

# INTRODUCTION TO ANDROID STUDIO

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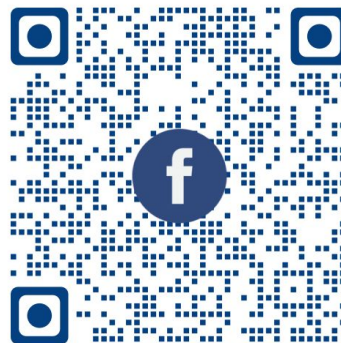


**Android**  
Studio

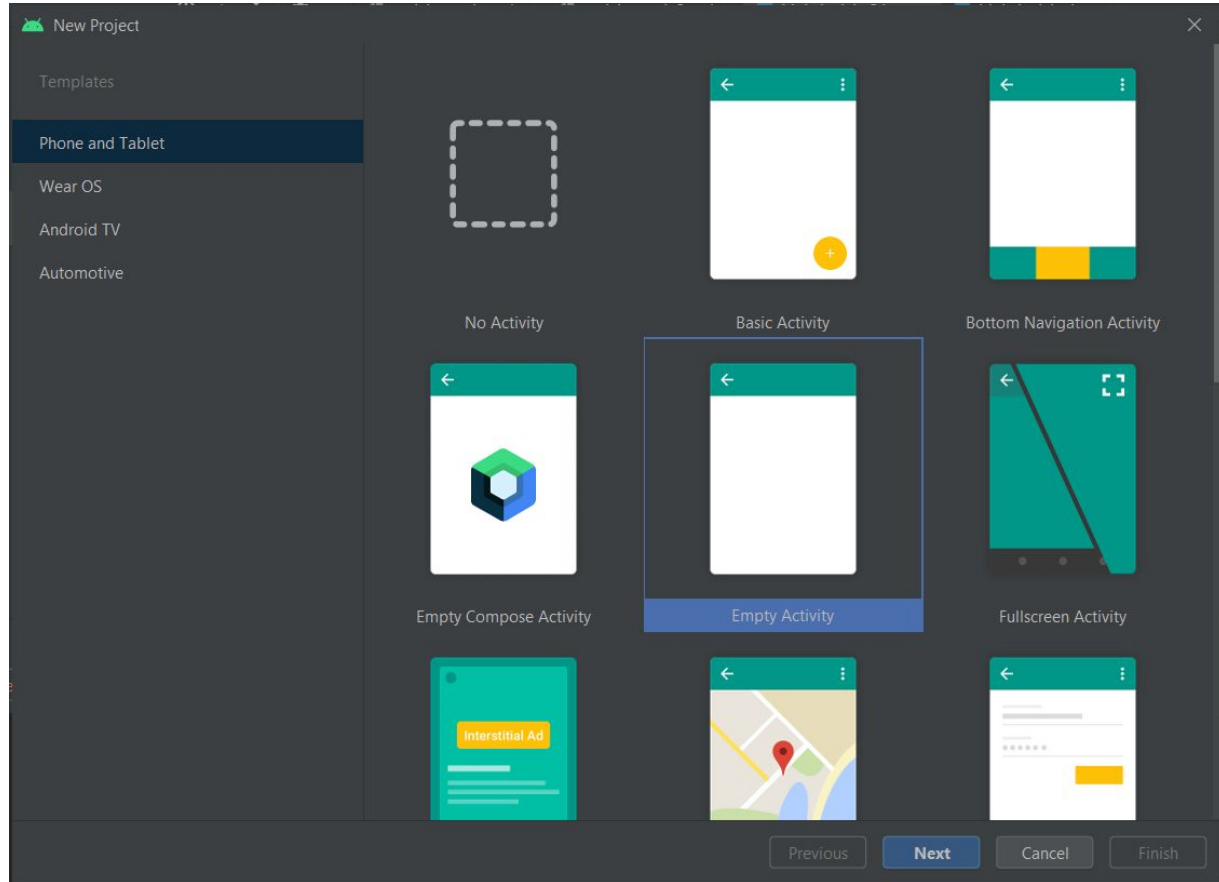
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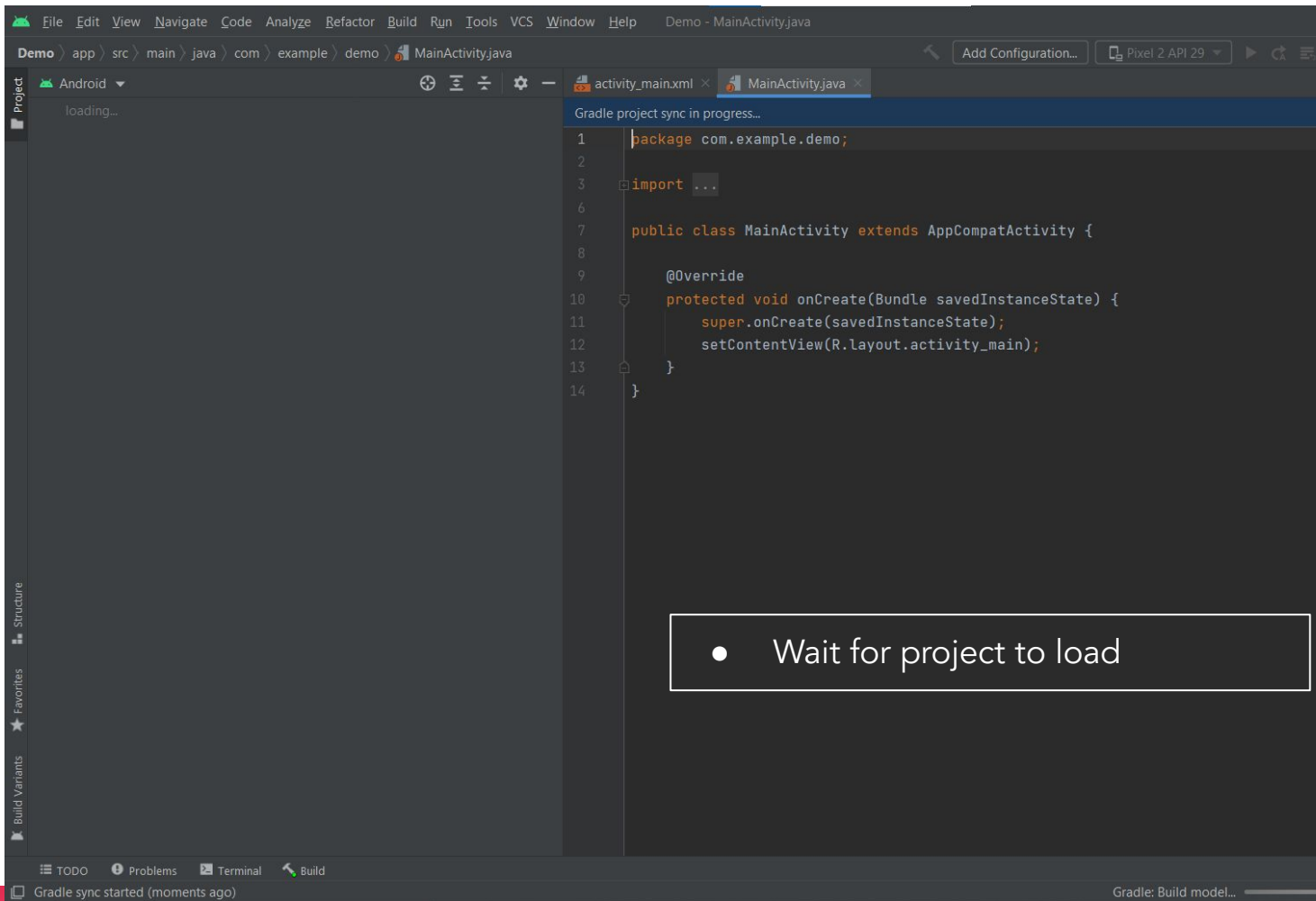


