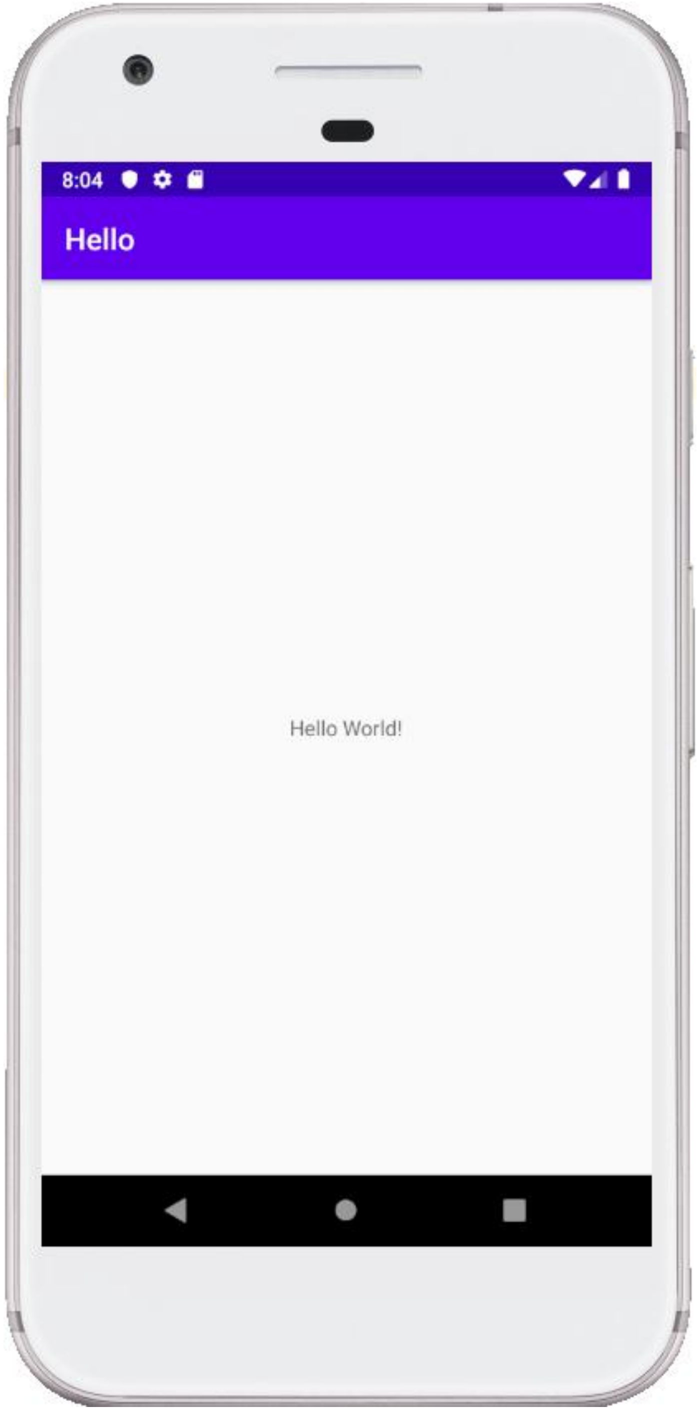
01

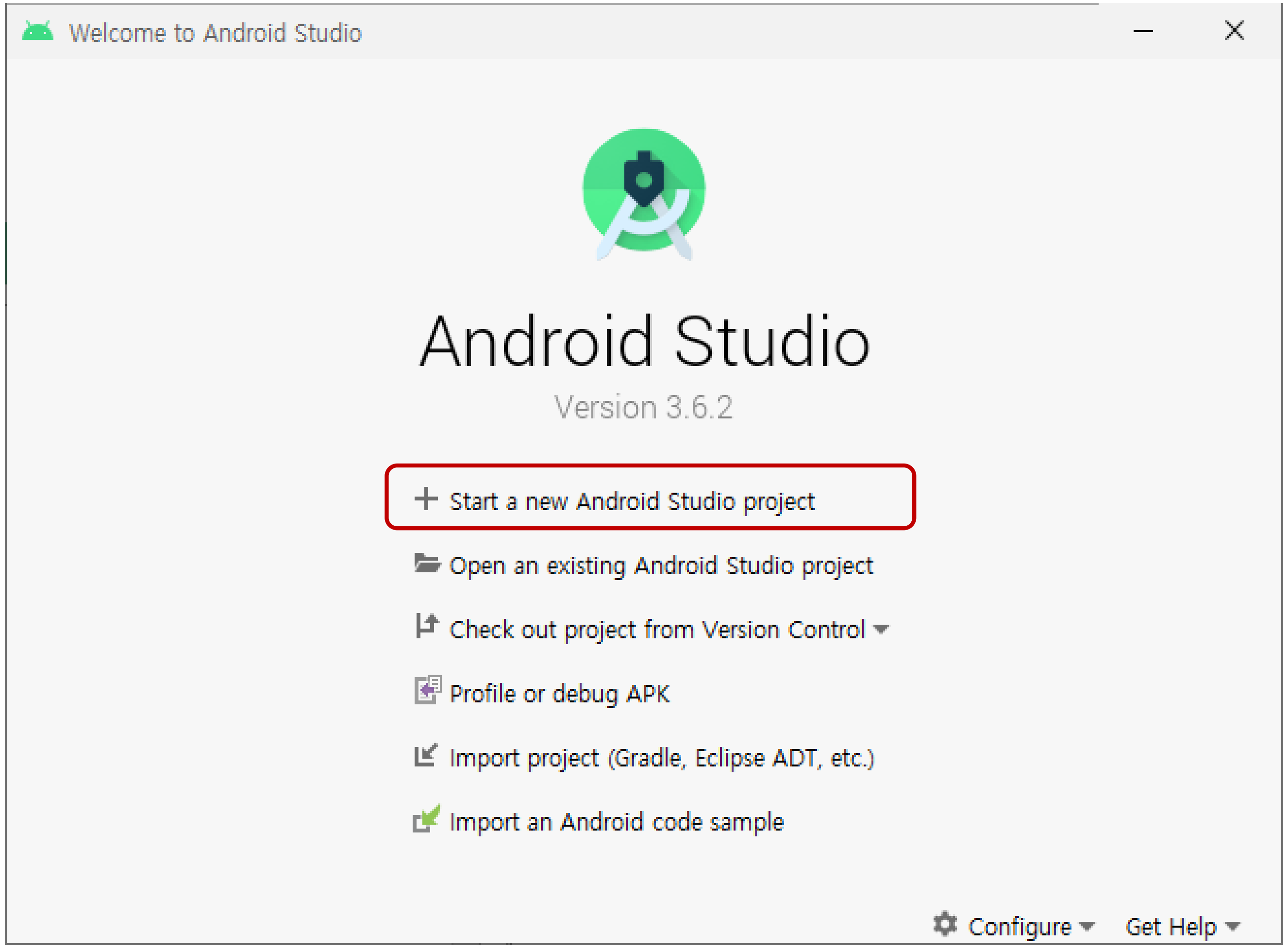
안드로이드 어플리케이션 만들기



Hello World!

Hello World! 출력

Start a new Android Studio project



Welcome to Android Studio

Android Studio

Version 3.6.2

+ Start a new Android Studio project

Open an existing Android Studio project

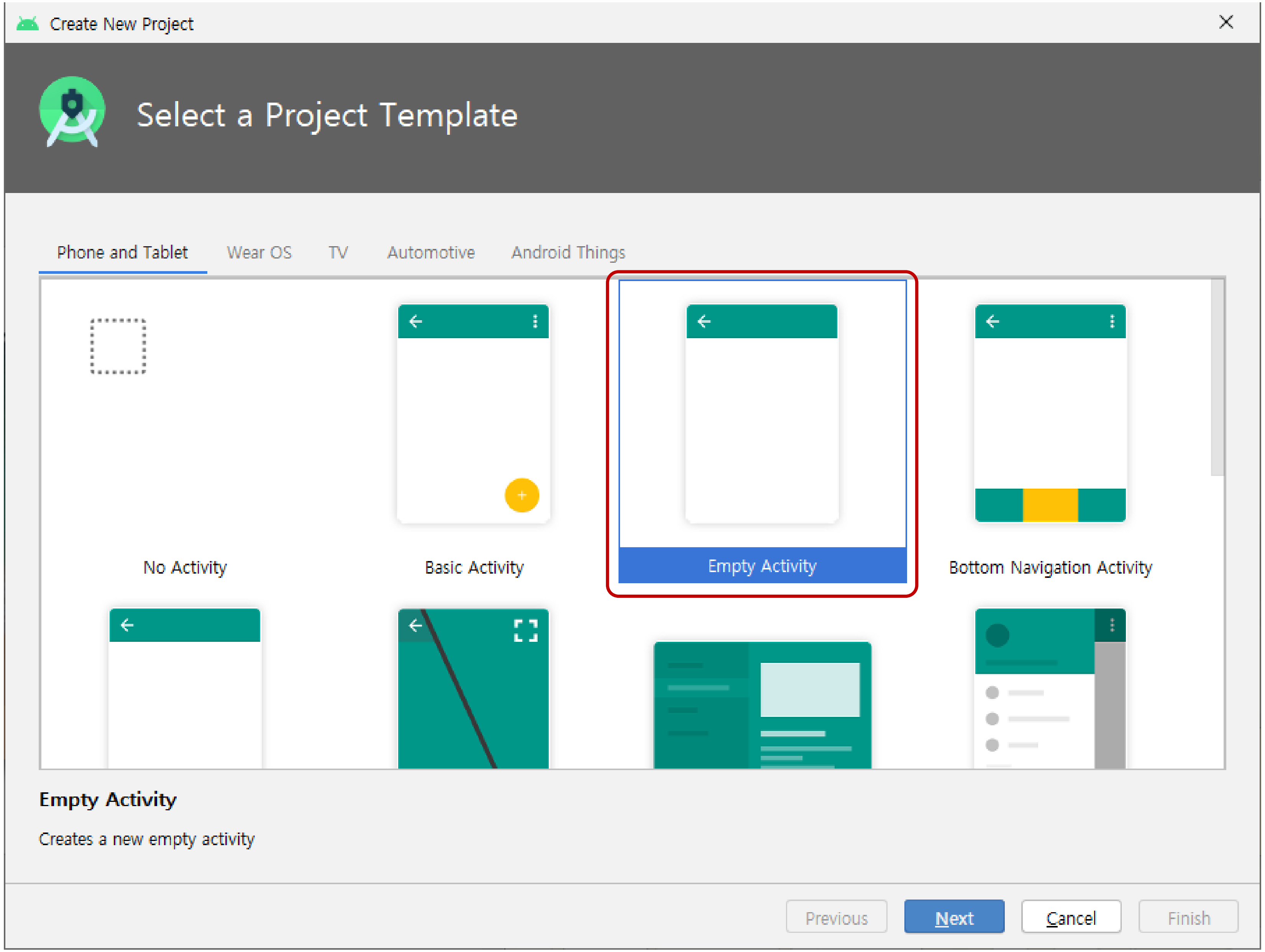
Check out project from Version Control ▾

Profile or debug APK

Import project (Gradle, Eclipse ADT, etc.)

