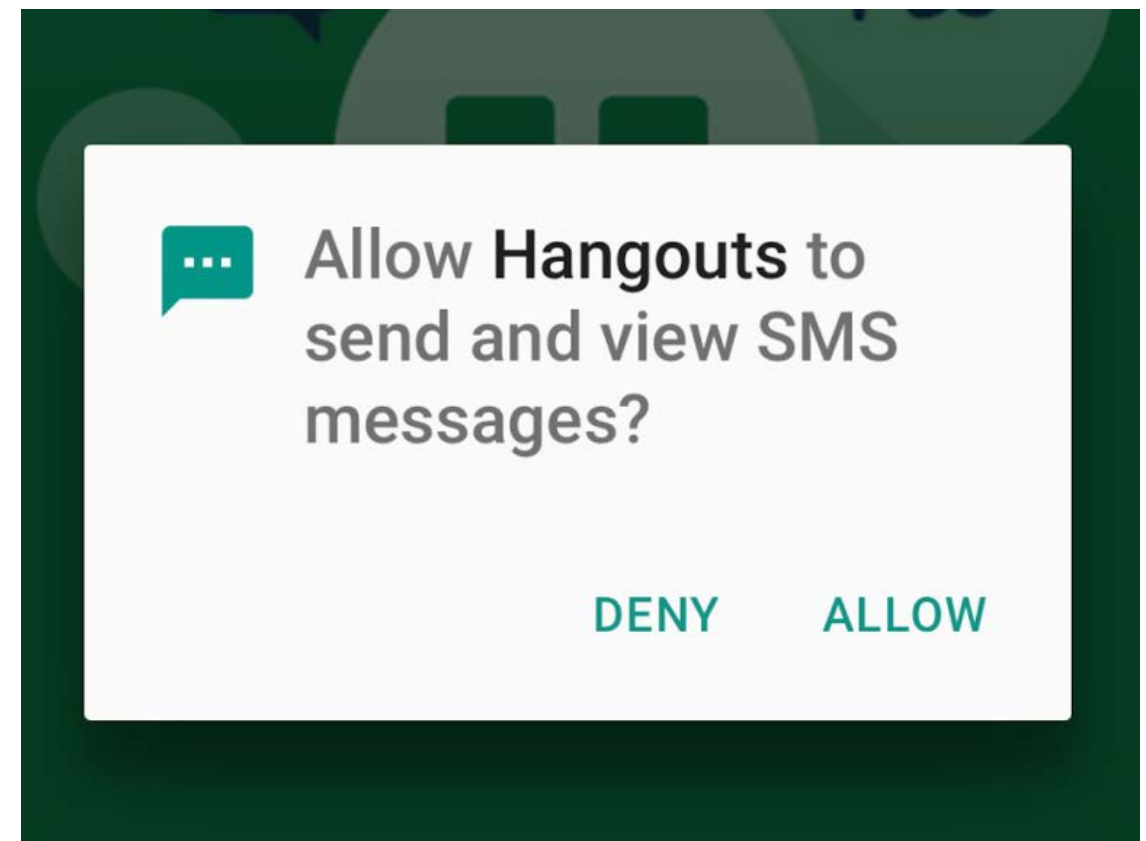
    </application>
</manifest>
```

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