Huawei Developer  
Group APAC

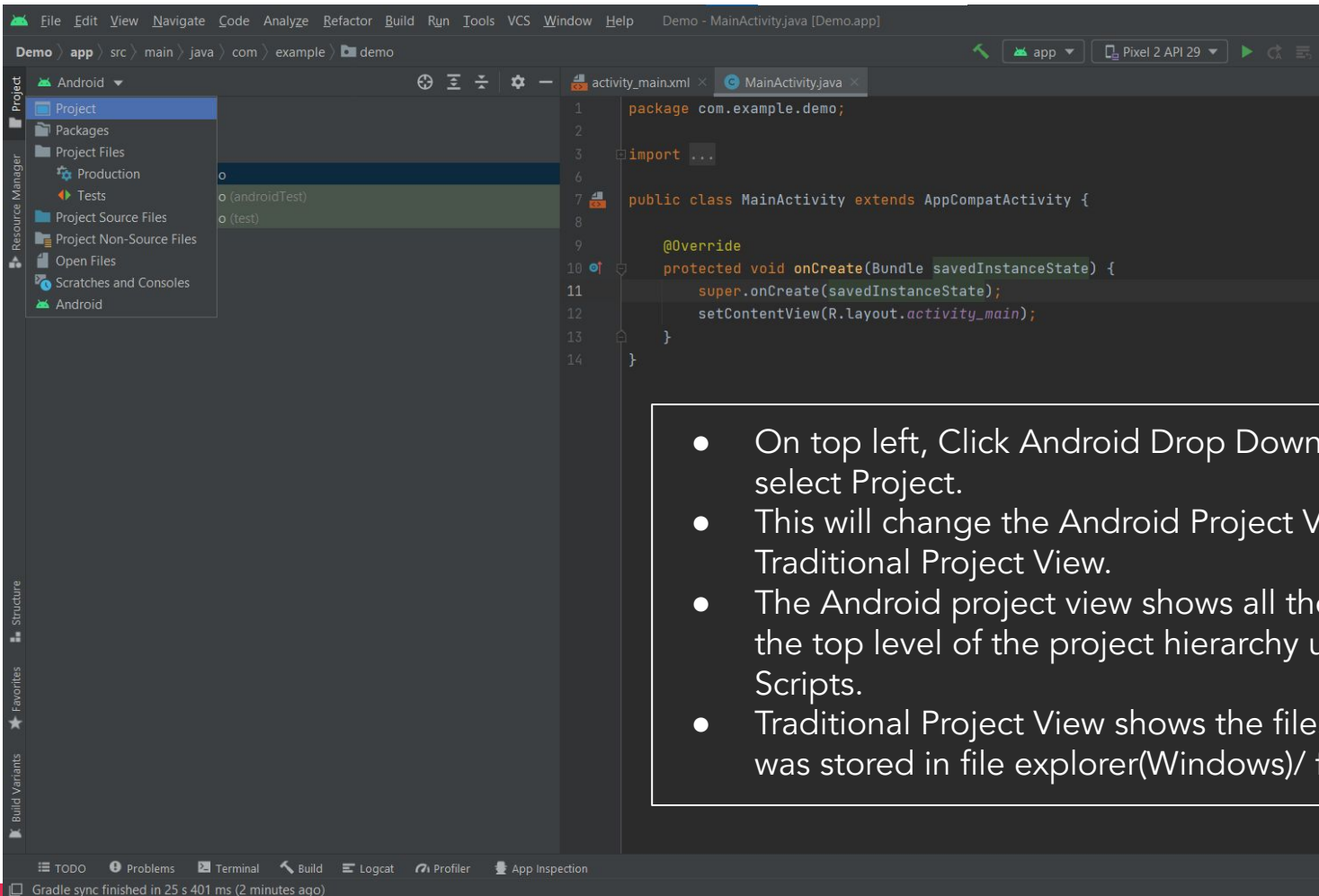


- Create New Project
- Select Phone and Tablet
- Select Empty Activity
- Click Next

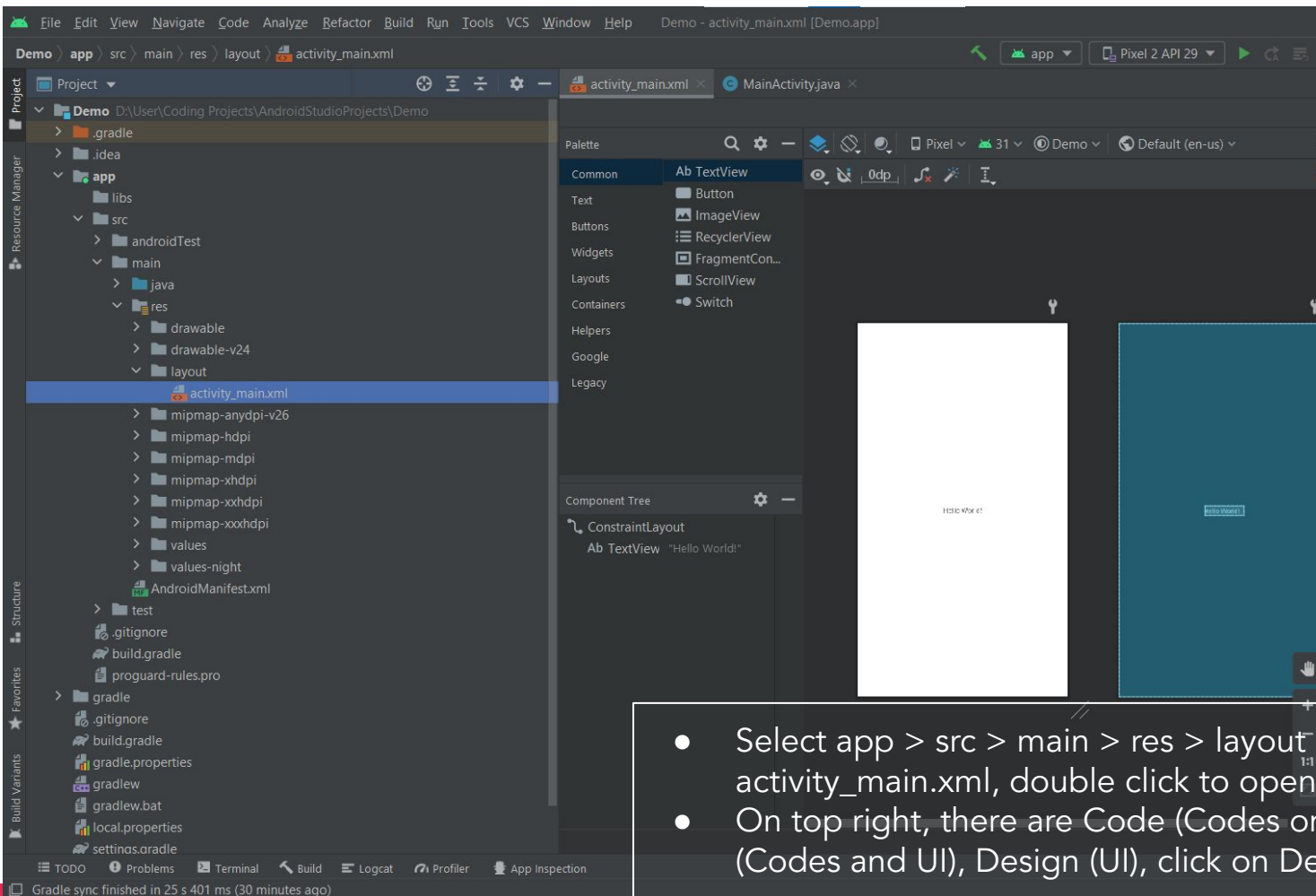
- Name the project as “Demo”
- Select Language as Java
- Leave other fields as default.
- Click Finish