Import an Android code sample

Empty Activity



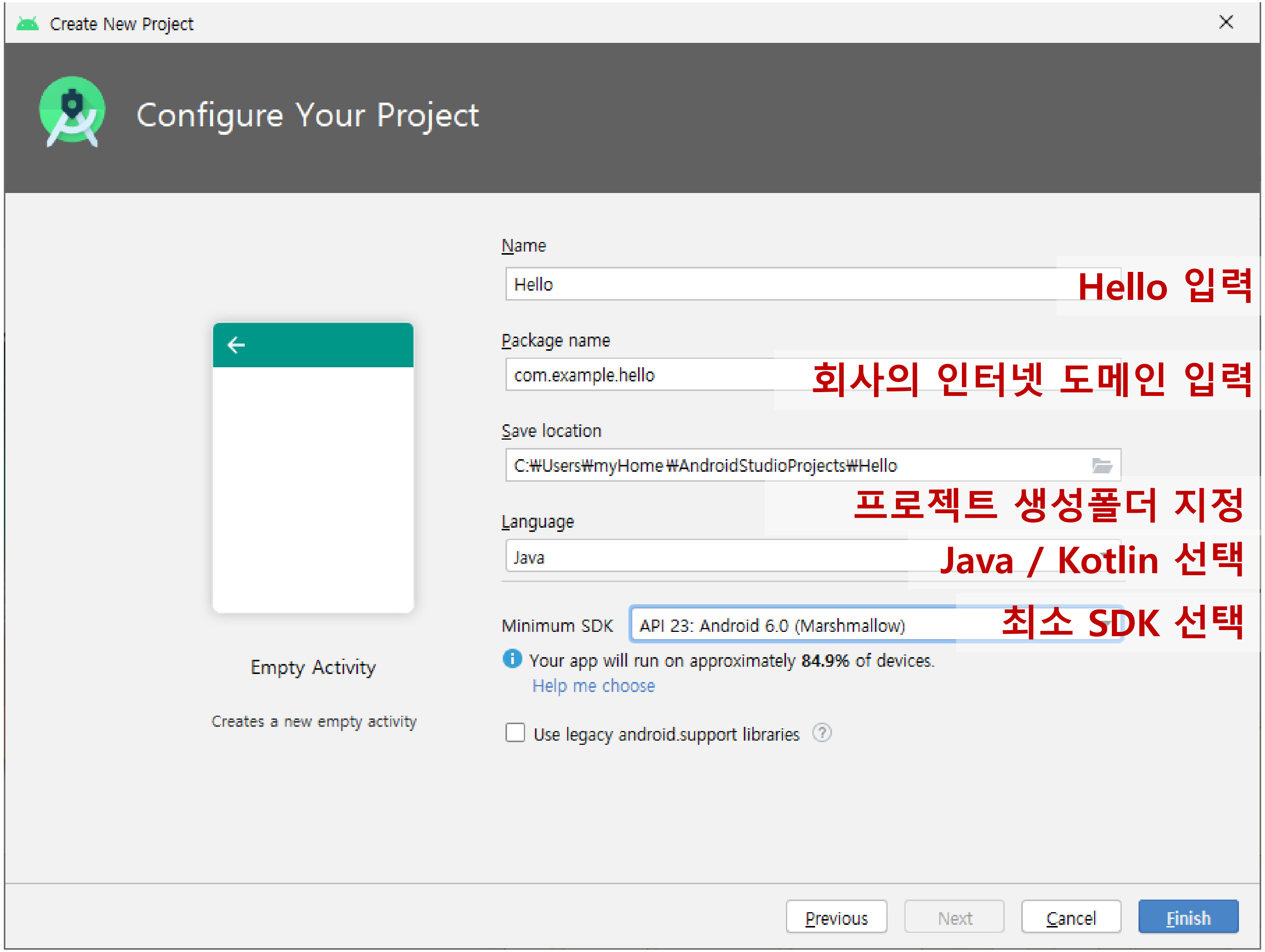
Create New Project

Select a Project Template

Phone and Tablet | Wear OS | TV | Automotive | Android Things

Empty Activity

Creates a new empty activity



Create New Project

Configure Your Project

Name: Hello

Hello 입력

Package name: com.example.hello

회사의 인터넷 도메인 입력

Save location: C:₩Users₩myHome₩AndroidStudioProjects₩Hello

프로젝트 생성폴더 지정

Language: Java

Java / Kotlin 선택

Minimum SDK: API 23: Android 6.0 (Marshmallow)

최소 SDK 선택

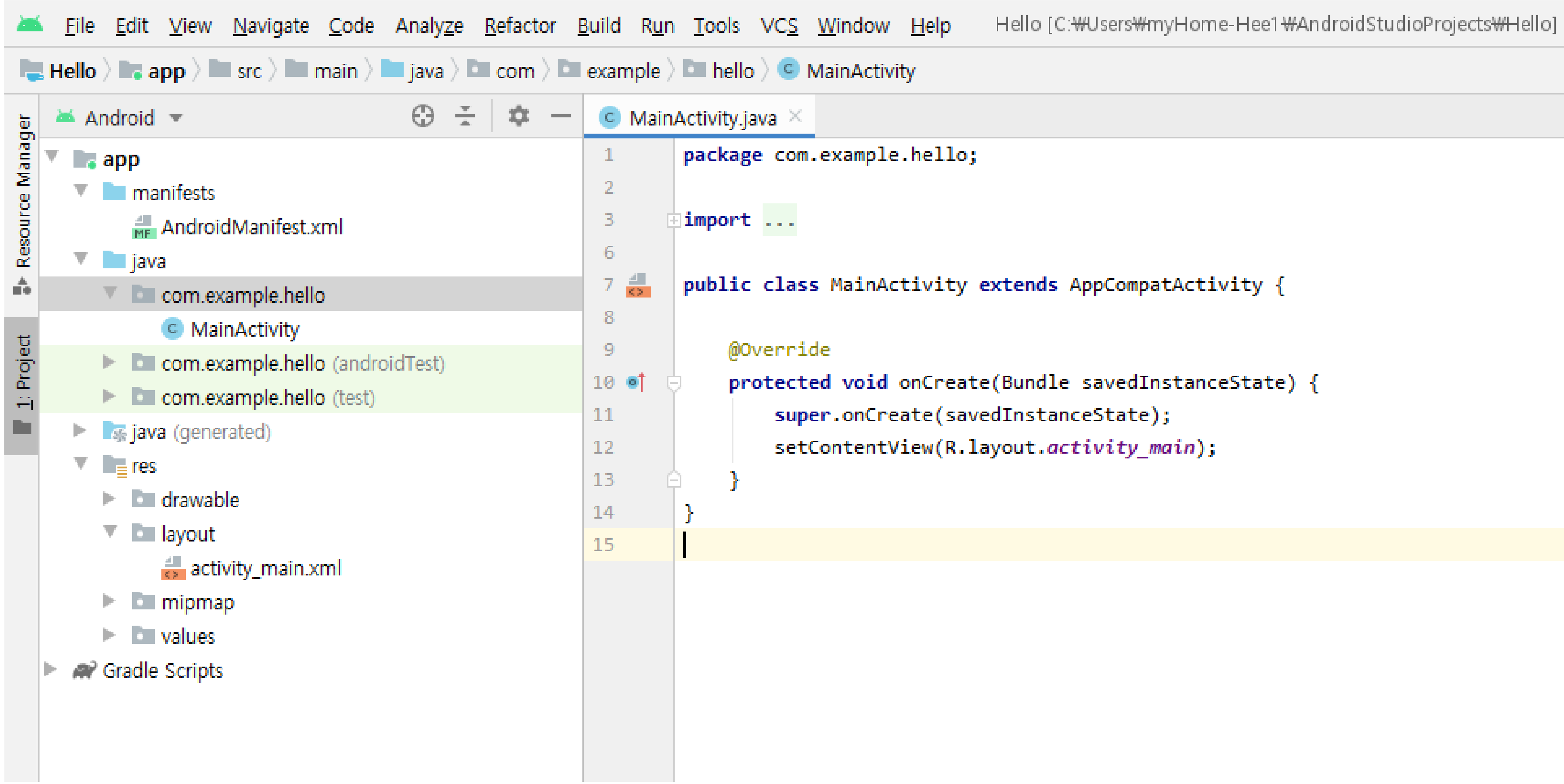
Your app will run on approximately **84.9%** of devices.
Help me choose

□ Use legacy android.support libraries

Empty Activity

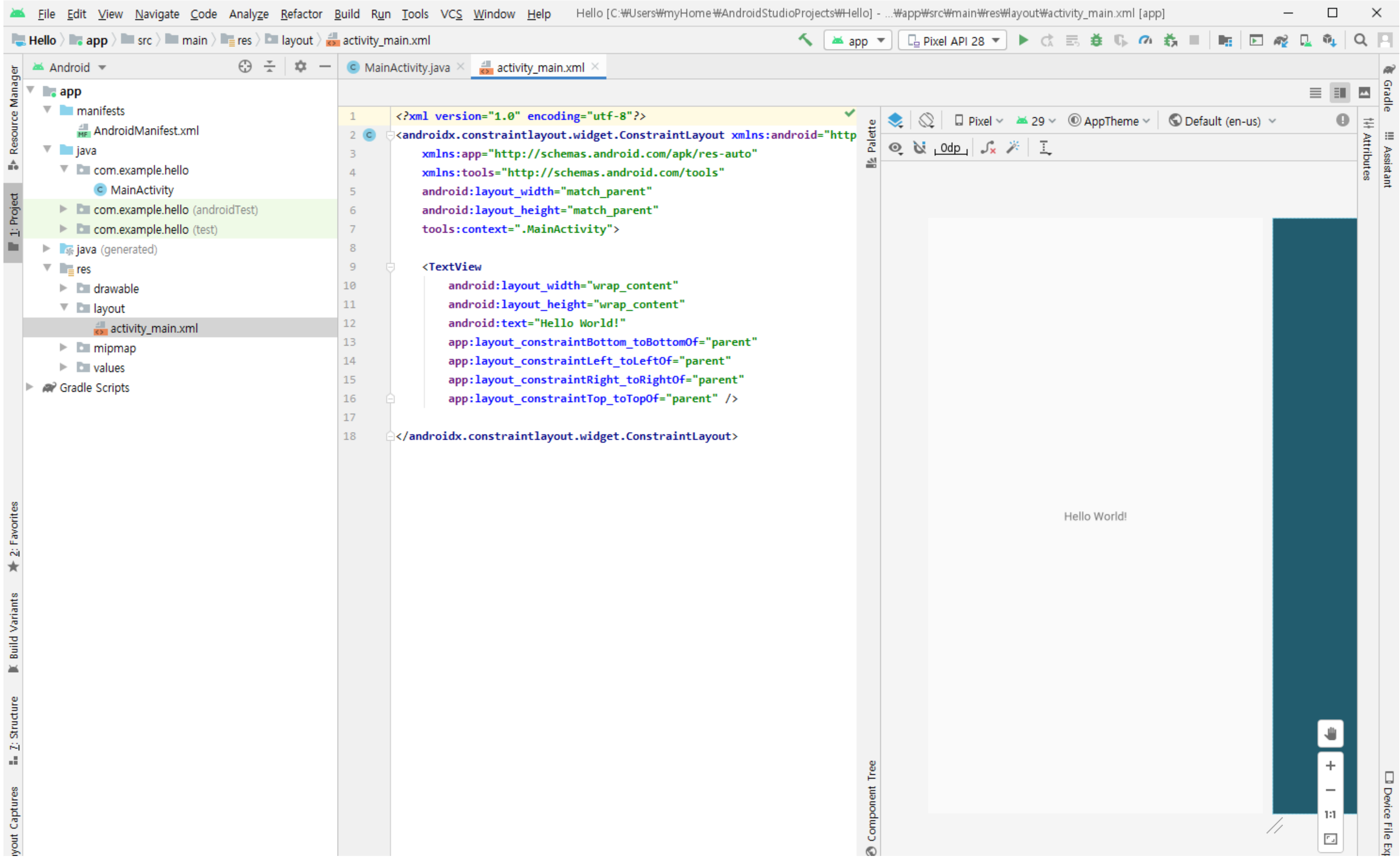
Creates a new empty activity

MainActivity.java


File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
Hello [C:₩Users₩myHome-Hee1₩AndroidStudioProjects₩Hello]
Hello 〉 app 〉 src 〉 main 〉 java 〉 com 〉 example 〉 hello 〉 MainActivity
Resource Manager
1: Project
Android
app
manifests
AndroidManifest.xml
java
com.example.hello
MainActivity
com.example.hello (androidTest)
com.example.hello (test)
java (generated)
res
drawable
layout
activity_main.xml
mipmap
values
Gradle Scripts
MainActivity.java

```java
package com.example.hello;

import ...

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

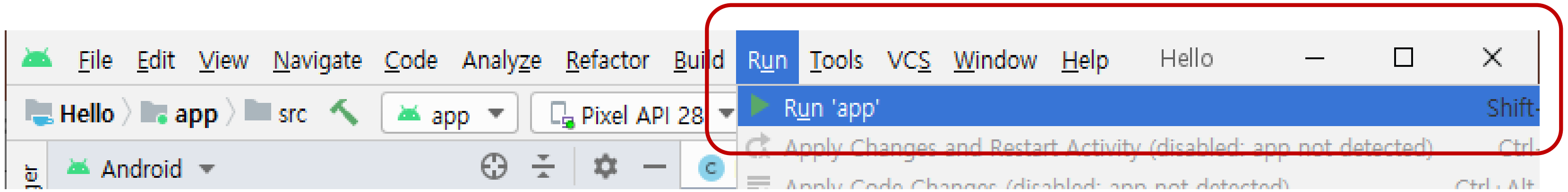
activity_main.xml



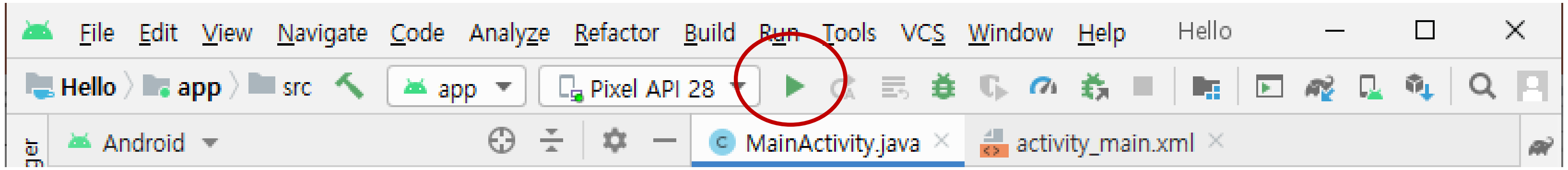
```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