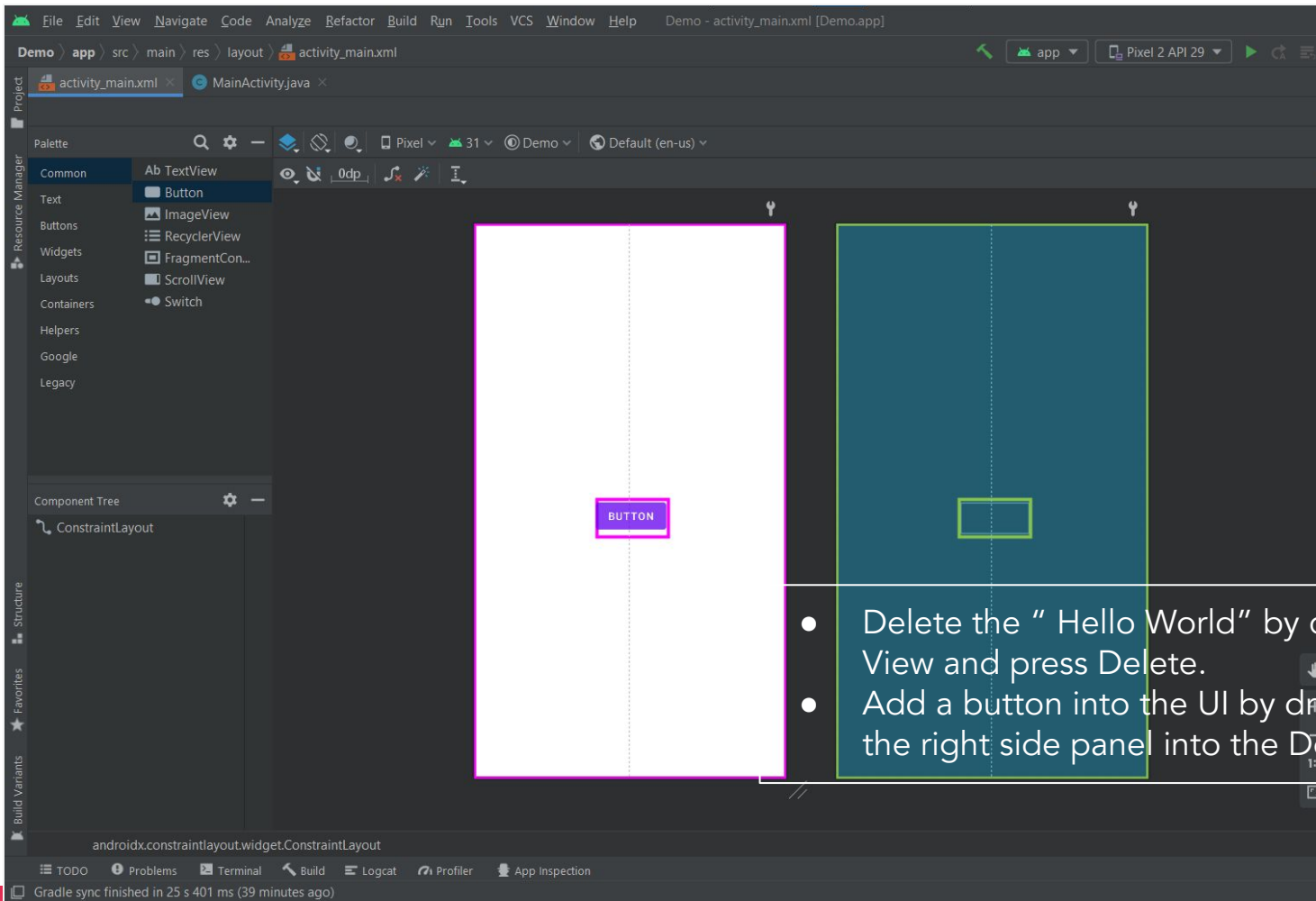
- Wait for project to load



- On top left, Click Android Drop Down Menu and select Project.
- This will change the Android Project View to Traditional Project View.
- The Android project view shows all the build files at the top level of the project hierarchy under Gradle Scripts.
- Traditional Project View shows the files same as how it was stored in file explorer(Windows)/ finder(Mac).

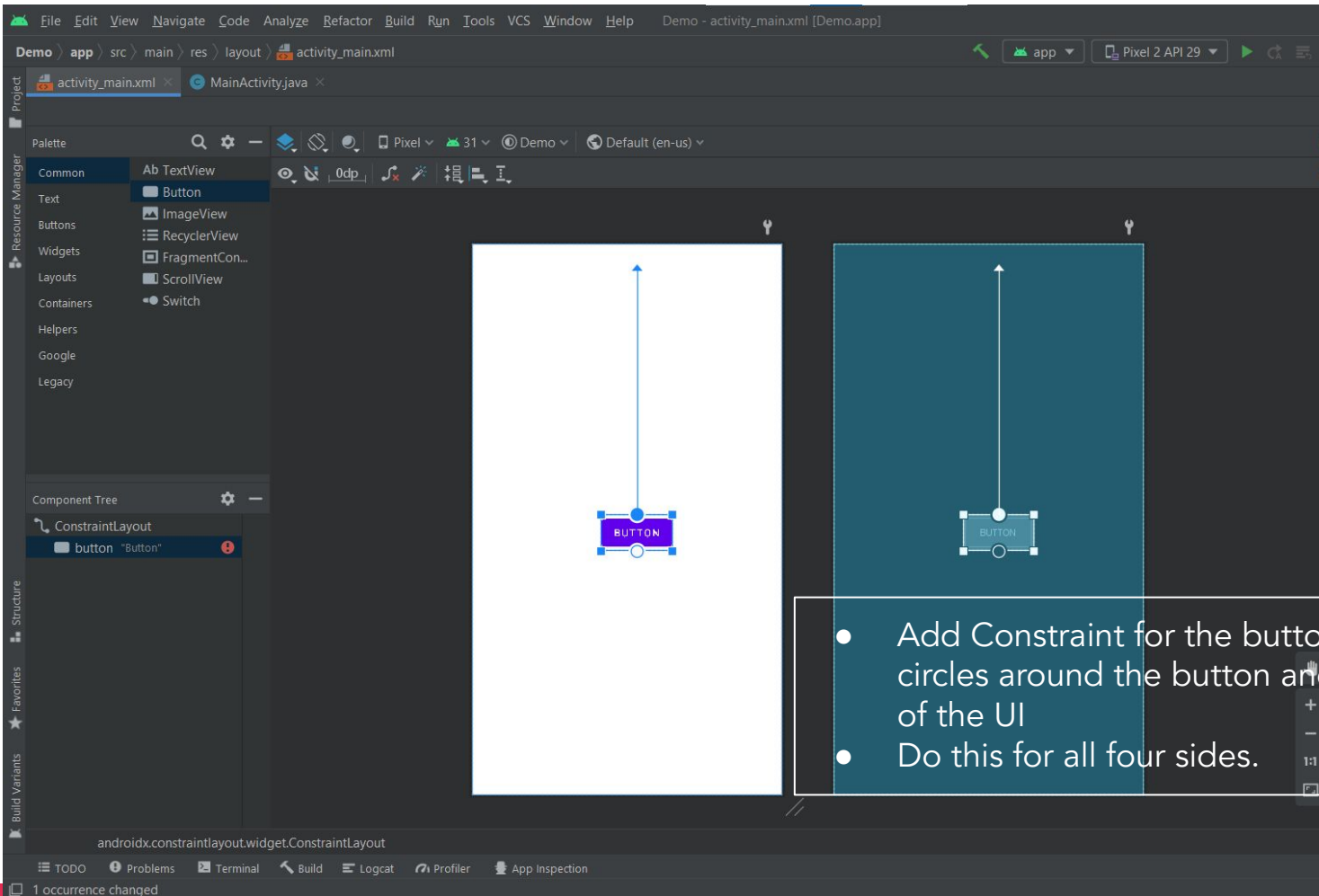


- Select app > src > main > res > layout > activity\_main.xml, double click to open it
- On top right, there are Code (Codes only), Split (Codes and UI), Design (UI), click on Design

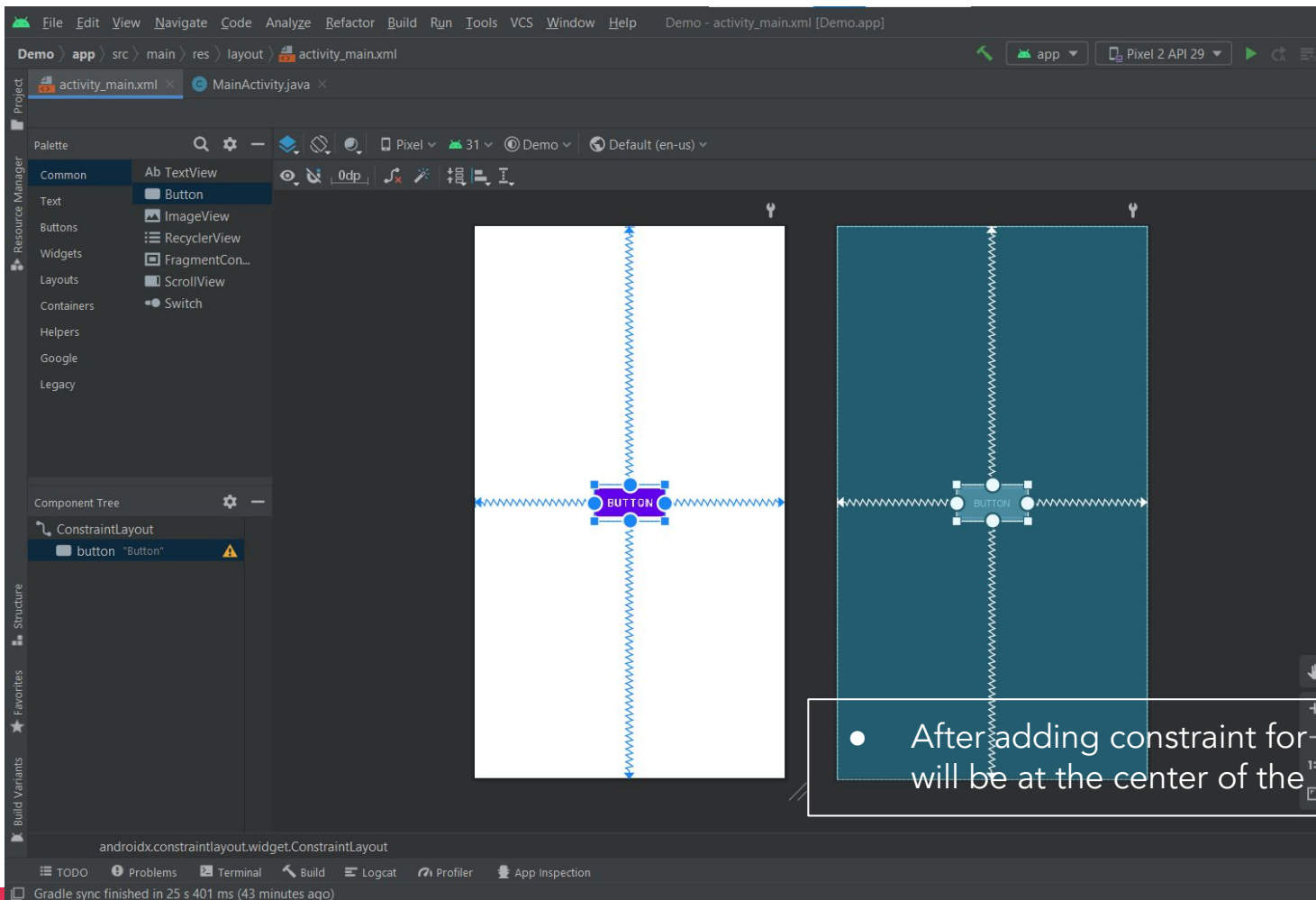


- Delete the "Hello World" by clicking on the Text View and press Delete.
- Add a button into the UI by dragging a Button from the right side panel into the Design View.