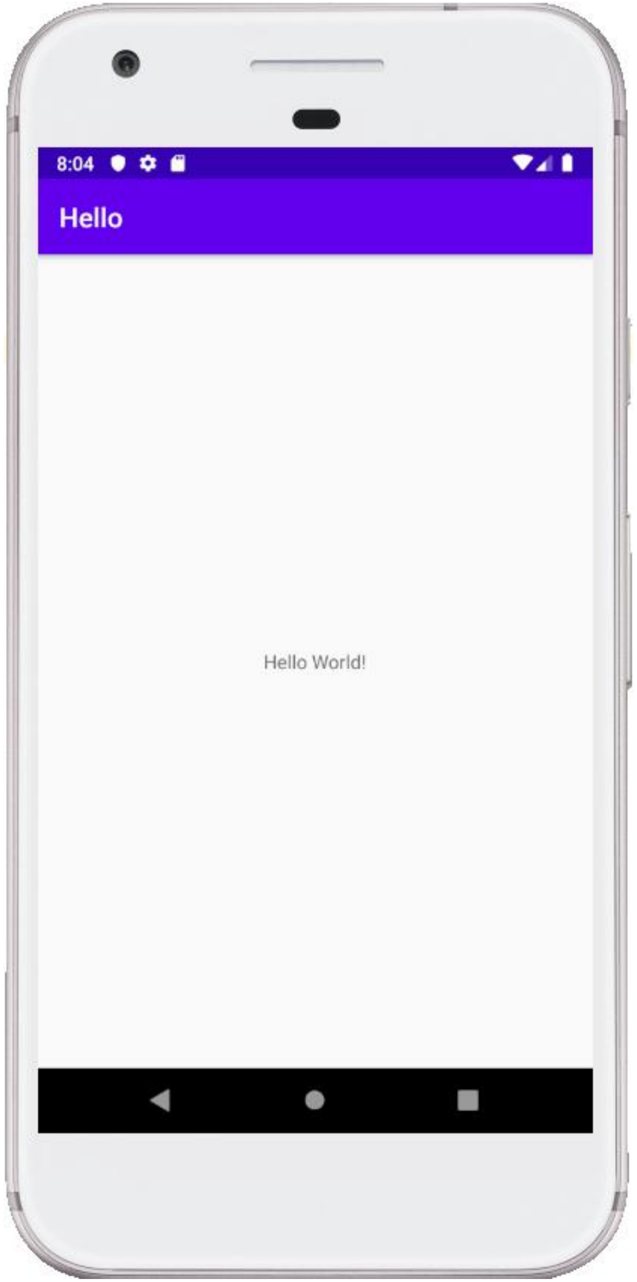
Run

- 메뉴 → Run → Run 'app'

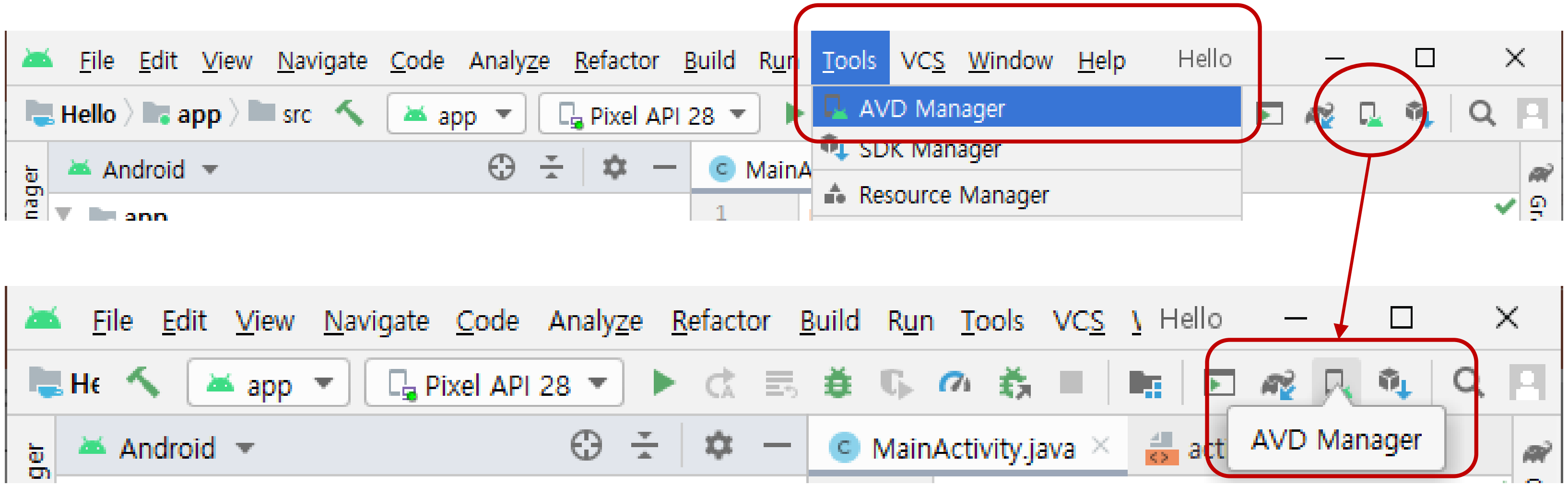

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Hello
Hello app src app Pixel API 28
Android
Run 'app' Shift-
Apply Changes and Restart Activity (disabled: app not detected) Ctrl-
Apply Code Changes (disabled: app not detected) Ctrl+Alt

- 단축아이콘 클릭

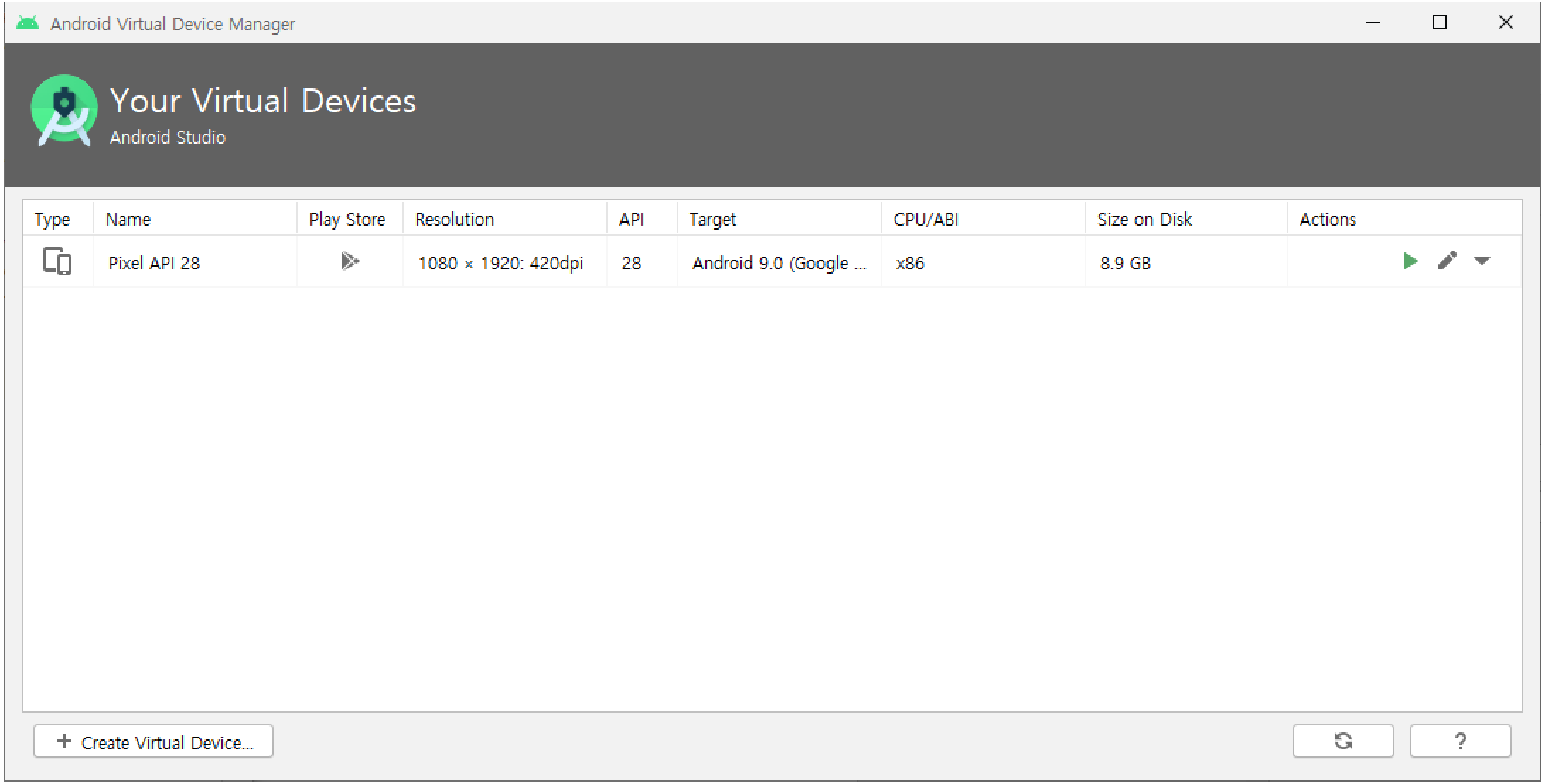

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Hello
Hello app src app Pixel API 28
Android MainActivity.java activity_main.xml



AVD Manager


File
Edit
View
Navigate
Code
Analyze
Refactor
Build
Run
Tools
VCS
Window
Help
Hello
app
src
Pixel API 28
AVD Manager
SDK Manager
Resource Manager
Android
MainActivity.java
AVD Manager

AVD Manager



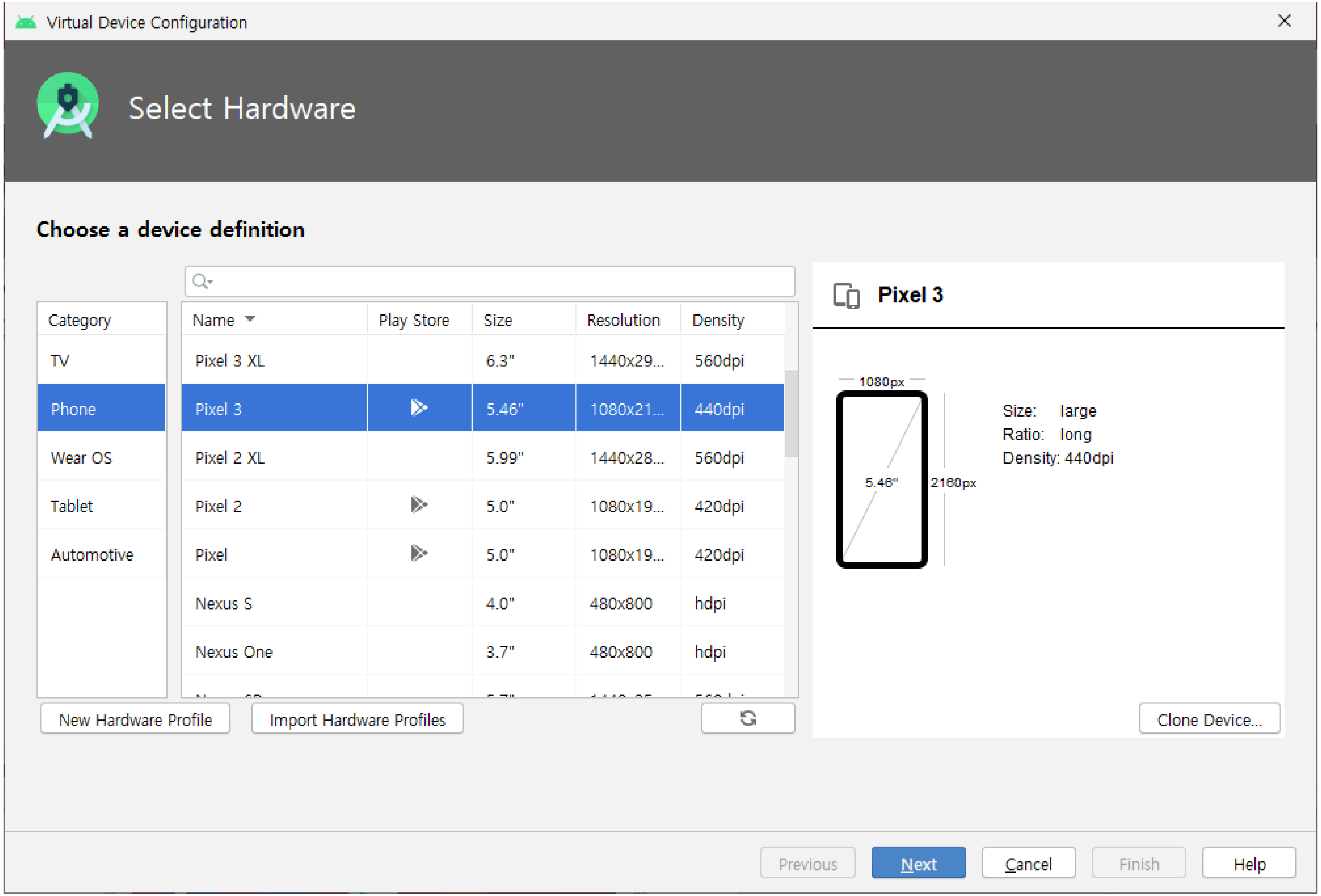
Android Virtual Device Manager

Your Virtual Devices

Android Studio

Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Pixel API 28	▶	1080 × 1920: 420dpi	28	Android 9.0 (Google ...	x86	8.9 GB	▶ ✎ ▼