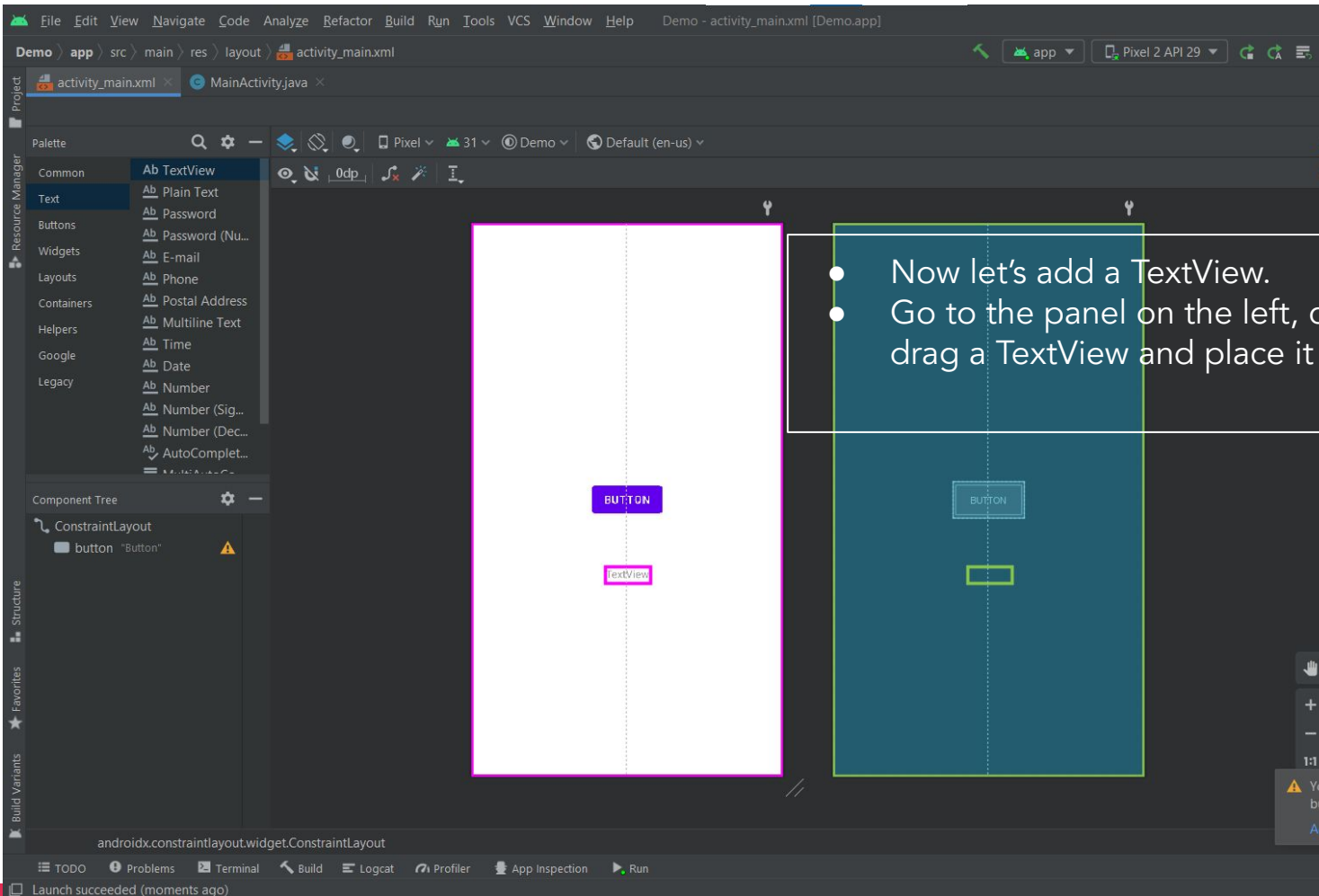




- Add Constraint for the button by click on the circles around the button and drag to the edge of the UI
- Do this for all four sides.



- After adding constraint for all sides your button will be at the center of the UI.



- Now let's add a TextView.
- Go to the panel on the left, click on text and drag a TextView and place it in the Design View.

- Add the constraint for TextView by dragging the circles.
- For the top constraint, we can connect it to the Button element. this will position the TextView below the Button Element