AVD Manager



Choose a device definition

Category
TV
Phone
Wear OS
Tablet
Automotive

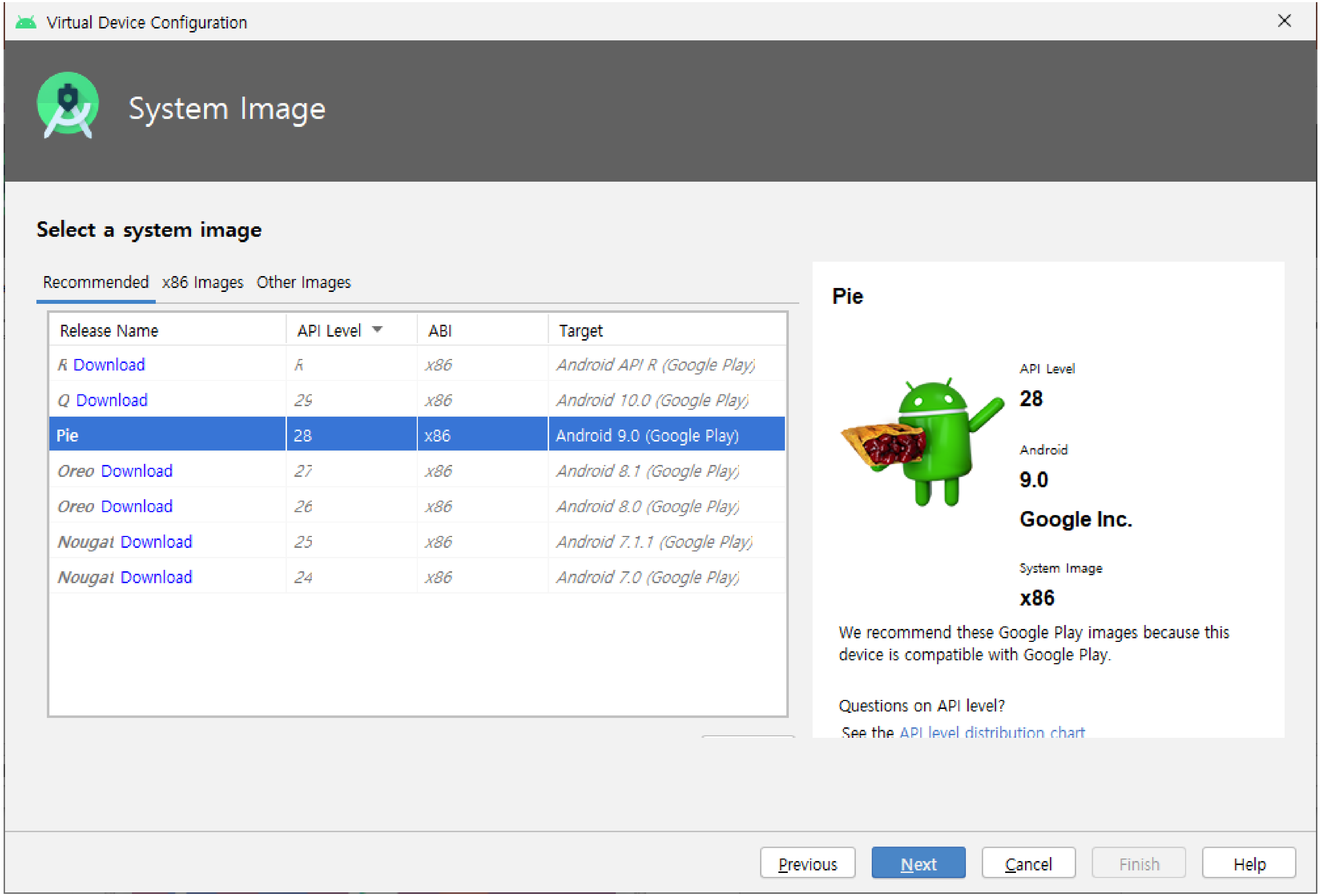
Name	Play Store	Size	Resolution	Density
Pixel 3 XL		6.3"	1440x29...	560dpi
Pixel 3	▶	5.46"	1080x21...	440dpi
Pixel 2 XL		5.99"	1440x28...	560dpi
Pixel 2	▶	5.0"	1080x19...	420dpi
Pixel	▶	5.0"	1080x19...	420dpi
Nexus S		4.0"	480x800	hdpi
Nexus One		3.7"	480x800	hdpi

Pixel 3

1080px
5.46"
2160px

Size: large
Ratio: long
Density: 440dpi

AVD Manager



Virtual Device Configuration

System Image

Select a system image

Release Name	API Level	ABI	Target
R Download	*R*	*x86*	*Android API R (Google Play)*
Q Download	*29*	*x86*	*Android 10.0 (Google Play)*
Pie	28	x86	Android 9.0 (Google Play)
Oreo Download	*27*	*x86*	*Android 8.1 (Google Play)*
Oreo Download	*26*	*x86*	*Android 8.0 (Google Play)*
Nougat Download	*25*	*x86*	*Android 7.1.1 (Google Play)*
Nougat Download	*24*	*x86*	*Android 7.0 (Google Play)*

Pie

API Level

28

Android

9.0

Google Inc.

System Image

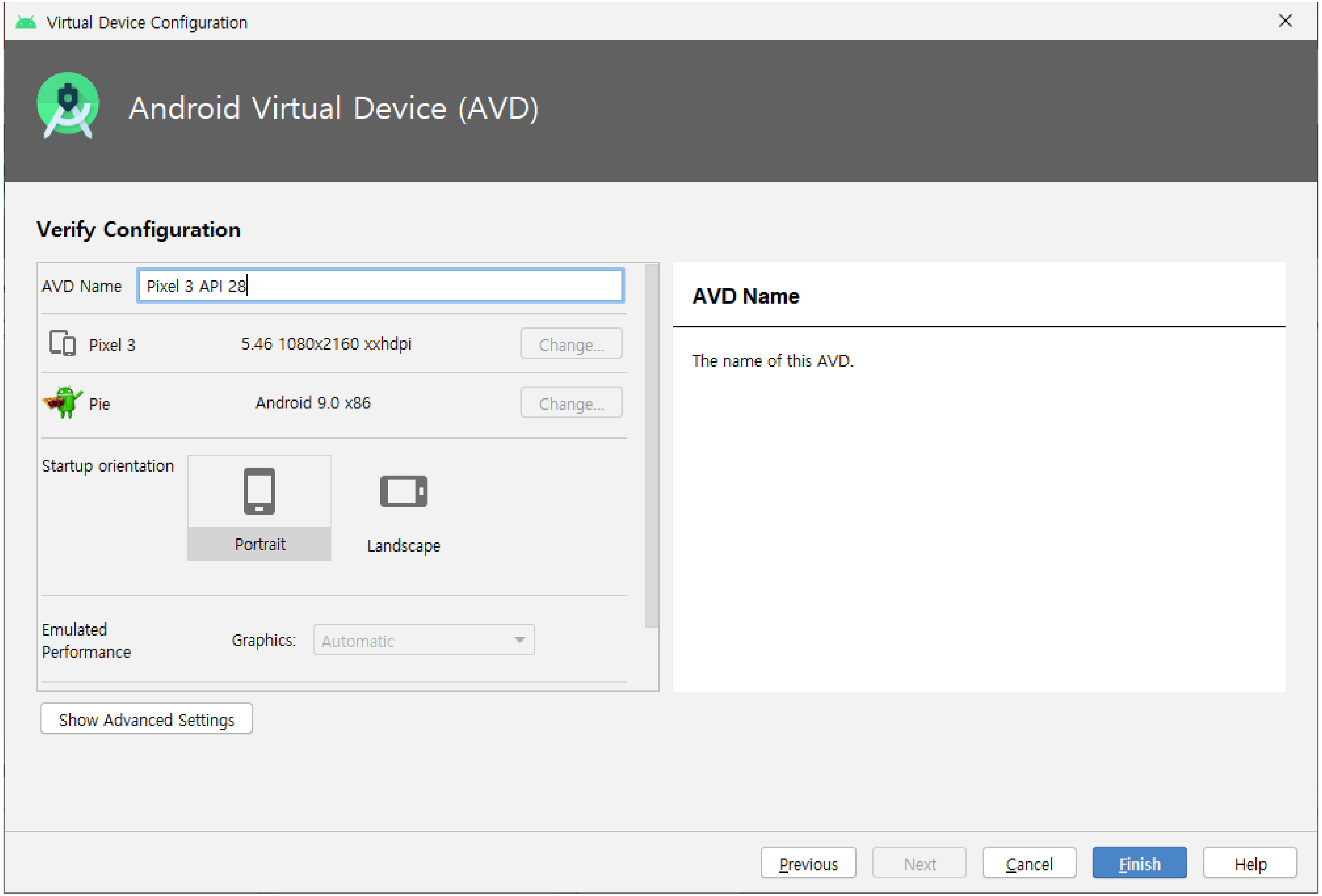
x86

We recommend these Google Play images because this device is compatible with Google Play.

Questions on API level?

See the API level distribution chart

AVD Manager



Virtual Device Configuration

Android Virtual Device (AVD)