id textView

Declared Attributes

Constraint Widget

Constraints

Not Horizontally Constrained

Not Vertically Constrained

layout\_width wrap\_content

layout\_height wrap\_content

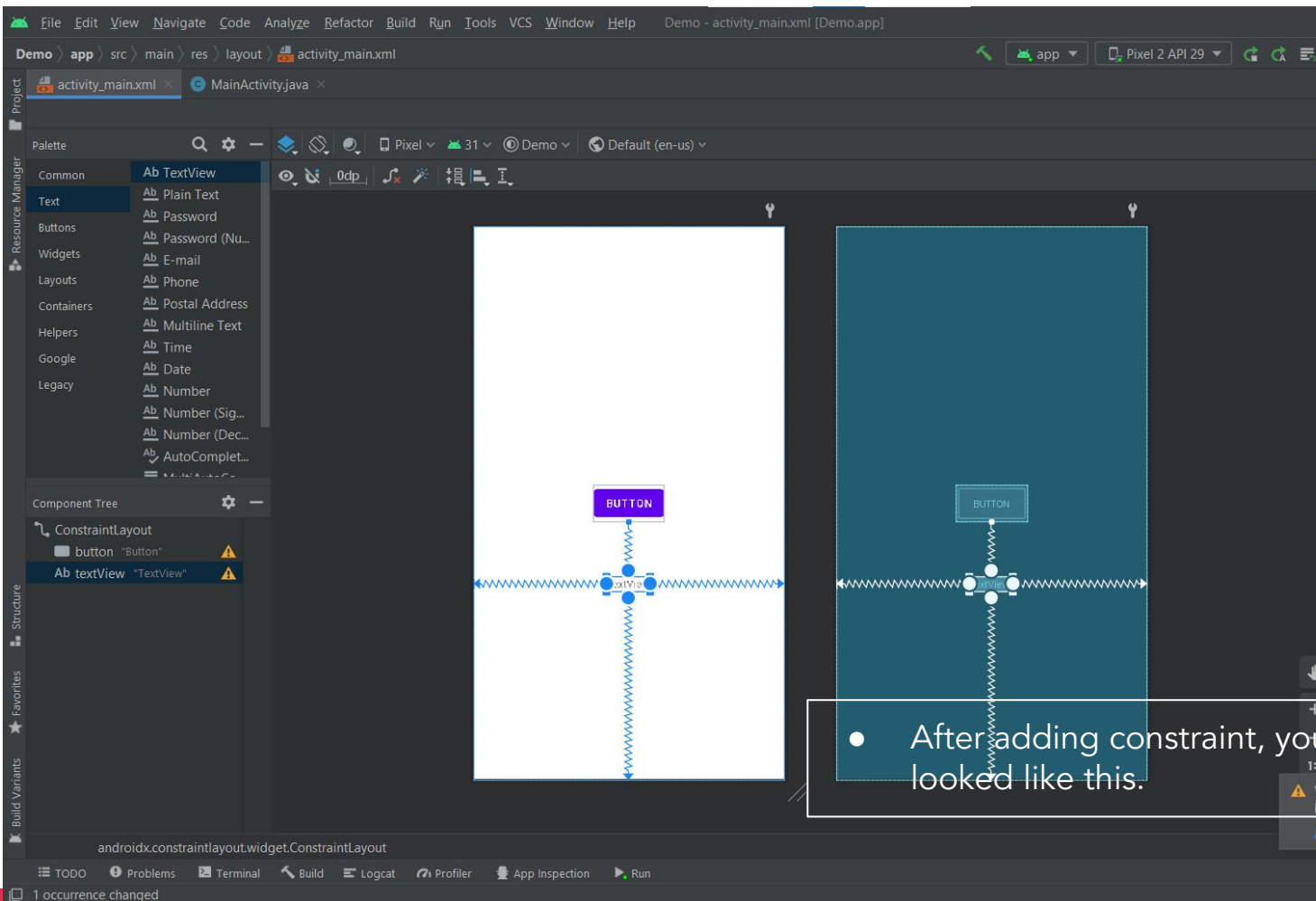
visibility

visibility

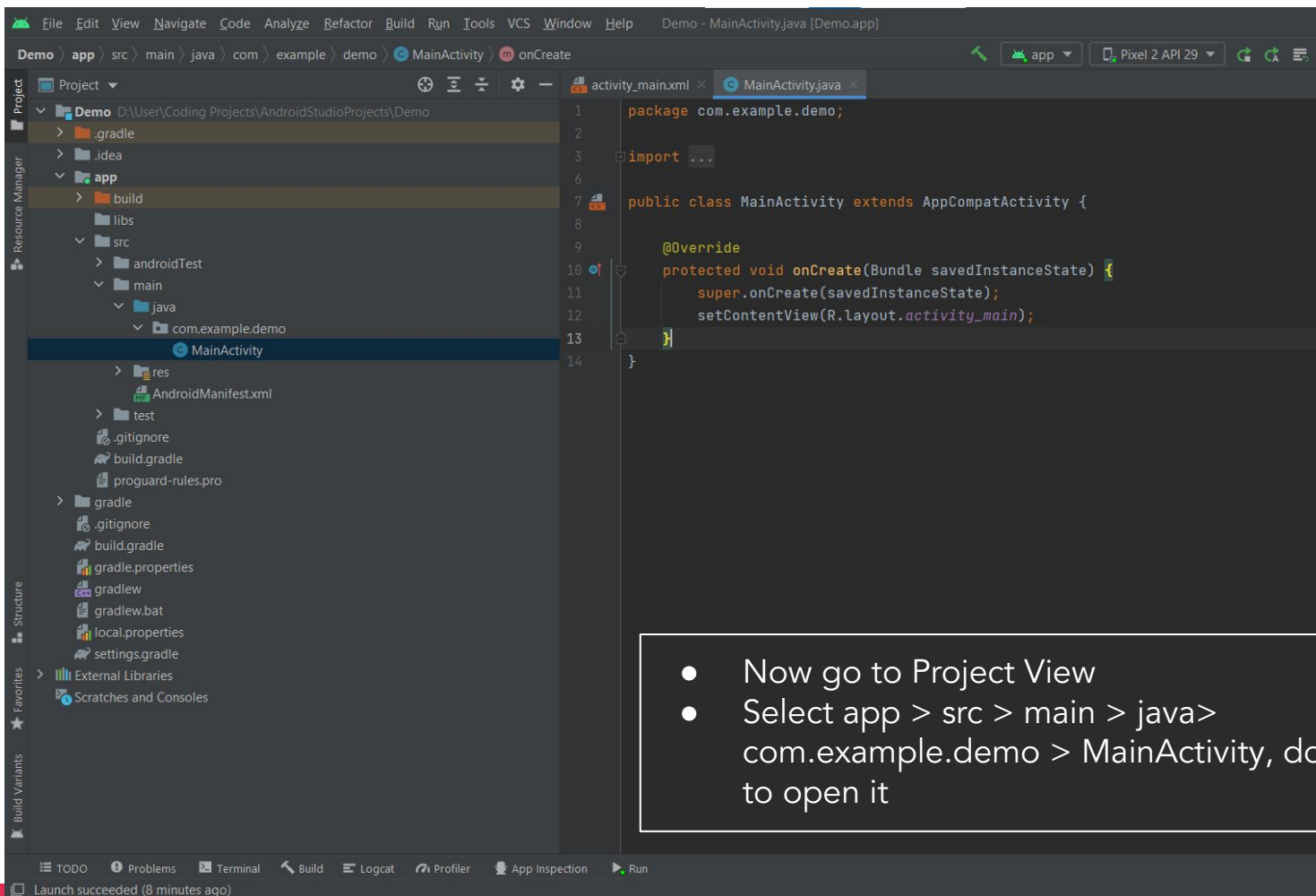
Transforms

Your anti-virus program might be impacting your build performance. Android Studio checked the...

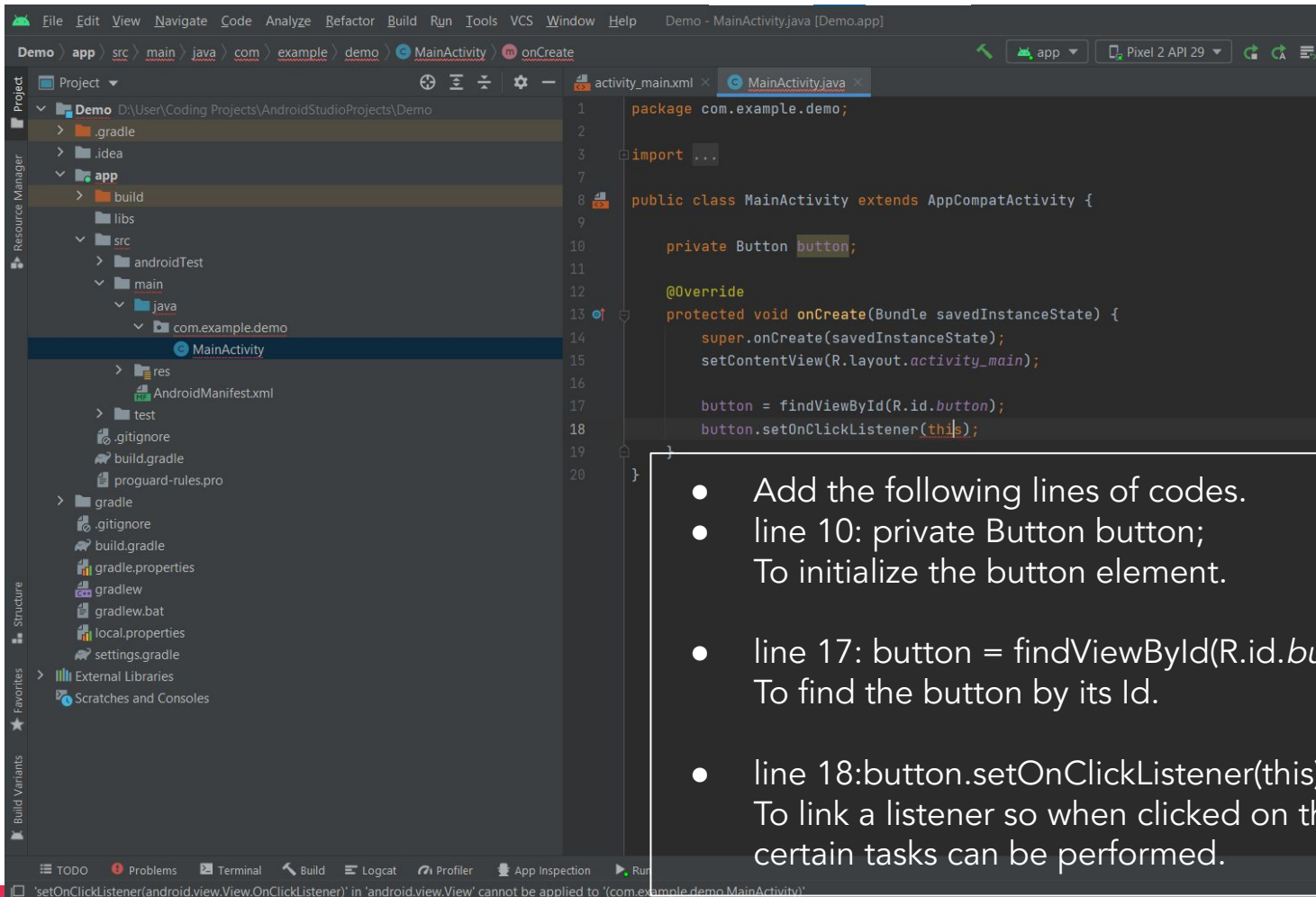
Actions Details



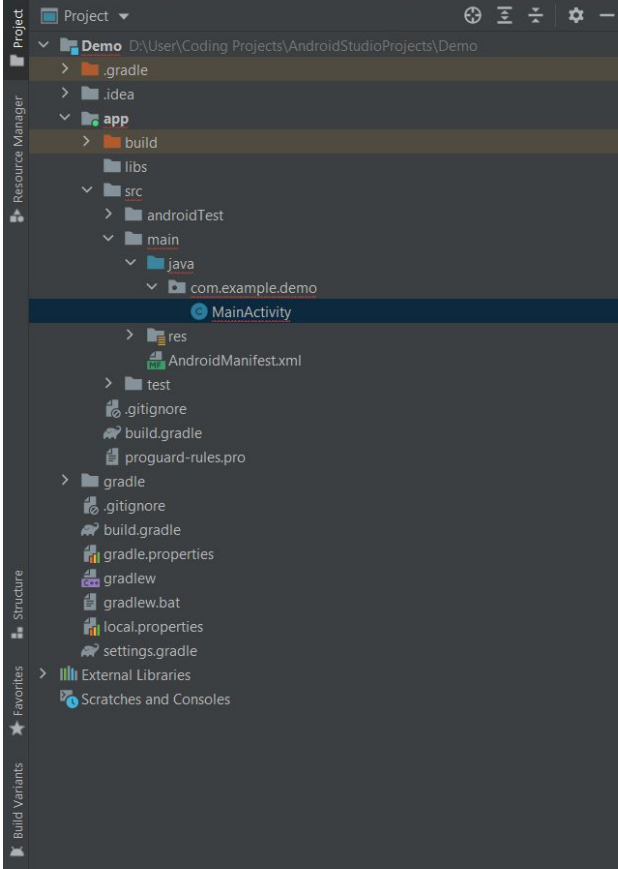
- After adding constraint, your TextView will look like this.