Verify Configuration

AVD Name: Pixel 3 API 28

Pixel 3 — 5.46 1080x2160 xxhdpi

Pie — Android 9.0 x86

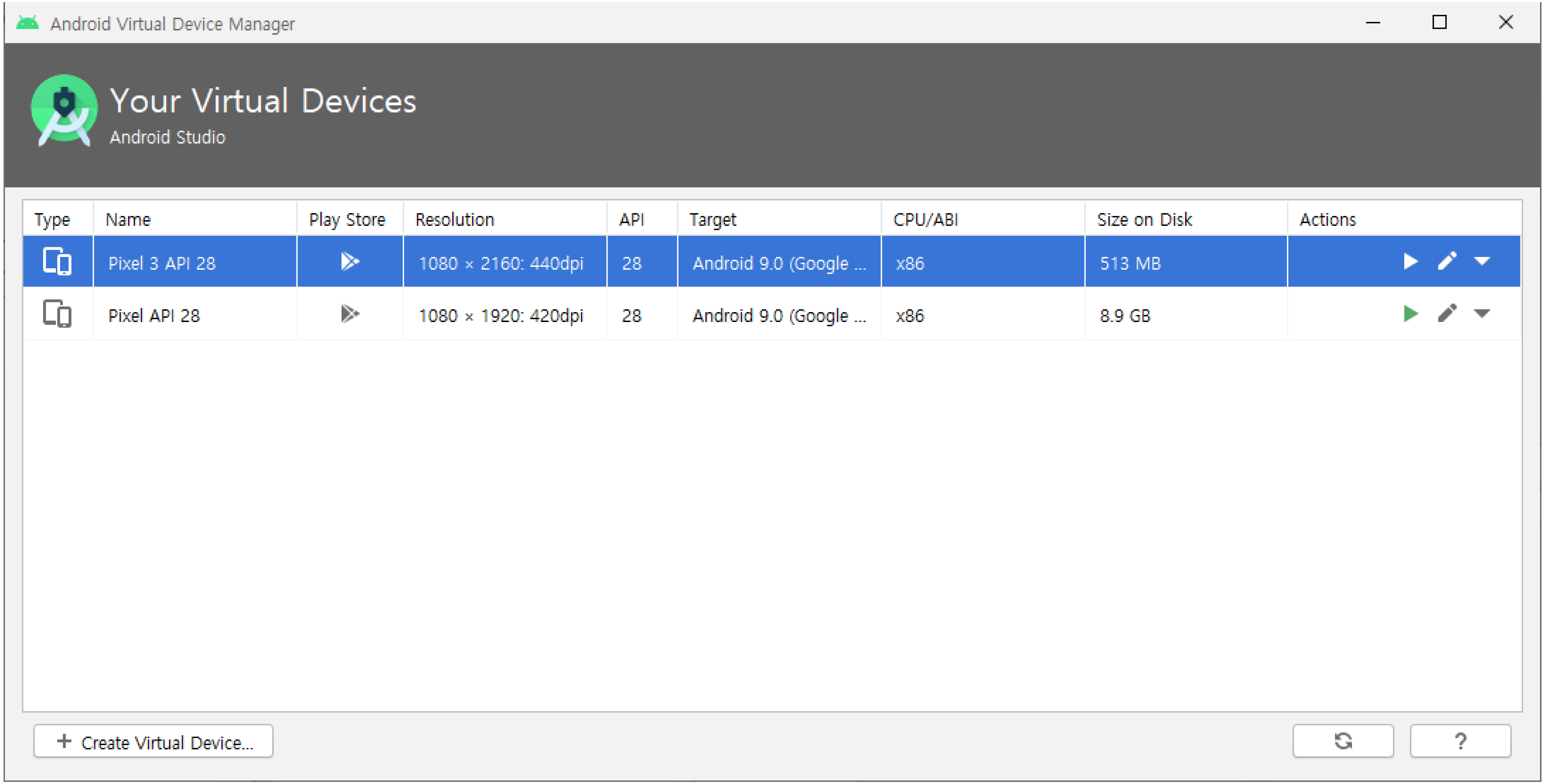
Startup orientation: Portrait

Emulated Performance — Graphics: Automatic

AVD Name

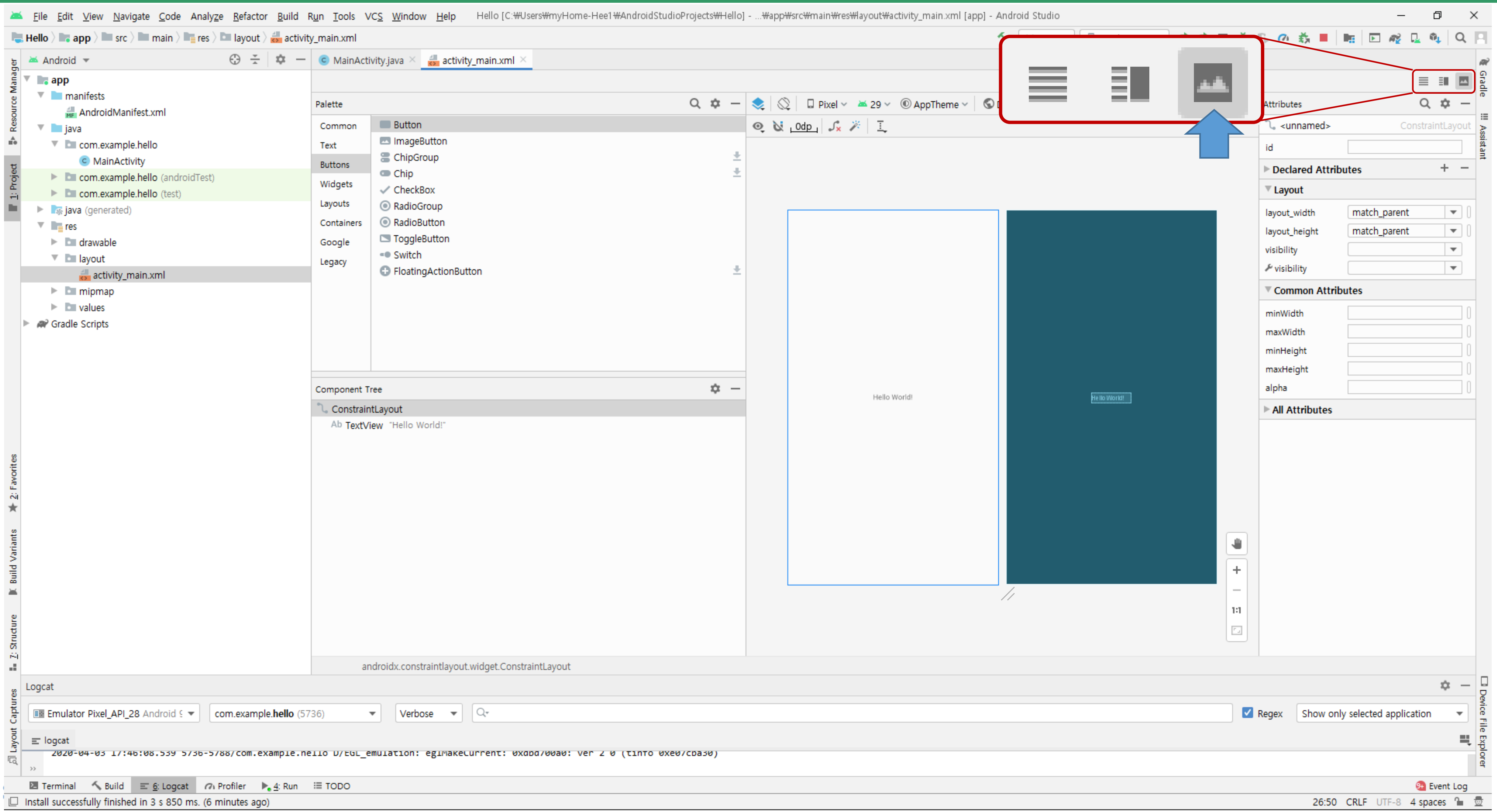
The name of this AVD.

AVD Manager



Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Pixel 3 API 28	▶	1080 × 2160: 440dpi	28	Android 9.0 (Google ...	x86	513 MB	▶ ✎ ▾
	Pixel API 28	▶	1080 × 1920: 420dpi	28	Android 9.0 (Google ...	x86	8.9 GB	▶ ✎ ▾

activity_main.xml



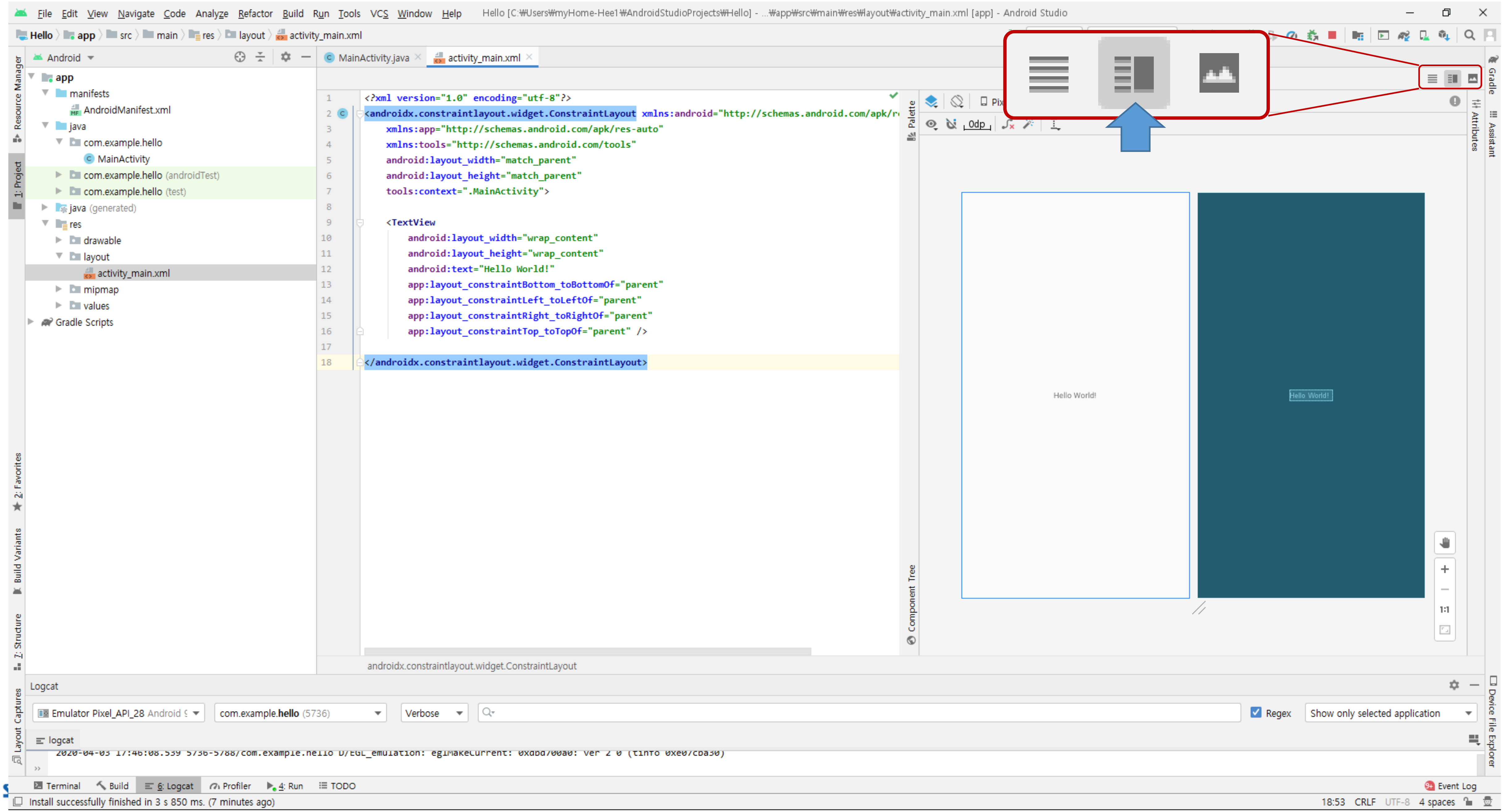
layout_width: match_parent

layout_height: match_parent

```
2020-04-03 17:46:08.539 5736-5788/com.example.hello D/EGL_emulation: eglMakeCurrent: 0xa0a70a0: ver 2 0 (tinfo 0xe07cba30)
```

Install successfully finished in 3 s 850 ms. (6 minutes ago)

activity_main.xml

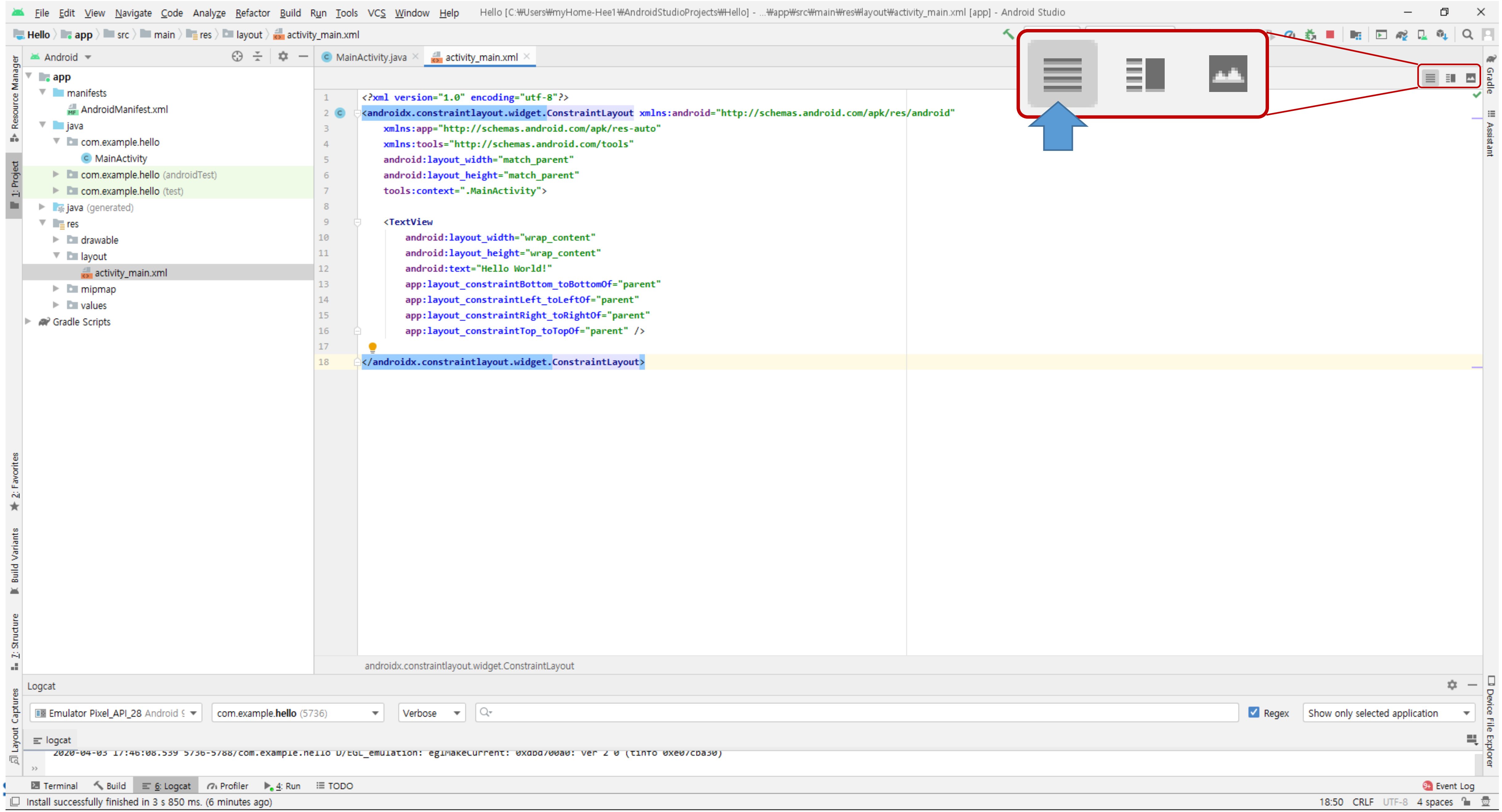


```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/r
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

```
2020-04-03 17:46:08.539 5736-5788/com.example.hello D/EGL_emulation: eglMakeCurrent: 0xabd700a0: ver 2 0 (tinfo 0xe07cba30)
```

Install successfully finished in 3 s 850 ms. (7 minutes ago)

activity_main.xml



Hello [C:₩Users₩myHome-Hee1₩AndroidStudioProjects₩Hello] - ...₩app₩src₩main₩res₩layout₩activity_main.xml [app] - Android Studio

```xml
<?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
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

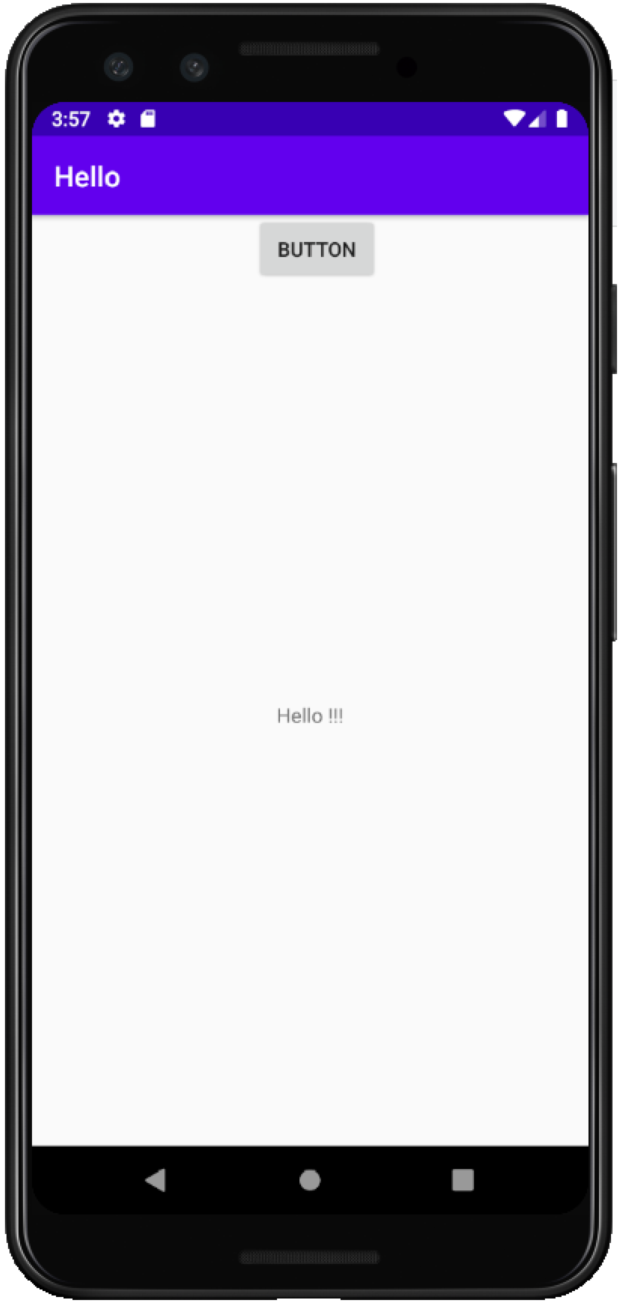
androidx.constraintlayout.widget.ConstraintLayout

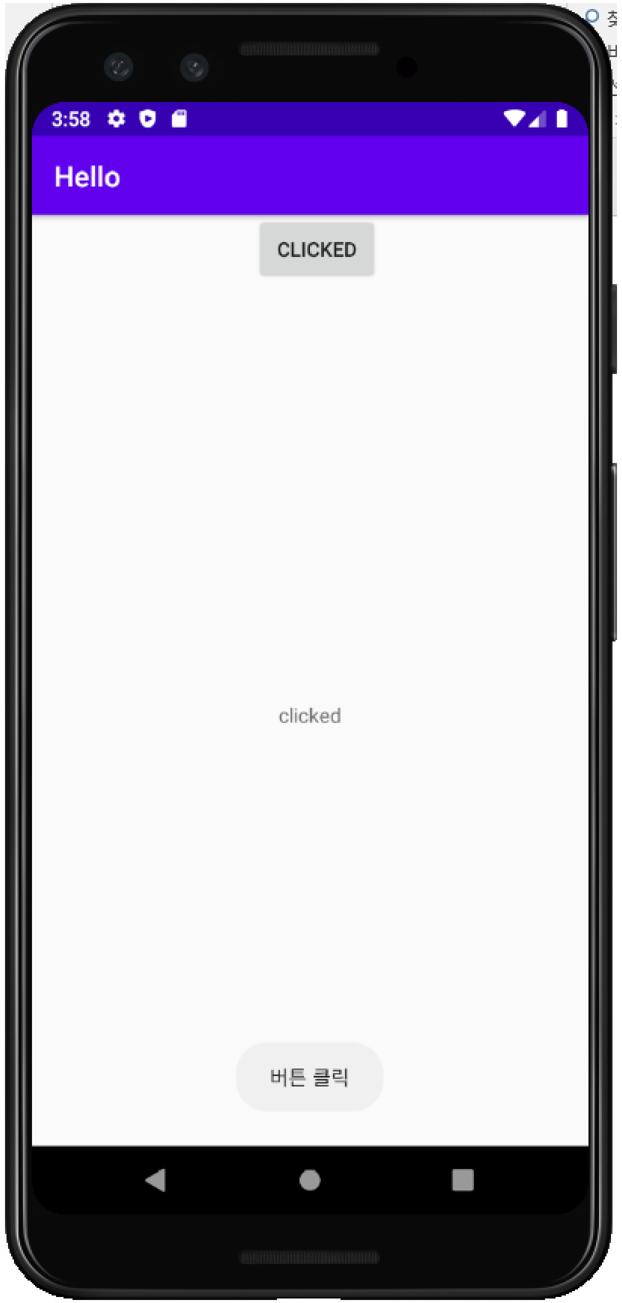
Logcat

Emulator Pixel_API_28 Android com.example.hello (5736) Verbose ☑ Regex Show only selected application

```
2020-04-03 17:46:08.539 5736-5788/com.example.hello D/EGL_emulation: eglMakeCurrent: 0xdbd700a0: ver 2 0 (tinfo 0xe07cba30)
```

Install successfully finished in 3 s 850 ms. (6 minutes ago)


3:57
Hello
BUTTON
Hello !!!


3:58
Hello
CLICKED
clicked
버튼 클릭

activity_main.xml

```
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello World!"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/testButton" />

<Button
    android:id="@+id/testButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

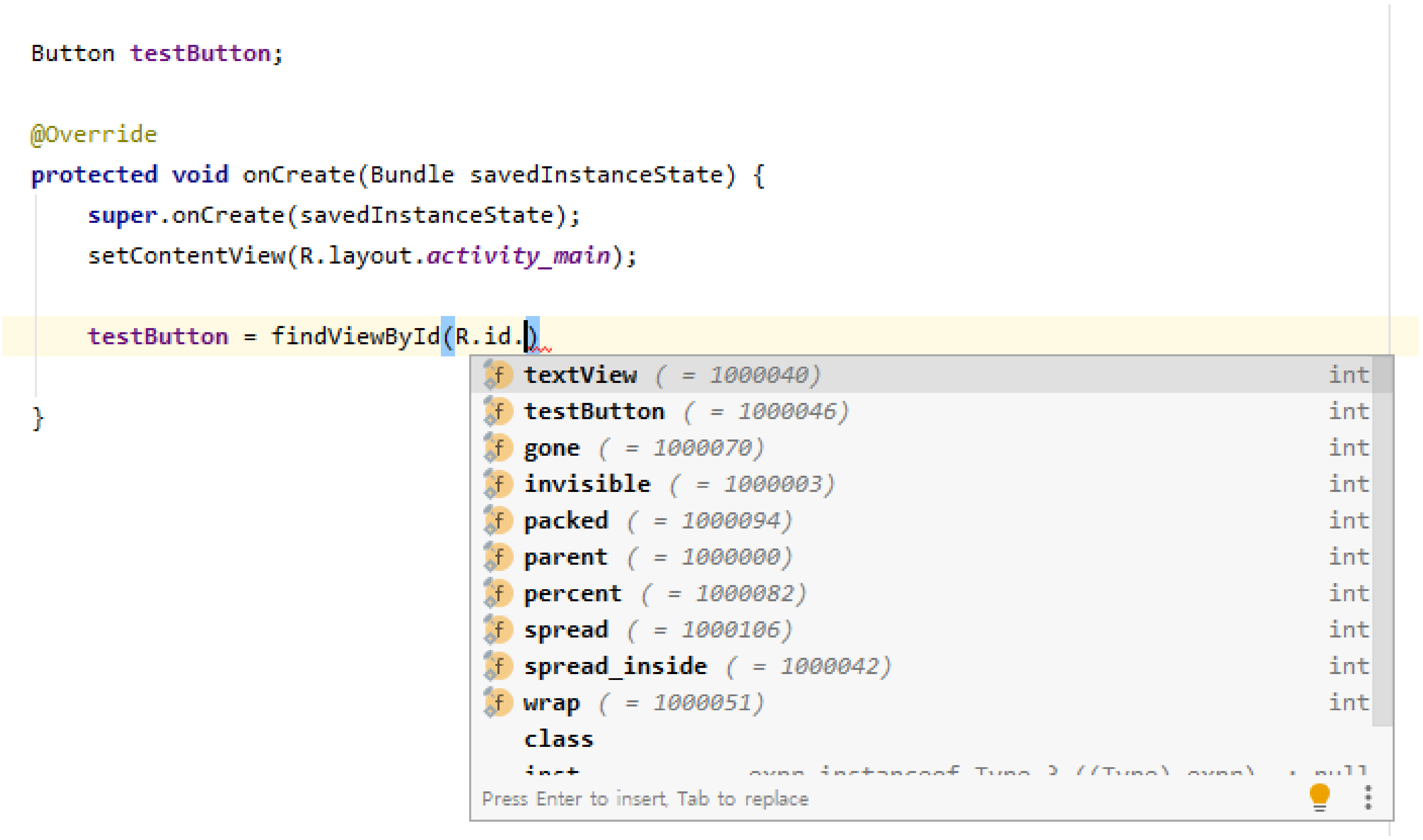
이벤트 처리방법

익명 클래스 사용

- 클래스를 따로 선언하지 않고 내부(inner)클래스를 사용
- 메서드의 인자에서 이름없는 익명클래스를 사용

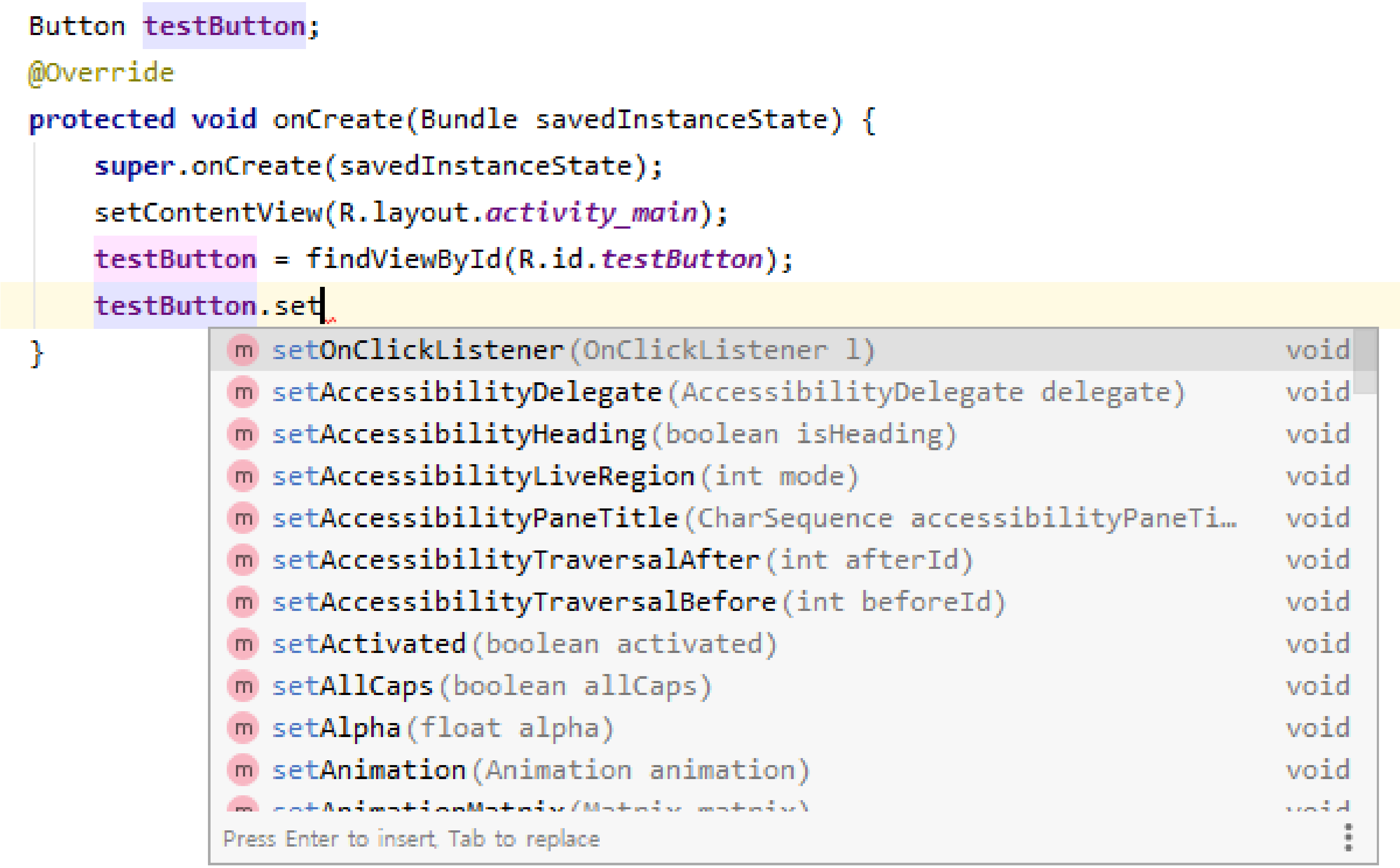
```
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

```
public class MainActivity extends AppCompatActivity {

    Button testButton;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        testButton = findViewById(R.id.testButton);
    }
}
```