Demo app src main java com example demo MainActivity onCreate

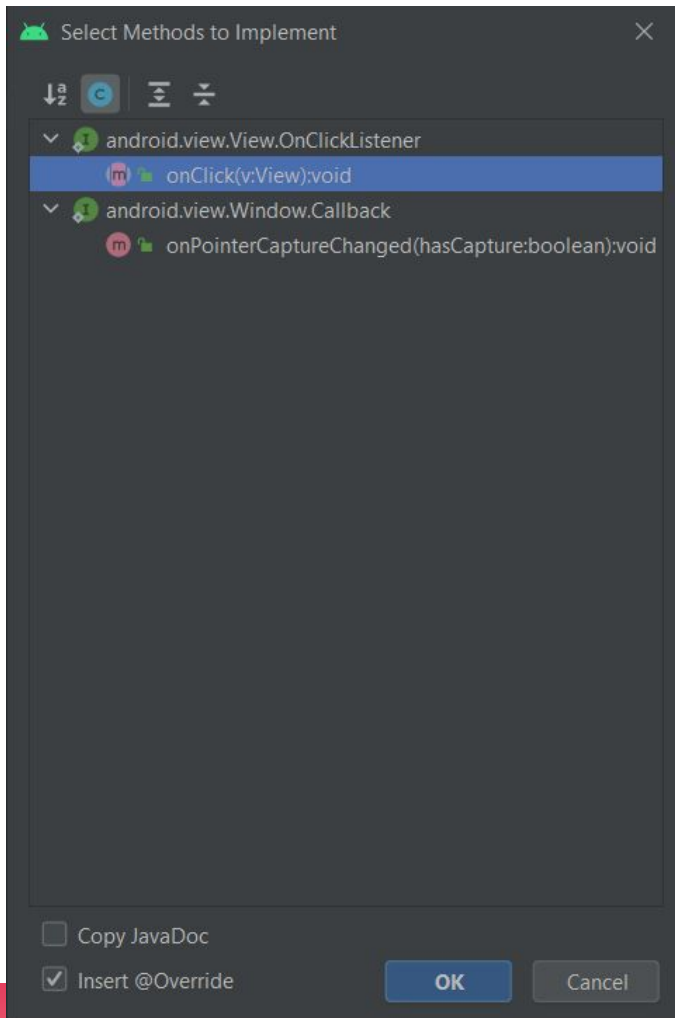


```
1 package com.example.demo;
2
3 import ...
4
5
6
7
8
9 public class MainActivity extends AppCompatActivity {
10
11     private Button button;
12
13     @Override
14     protected void onCreate(Bundle savedInstanceState) {
15         super.onCreate(savedInstanceState);
16         setContentView(R.layout.activity_main);
17
18         button = findViewById(R.id.button);
19         button.setOnClickListener(this);
20     }
21 }
```

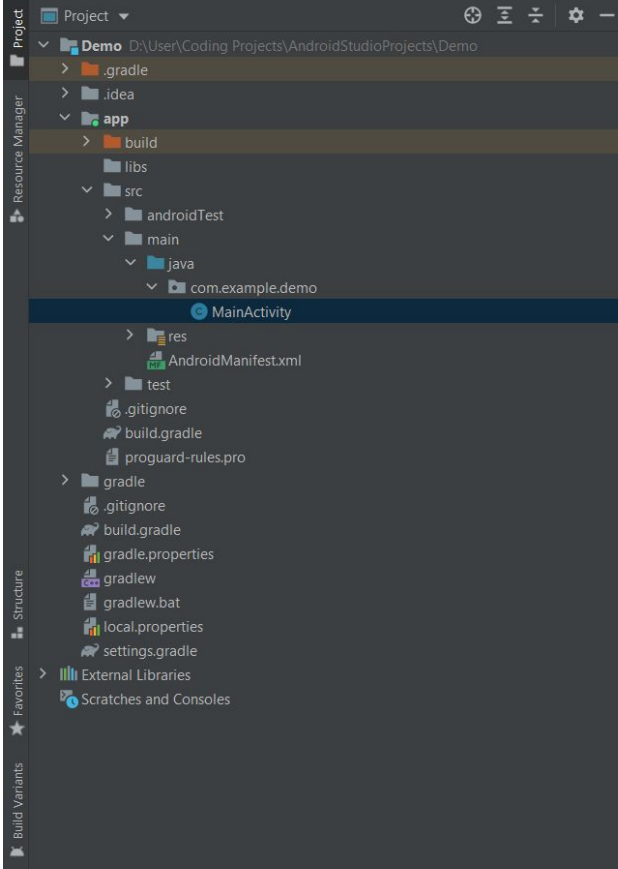
Cast parameter to 'android.view.View.OnClickListener'  
Make 'MainActivity' implement 'android.view.View.OnClickListener'  
Press Ctrl+Shift+I to open preview

- Now you will notice that the “this” in line 18 is underline in red.
- Right click on the “this”, click show Context Actions or press Alt + Enter.
- Click on Make MainActivity implements android.view.View.OnclickListener





- A pop up will be shown, we'll select the first method.



```

1 package com.example.demo;
2
3 import ...
4
5
6
7
8
9 public class MainActivity extends AppCompatActivity implements View.OnClickListener {
10
11     private Button button;
12
13     @Override
14     protected void onCreate(Bundle savedInstanceState) {
15         super.onCreate(savedInstanceState);
16         setContentView(R.layout.activity_main);
17
18         button = findViewById(R.id.button);
19         button.setOnClickListener(this);
20     }
21
22     @Override
23     public void onClick(View v) {
24         |
25     }
26 }

```

- Take note on the implemented changes in line 9 and line 22 to 26

The screenshot shows the Android Studio IDE with the following components:

- Top Bar:** File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, Help. Demo - MainActivity.java [Demo.app]
- Project View (Left):** Shows the project structure. The package `com.example.demo` is selected.
- Main Editor:** Displays the `MainActivity.java` file. The code includes package declarations, imports, and the `MainActivity` class extending `AppCompatActivity` and implementing `View.OnClickListener`.
- Context Menu:** A right-click menu is open over the `com.example.demo` package. The path `New > Activity > Empty Activity` is highlighted.
- Text Overlay:** A white box with black text provides instructions: "Now let's add another activity. Go to the Project view. right click on com.example.demo, then select New>Activity>Empty Activity".
- Bottom Bar:** Includes tabs for TODO, Problems, Terminal, Build, and Logcat. The status bar at the very bottom shows system information like time (13:14), date (31/10/2021), and temperature (26°C).

New Android Activity

**Empty Activity**  
Creates a new empty activity

Activity Name  
MainActivity2

☒ Generate a Layout File

Layout Name  
activity\_main2

☐ Launcher Activity

Package name  
com.example.demo

Source Language  
Java

Previous Next Cancel Finish

- Leave everything as default and click Finish.

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Demo - MainActivity.java [Demo.app]

Demo > app > src > main > java > com > example > demo > MainActivity > onClick

Project ▾  
Demo D:\User\Coding\Projects\AndroidStudioProjects\Demo  
  > .gradle  
  > .idea  
  > app  
    > build  
    > libs  
    > src  
      > androidTest  
      > main  
        > java  
          > com.example.demo  
            • MainActivity  
            • MainActivity2  
          > res  
            AndroidManifest.xml  
          > test  
            .gitignore  
            build.gradle  
            proguard-rules.pro  
          > gradle  
            .gitignore  
            build.gradle  
            gradle.properties  
            gradlew  
            gradlew.bat  
            local.properties  
            settings.gradle  
          > External Libraries  
          Scratches and Consoles

Resource Manager ▾

Structure ▾

Favorites ▾

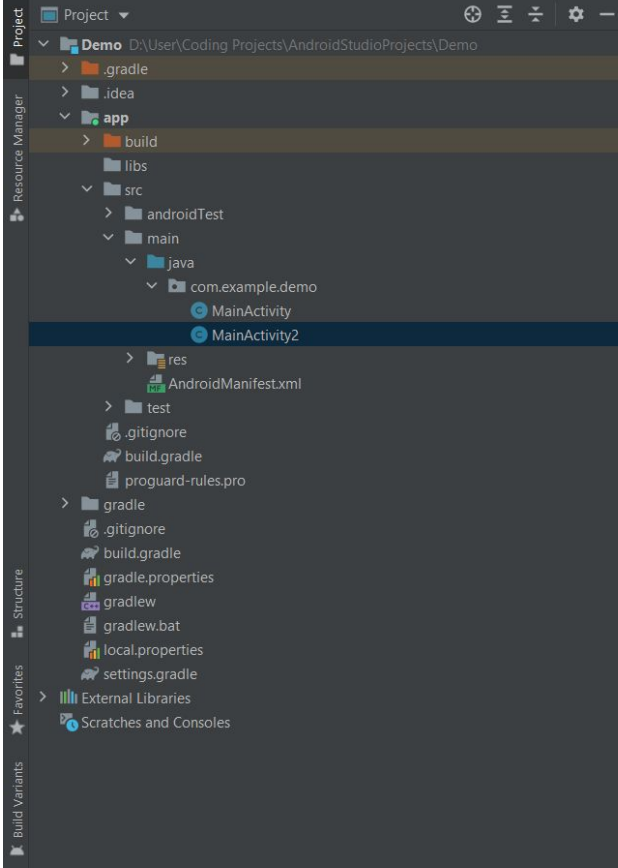
Build Variants ▾

25:1 (20)

```
1 package com.example.demo;  
2  
3 import androidx.appcompat.app.AppCompatActivity;  
4 import androidx.appcompat.widget.Button;  
5  
6 public class MainActivity extends AppCompatActivity implements View.OnClickListener {  
7  
8     private Button button;  
9  
10    @Override  
11    protected void onCreate(Bundle savedInstanceState) {  
12        super.onCreate(savedInstanceState);  
13        setContentView(R.layout.activity_main);  
14  
15        button = findViewById(R.id.button);  
16        button.setOnClickListener(this);  
17    }  
18  
19    @Override  
20    public void onClick(View v) {  
21        switch (v.getId()) {  
22            case R.id.button:  
23                Intent intent = new Intent(getApplicationContext(), MainActivity2.class);  
24                startActivity(intent);  
25                break;  
26            }  
27    }  
28 }
```

- Let's go back to MainActivity.java.
- Select app > src > main > java > com.example.demo > MainActivity or click on MainActivity.java from the top navigation bar.