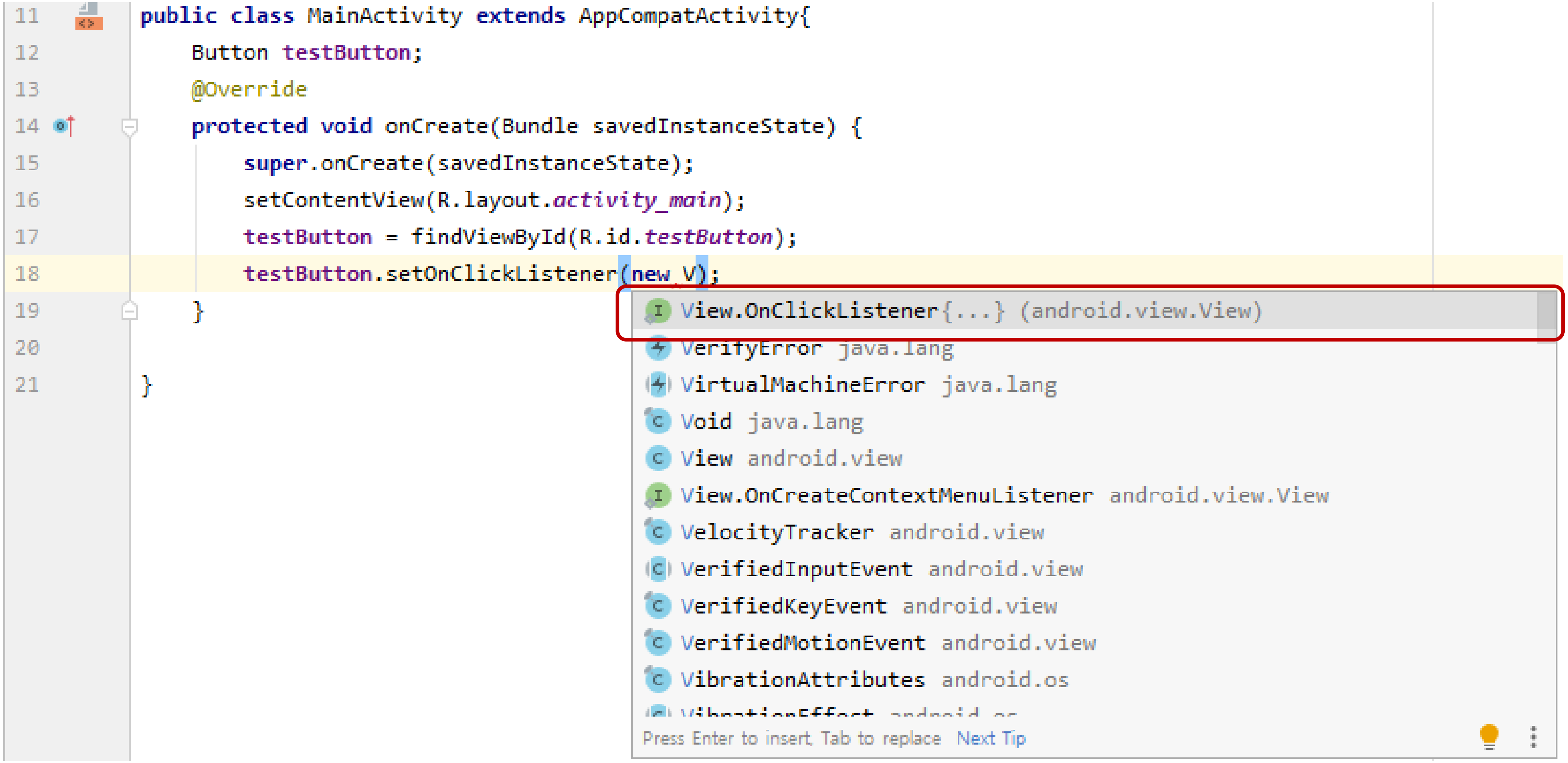
```java
Button testButton;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    testButton = findViewById(R.id.)

}
```

textView (= 1000040) int
testButton (= 1000046) int
gone (= 1000070) int
invisible (= 1000003) int
packed (= 1000094) int
parent (= 1000000) int
percent (= 1000082) int
spread (= 1000106) int
spread_inside (= 1000042) int
wrap (= 1000051) int
class
inst expr instanceof Type ? ((Type) expr) : null
Press Enter to insert, Tab to replace



```
Button testButton;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    testButton = findViewById(R.id.testButton);
    testButton.set
}
```

```
m setOnClickListener(OnClickListener l)                                    void
m setAccessibilityDelegate(AccessibilityDelegate delegate)                 void
m setAccessibilityHeading(boolean isHeading)                               void
m setAccessibilityLiveRegion(int mode)                                     void
m setAccessibilityPaneTitle(CharSequence accessibilityPaneTi…              void
m setAccessibilityTraversalAfter(int afterId)                              void
m setAccessibilityTraversalBefore(int beforeId)                            void
m setActivated(boolean activated)                                          void
m setAllCaps(boolean allCaps)                                              void
m setAlpha(float alpha)                                                    void
m setAnimation(Animation animation)                                        void
m setAnimationMatrix(Matrix matrix)                                        void
Press Enter to insert, Tab to replace
```



```java
public class MainActivity extends AppCompatActivity{
    Button testButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        testButton = findViewById(R.id.testButton);
        testButton.setOnClickListener(new V);
    }

}
```

View.OnClickListener{...} (android.view.View)
VerifyError java.lang
VirtualMachineError java.lang
Void java.lang
View android.view
View.OnCreateContextMenuListener android.view.View
VelocityTracker android.view
VerifiedInputEvent android.view
VerifiedKeyEvent android.view
VerifiedMotionEvent android.view
VibrationAttributes android.os
VibrationEffect android.os
Press Enter to insert, Tab to replace Next Tip

```java
Button testButton;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    testButton = findViewById(R.id.testButton);
}
```

```java
Button testButton;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    testButton = findViewById(R.id.testButton);
    testButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {

        }
    });
}
```

```
public class MainActivity extends AppCompatActivity {
    TextView textView;
    Button testButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView = findViewById(R.id.textView);
        testButton = findViewById(R.id.testButton);

        testButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

            }
        });
    }
}
```

```
Toast.makeText(getApplicationContext(),"버튼 클릭", Toast.LENGTH_SHORT).show();
if(testButton.getText().equals("Button")) {
    testButton.setText("clicked");
    textView.setText("clicked");
}
else {
    testButton.setText("Button");
    textView.setText("Hello !!!");
}
```

MainActivity.java

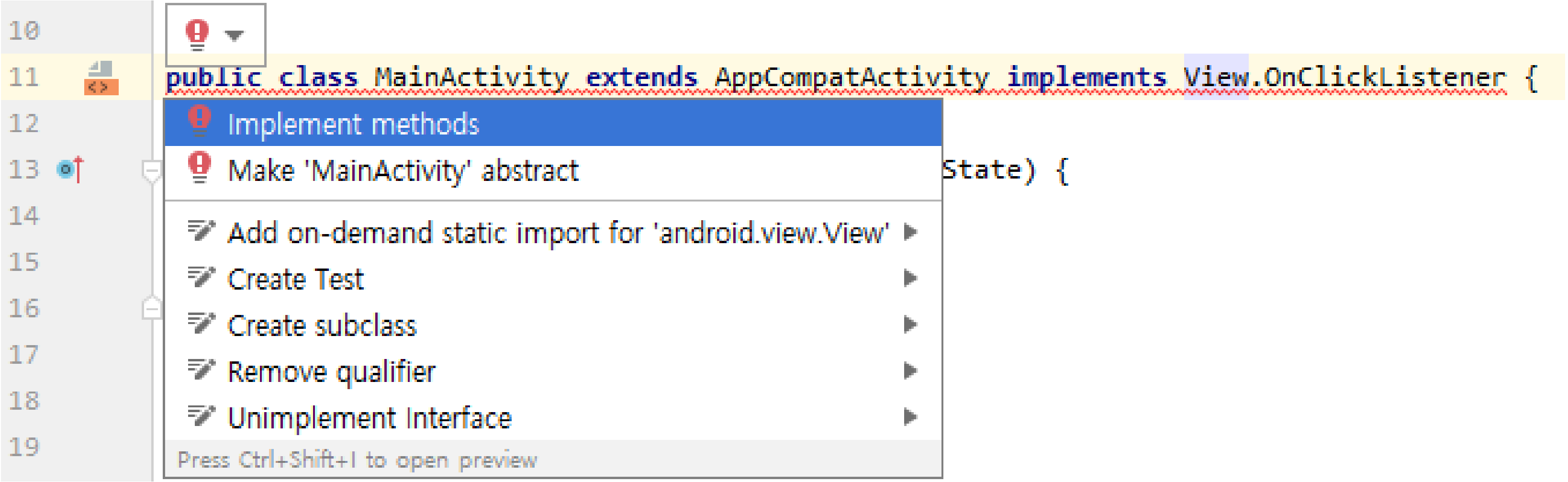
```java
public class MainActivity extends AppCompatActivity {
    TextView textView;
    Button testButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView = findViewById(R.id.textView);
        testButton = findViewById(R.id.testButton);

        testButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(),"버튼 클릭", Toast.LENGTH_SHORT).show();
                if(testButton.getText().equals("Button")) {
                    testButton.setText("clicked");
                    textView.setText("clicked");
                }
                else {
                    testButton.setText("Button");
                    textView.setText("Hello !!!");
                }

            }
        });
    }
}
```