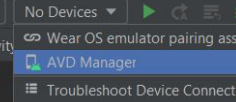
- Add the following codes from line 25 to line 30.
- line 27: Intent intent = new Intent(this, MainActivity2.class);  
Initialize a new Intent for MainActivity2.
- line 28: startActivity(intent);  
Start the Intent.



```

1 package com.example.demo;
2
3 import ...
4
5
6
7
8
9
10 public class MainActivity extends AppCompatActivity implements View.OnClickListener {
11
12     private Button button;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         button = findViewById(R.id.button);
20         button.setOnClickListener(this);
21     }
22
23     @Override
24     public void onClick(View v) {
25         switch (v.getId()){
26             case R.id.button:
27                 Intent intent = new Intent( packageContext: this, MainActivity2.class);
28                 startActivity(intent);
29                 break;
30         }
31     }
32 }

```



- Now let's try to run our app.
- On the top bar, click on the No Devices Drop Down list.
- Select AVD Manager.



## Your Virtual Devices

Android Studio

Virtual devices allow you to test your application without having to own the physical devices.

+ Create Virtual Device...

- Click on Create Virtual Device

To prioritize which devices to test your application on, visit the [Android Dashboards](#), where you can get up-to-date information on which devices are active in the Android and Google Play ecosystem.



## Select Hardware

## Choose a device definition

Category	Name ▾	Play Store	Size	Resolution	Density
TV	Pixel 3a		5.6"	1080x2220	440dpi
Phone	Pixel 3 XL		6.3"	1440x2960	560dpi
Wear OS	Pixel 3		5.46"	1080x2160	440dpi
Tablet	Pixel 2 XL		5.99"	1440x2880	560dpi
Automotive	Pixel 2		5.0"	1080x1920	420dpi
	Pixel		5.0"	1080x1920	420dpi
	Nexus S		4.0"	480x800	hdpi
	Nexus One		3.7"	480x800	hdpi
	Nexus 6P		5.7"	1440x2560	560dpi
	Nexus 6		5.96"	1440x2560	560dpi
	Nexus 5X		5.2"	1080x1920	420dpi

## Pixel 2



Size: large  
Ratio: long  
Density: 420dpi

New Hardware Profile

Import Hardware Profiles



Clone Device...



Previous

Next

Cancel

Finish

- Select Pixel 2 and click next.



Virtual Device Configuration


## System Image

Select a system image

Recommended x86 Images Other Images

Release Name	API Level	ABI	Target
<a href="#">R Download</a>	30	x86	Android 11.0 (Google Play)
<b>Q</b>	<b>29</b>	<b>x86</b>	<b>Android 10.0 (Google Play)</b>
<a href="#">Pie Download</a>	28	x86	Android 9.0 (Google Play)
<a href="#">Oreo Download</a>	27	x86	Android 8.1 (Google Play)
<a href="#">Oreo Download</a>	26	x86	Android 8.0 (Google Play)
<a href="#">Nougat Download</a>	25	x86	Android 7.1.1 (Google Play)
<a href="#">Nougat Download</a>	24	x86	Android 7.0 (Google Play)

Q



API Level  
**29**

Android  
**10.0**

Google Inc.