이벤트 처리방법

MainActivity에 이벤트 리스너 구현

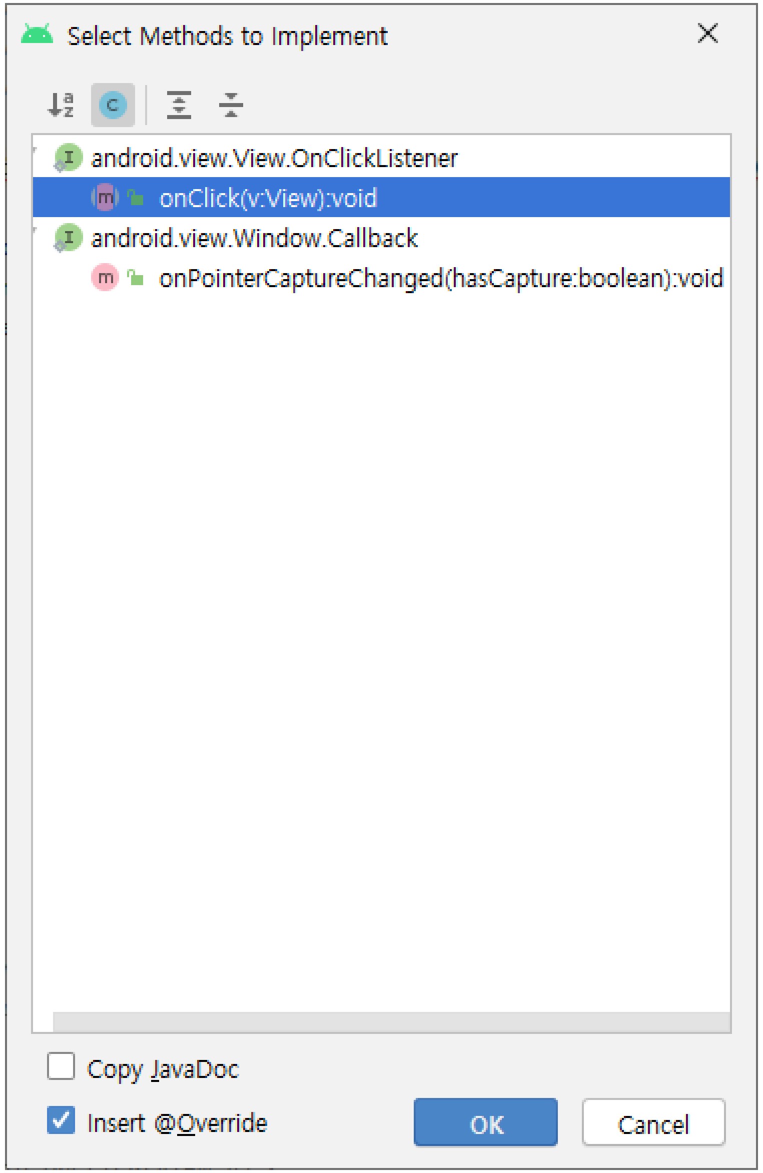
- MainActivity가 메인 클래스에 이벤트 리스너를 구현한다고 선언
- MainActivity가 이벤트 핸들러 객체가 됨

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener{
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button testButton = (Button) findViewById(R.id.testButton);
        testButton.setOnClickListener(this);
    }
    @Override
    public void onClick(View v) {
        switch(v.getId()){
            case R.id.testButton:
                Toast.makeText(getApplicationContext(),"버튼클릭", Toast.LENGTH_SHORT).show();
                break;
        }
    }
}
```



```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {

                                                    State) {
```

Implement methods
Make 'MainActivity' abstract
Add on-demand static import for 'android.view.View'
Create Test
Create subclass
Remove qualifier
Unimplement Interface
Press Ctrl+Shift+I to open preview



Select Methods to Implement
android.view.View.OnClickListener
onClick(v:View):void
android.view.Window.Callback
onPointerCaptureChanged(hasCapture:boolean):void
OK
Cancel

□ Copy JavaDoc

☑ Insert @Override

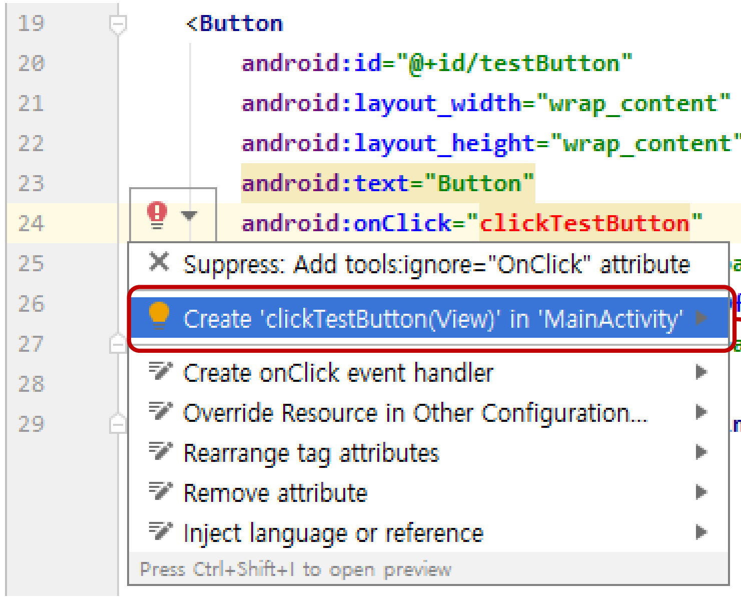
```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    @Override
    public void onClick(View v) {

    }
}
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button testButton = (Button) findViewById(R.id.testButton);
        testButton.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch(v.getId()){
            case R.id.testButton:
                Toast.makeText(getApplicationContext(),"버튼클릭", Toast.LENGTH_SHORT).show();
                break;
        }
    }
}
```

onClick 을 사용하여 함수 생성

```
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void clickTestButton(View view) {
        Toast.makeText(getApplicationContext(),"버튼클릭", Toast.LENGTH_SHORT).show();
    }
}
```

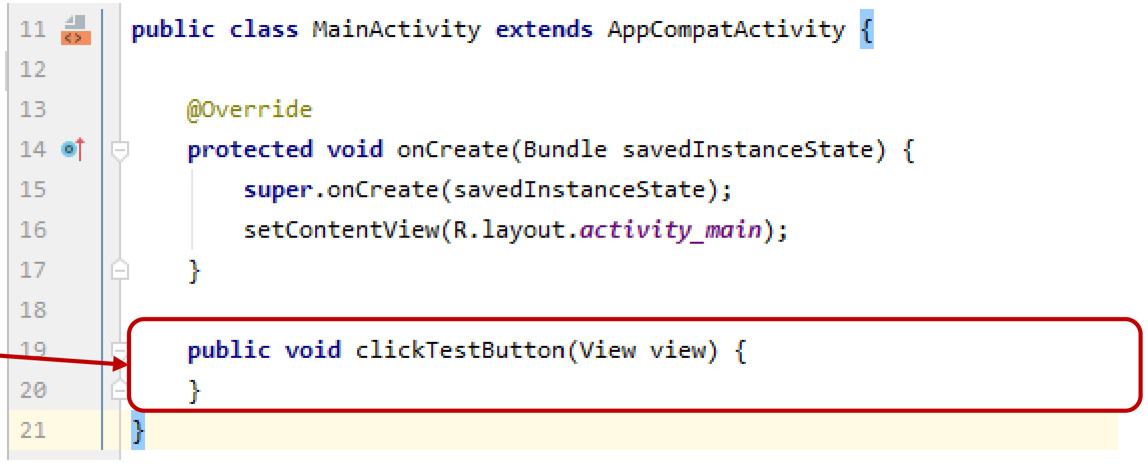
```
<Button
    android:id="@+id/testButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button"
    android:onClick="clickTestButton" />
```



```
    <Button
        android:id="@+id/testButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        android:onClick="clickTestButton"
                                                arent"
                                                f="parent"
                                                arent" />

                                                ntLayout>
```

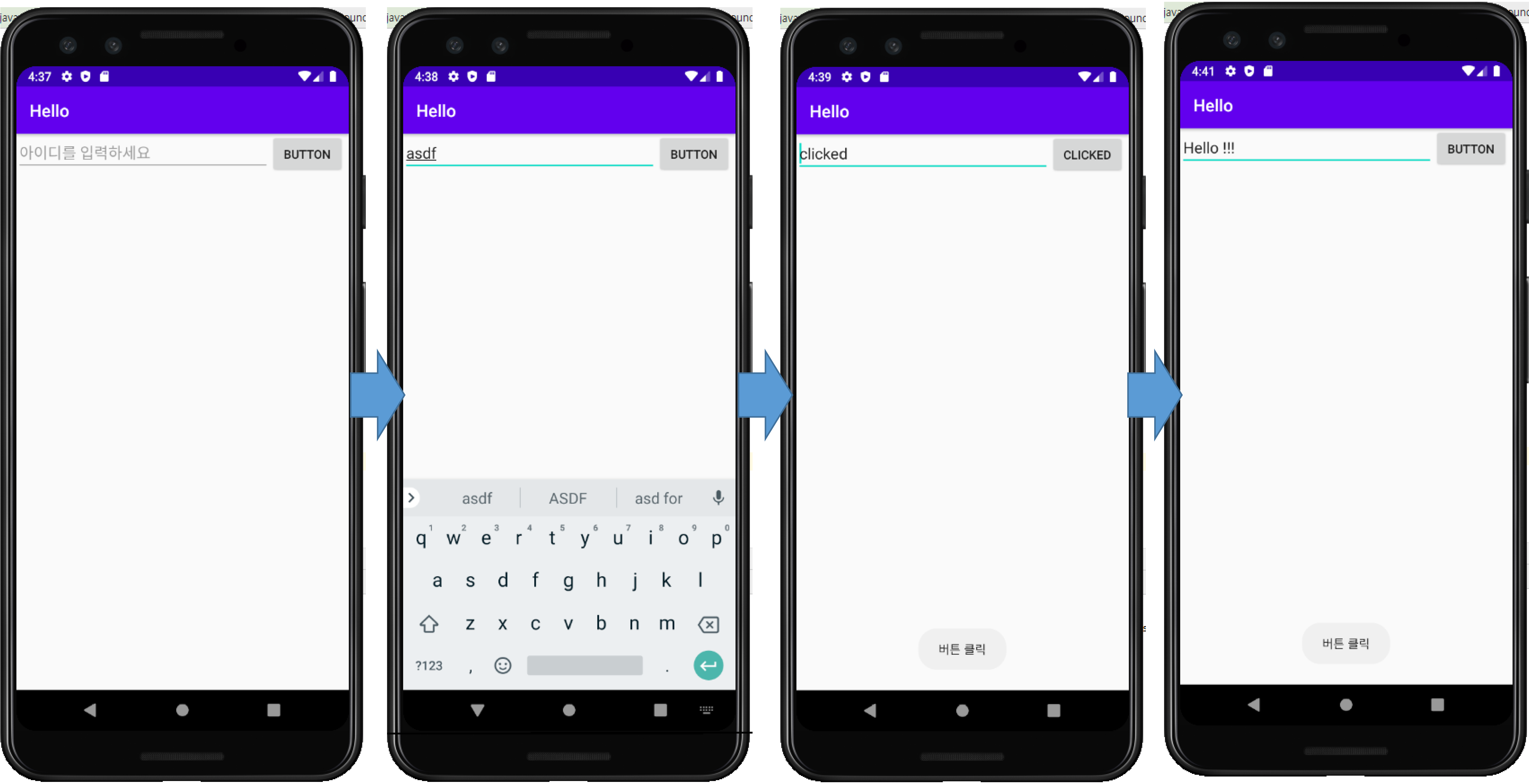
Suppress: Add tools:ignore="OnClick" attribute
Create 'clickTestButton(View)' in 'MainActivity'
Create onClick event handler
Override Resource in Other Configuration...
Rearrange tag attributes
Remove attribute
Inject language or reference
Press Ctrl+Shift+I to open preview

activity_main.xml



```java
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void clickTestButton(View view) {
    }
}
```

MainActivity.java



아이디를 입력하세요

asdf

clicked

버튼 클릭

Hello !!!

버튼 클릭