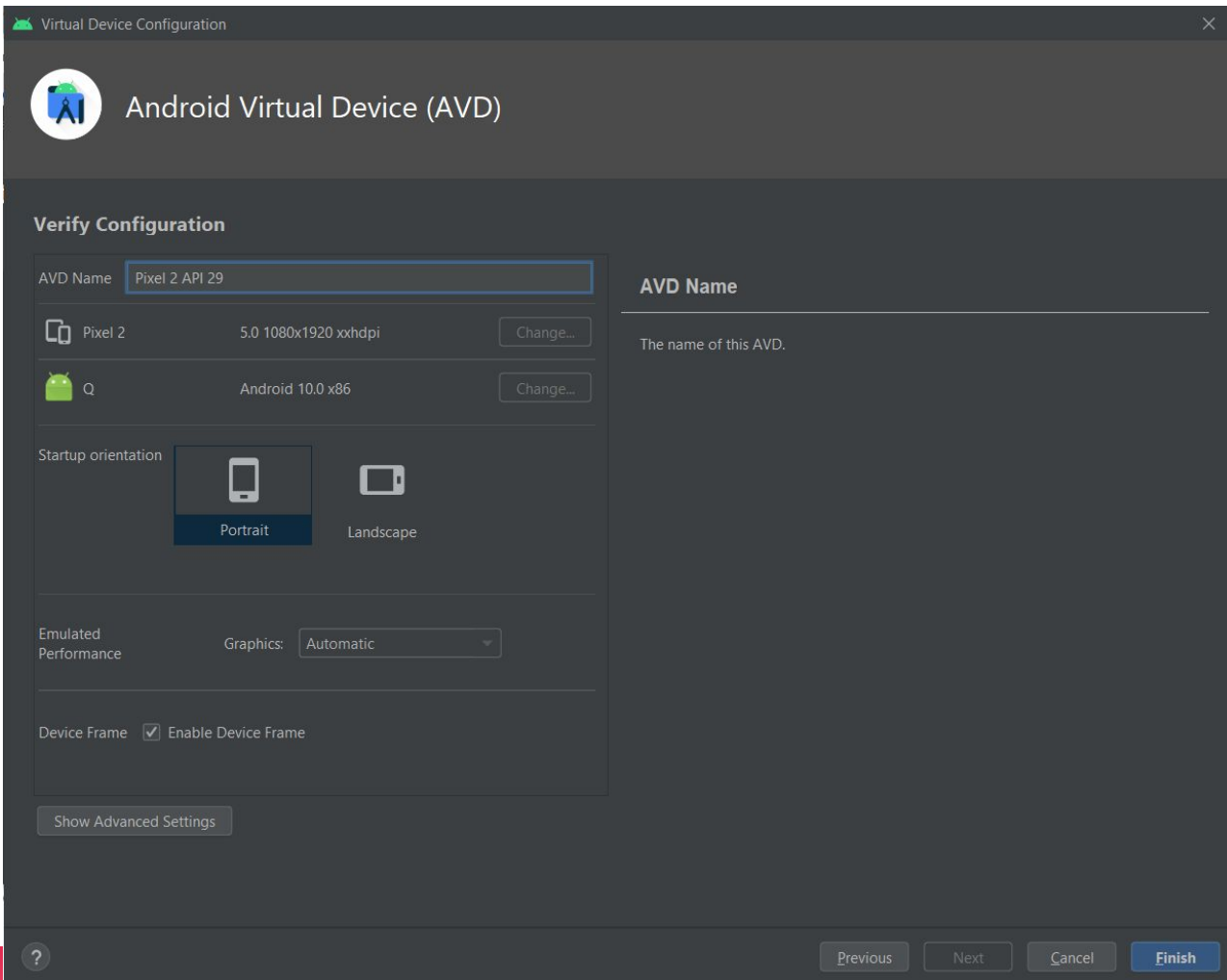
System Image  
**x86**

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

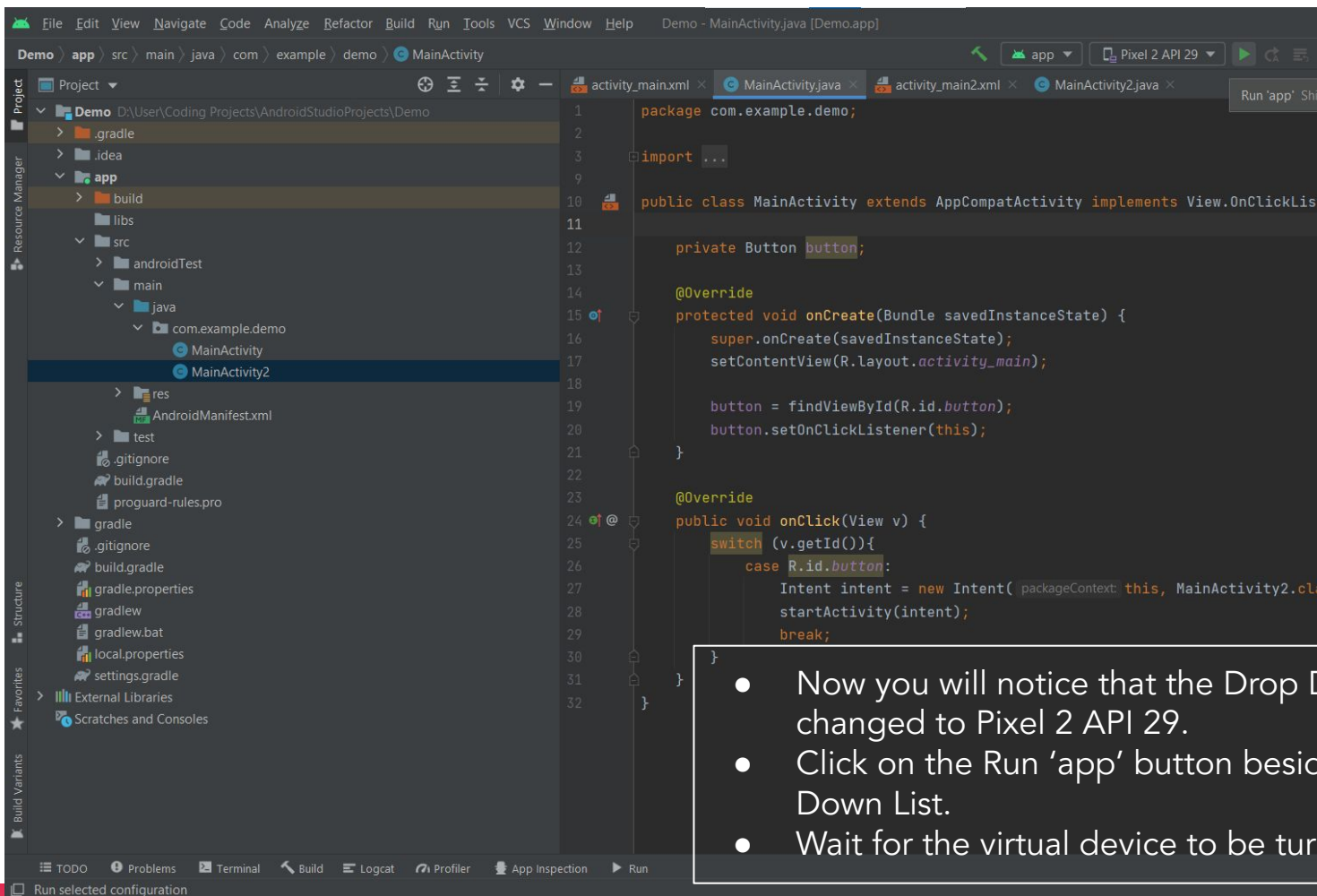
Questions on API level?  
[See the API level distribution chart](#)

Previous Next Cancel Finish

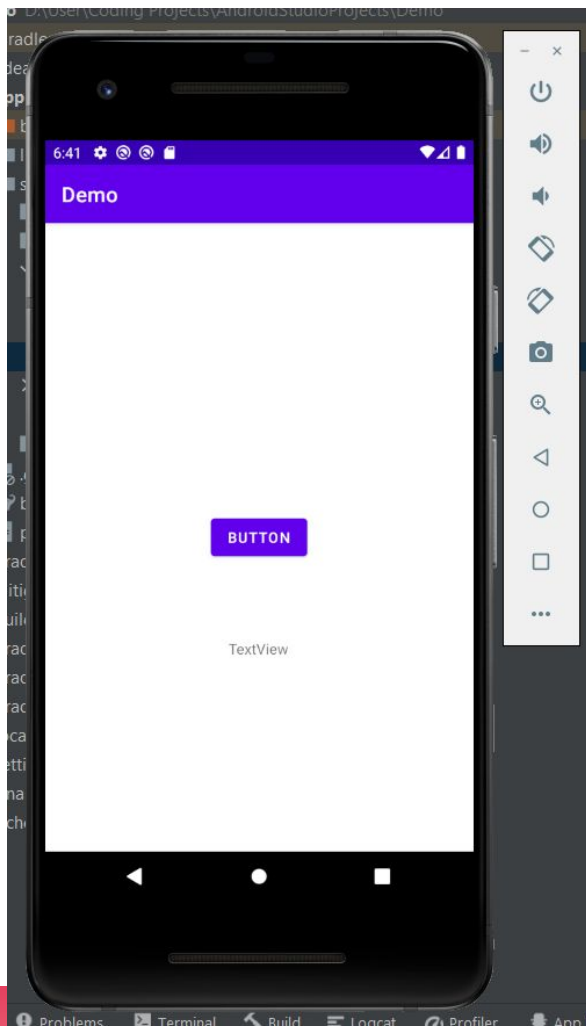
- Choose any android version of your preference.
- Here I'm using Android 10.0.
- You will have to download it first for your first time.
- After complete downloading, select the Android version and click Next.



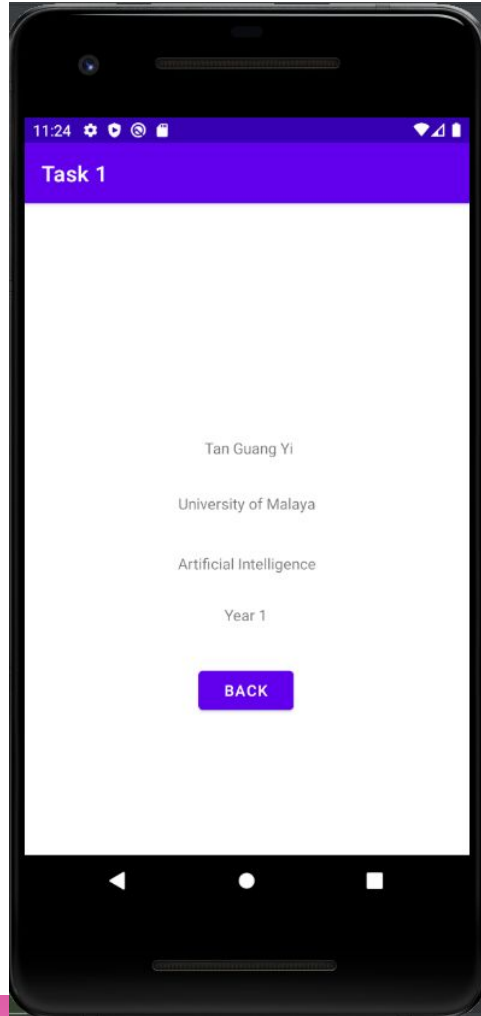
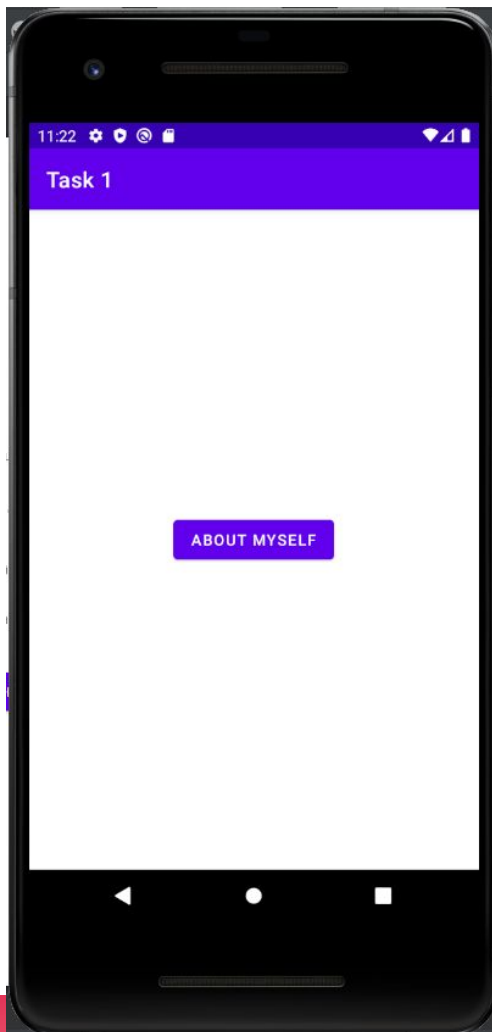
- Select Portrait orientation and leave everything else as default and click finish.



- Now you will notice that the Drop Down had changed to Pixel 2 API 29.
- Click on the Run 'app' button beside the Drop Down List.
- Wait for the virtual device to be turned on.



- Congratulations!
- You had successfully run your first app.



### Self-help Task

- Create an app with 2 activities
- Activity 1 has a button that can navigate user to the second activity.
- Display your personal information in Activity 2.
- Add a back button that will navigate user back to the First activity.

# Thank You

Fill up the survey form below to get the Slides Presented.

Github Project Link: <https://github.com/guangyitan/HSDWorksop1>

Survey Form Link: <https://forms.office.com/r/ApEGsYUHnt>

Survey Form QR Code:

