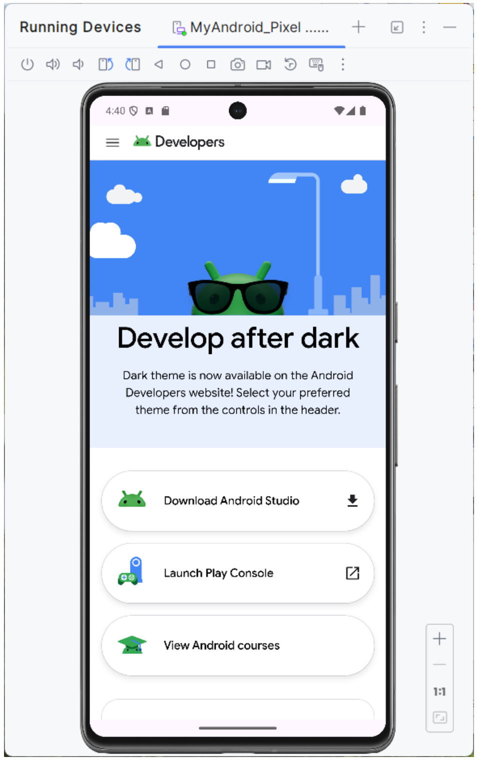
Web View Implementation



Running Devices

MyAndroid_Pixel ......

4:40

Developers

Develop after dark

Dark theme is now available on the Android Developers website! Select your preferred theme from the controls in the header.

Download Android Studio

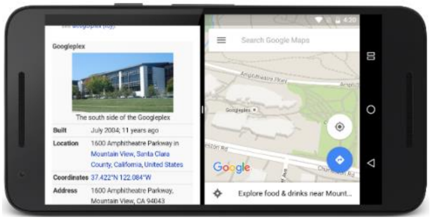
Launch Play Console

View Android courses

Lesson Objectives

Contents

- Web View Implementation



Googleplex

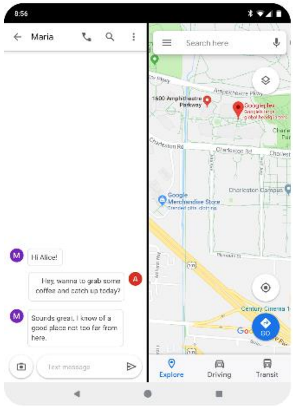
The south side of the Googleplex

Built July 2004; 11 years ago

Location 1600 Amphitheatre Parkway in Mountain View, Santa Clara County, California, United States

Coordinates 37.422°N 122.084°W

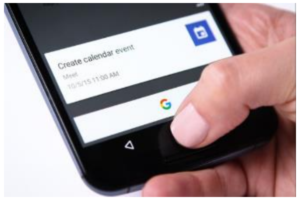
Address 1600 Amphitheatre Parkway, Mountain View, CA 94043



Hi Alice!

Hey, wanna to grab some coffee and catch up today?

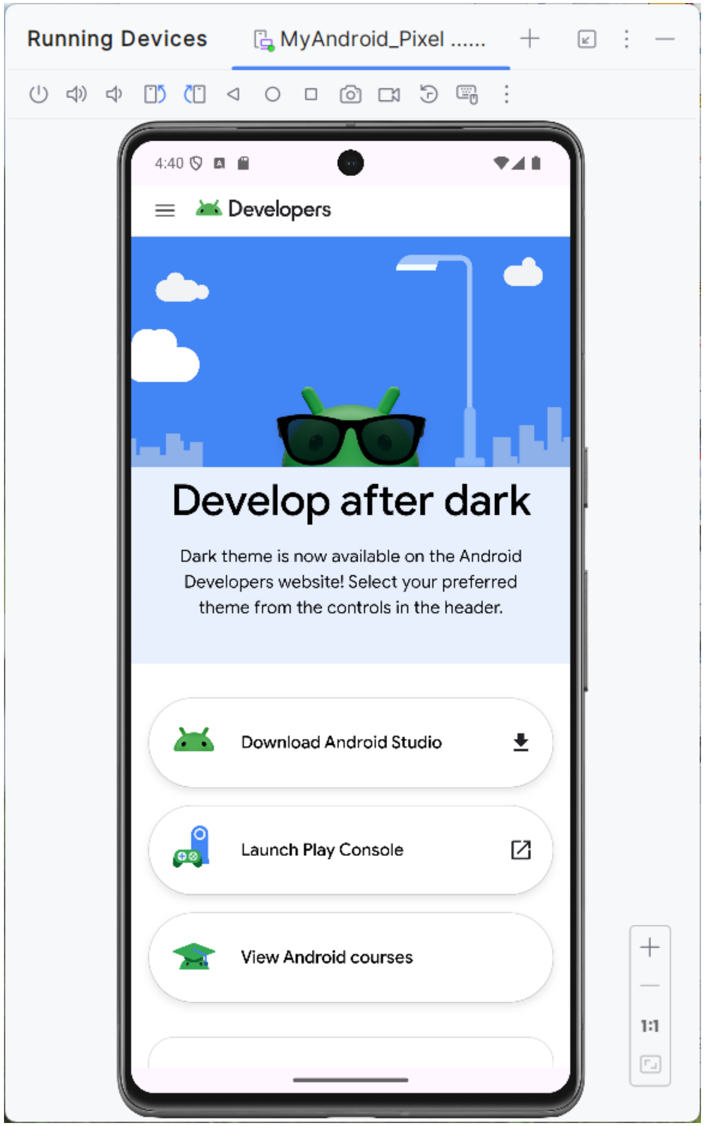
Sounds great. I know of a good place not too far from here.



Web View

Web View function

- Display web pages



Running Devices

MyAndroid_Pixel ......

4:40

Developers

Develop after dark

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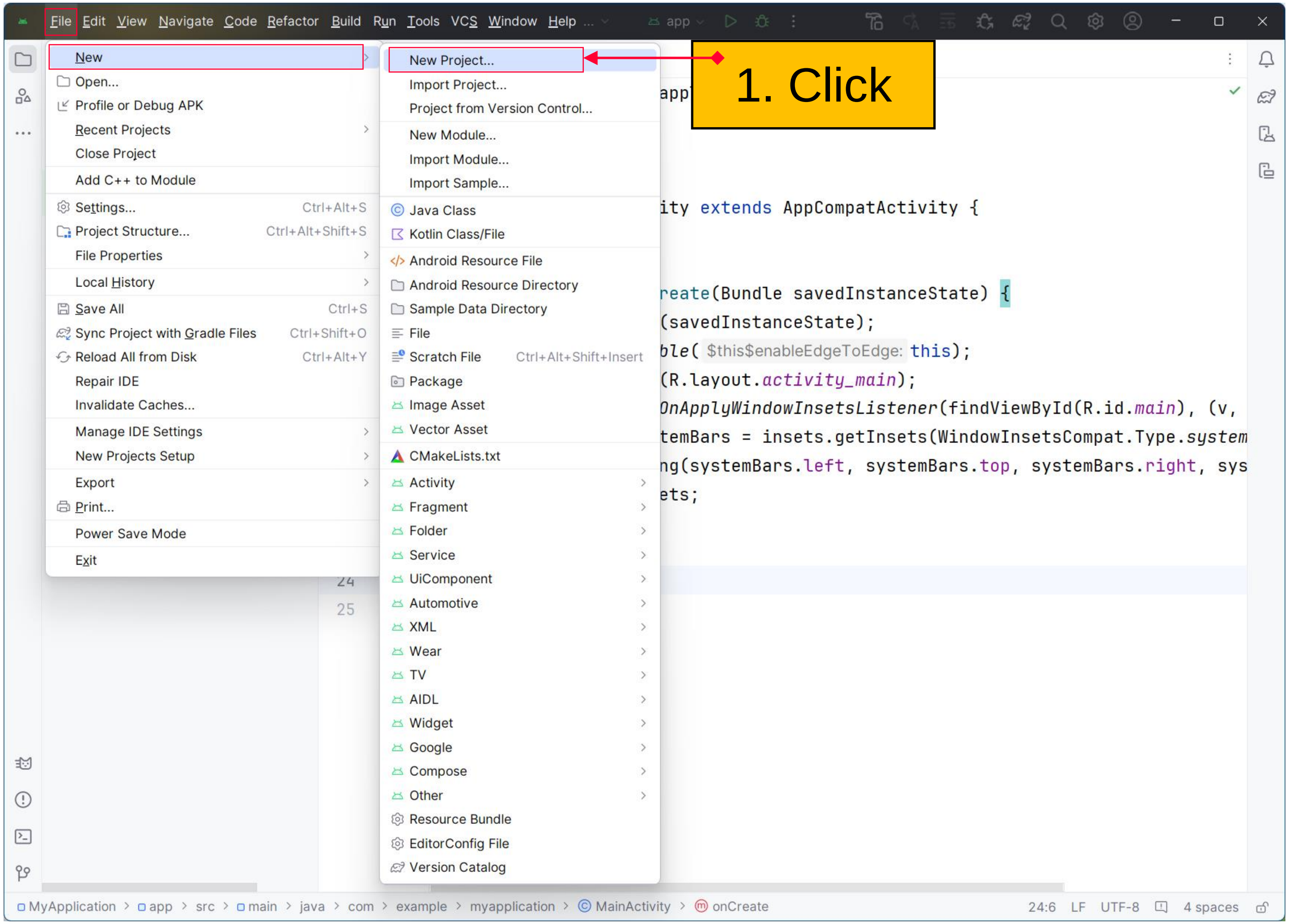
Options Menu Implementation (1)

Create Android Project

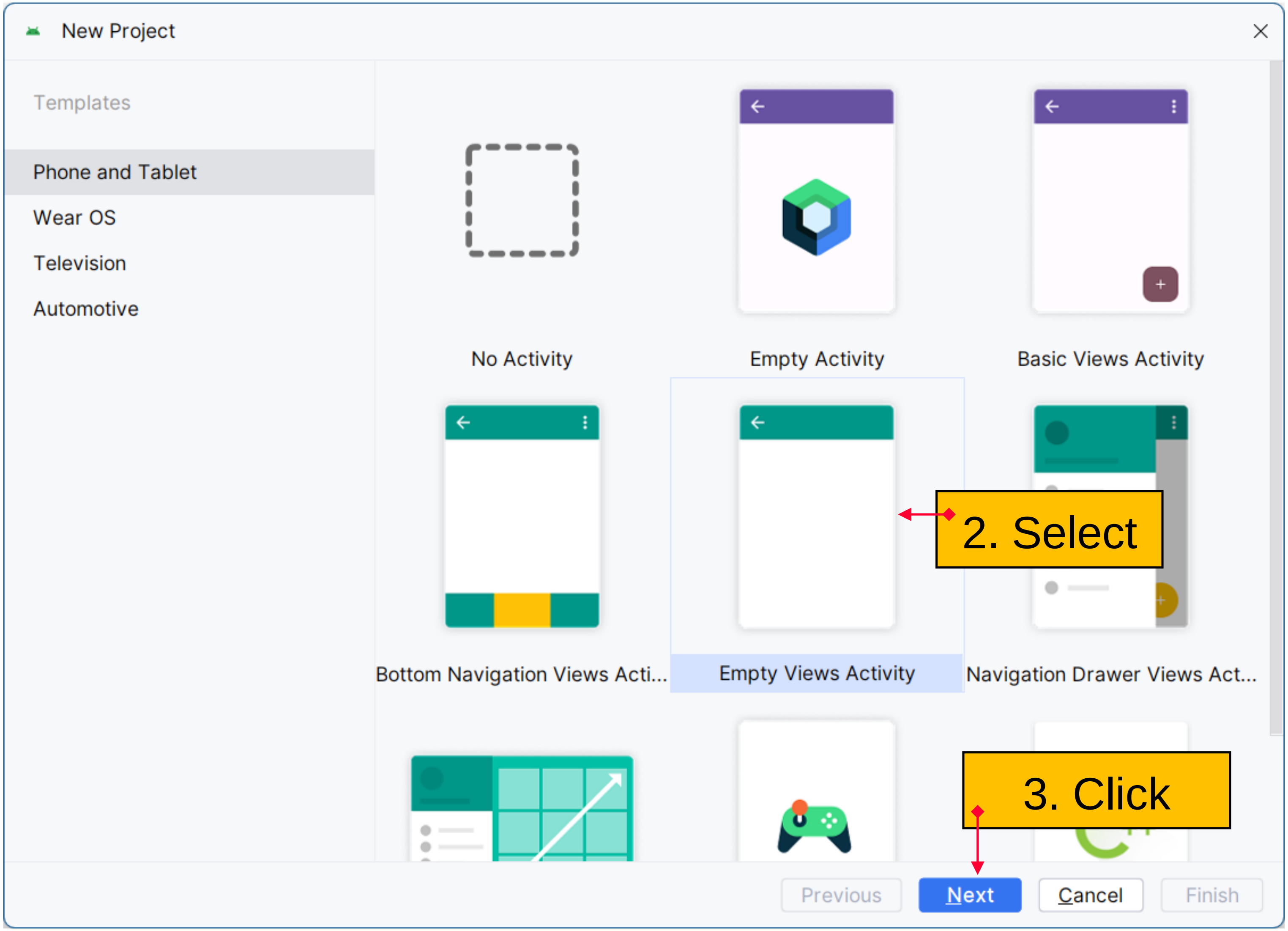
- Project Name: Android_Menu



```
app
ity extends AppCompatActivity {

reate(Bundle savedInstanceState) {
(savedInstanceState);
ble( $this$enableEdgeToEdge: this);
(R.layout.activity_main);
OnApplyWindowInsetsListener(findViewById(R.id.main), (v,
temBars = insets.getInsets(WindowInsetsCompat.Type.system
ng(systemBars.left, systemBars.top, systemBars.right, sys
ets;
```

1. Click

Options Menu Implementation (2)



New Project

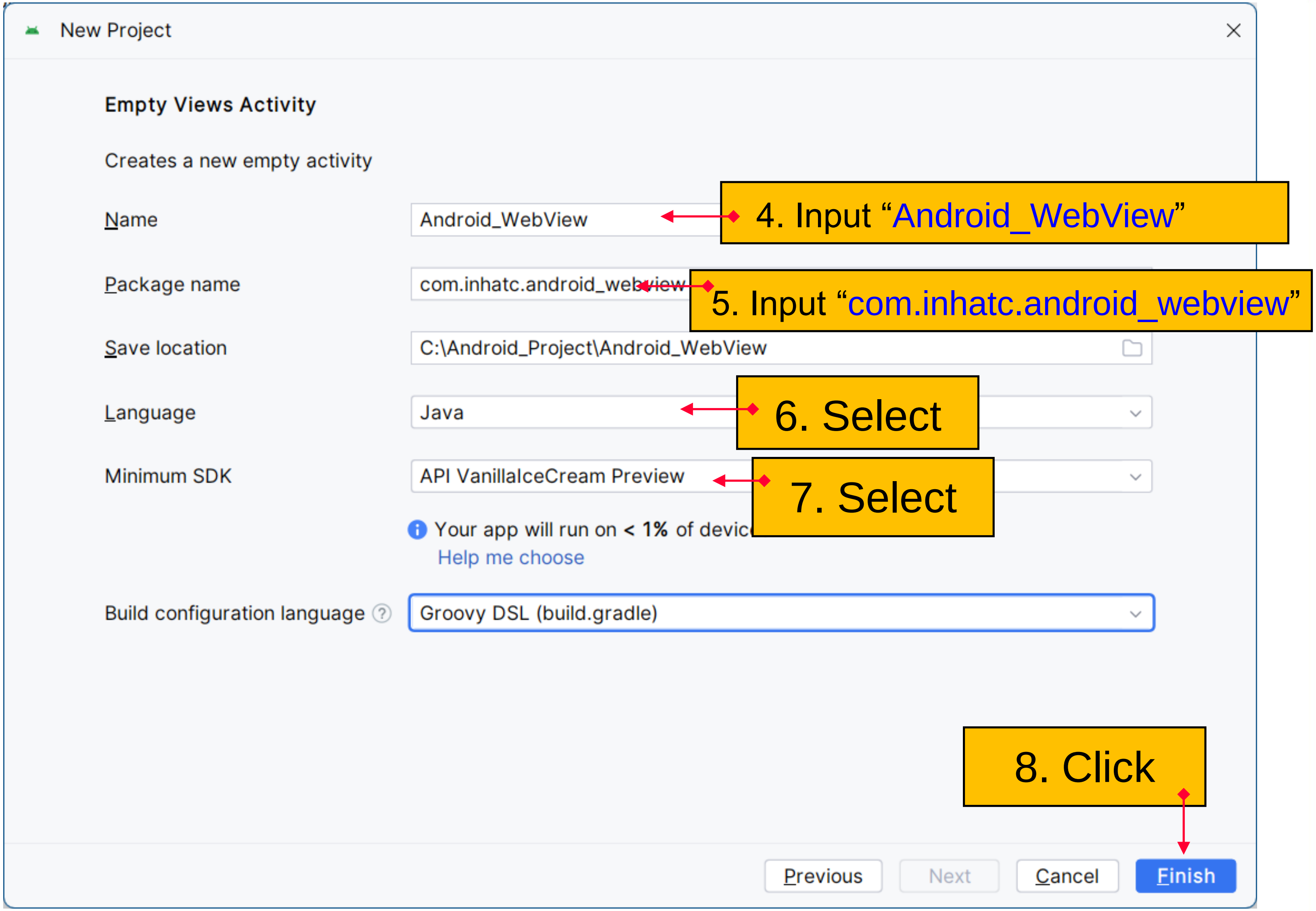
Templates

- Phone and Tablet
- Wear OS
- Television
- Automotive

2. Select

3. Click

Options Menu Implementation (3)



New Project

Empty Views Activity

Creates a new empty activity

Name: Android_WebView

Package name: com.inhatc.android_webview

Save location: C:\Android_Project\Android_WebView

Language: Java

Minimum SDK: API VanillaIceCream Preview

Your app will run on < 1% of devic

Help me choose

Build configuration language: Groovy DSL (build.gradle)

4. Input “Android_WebView”

5. Input “com.inhatc.android_webview”

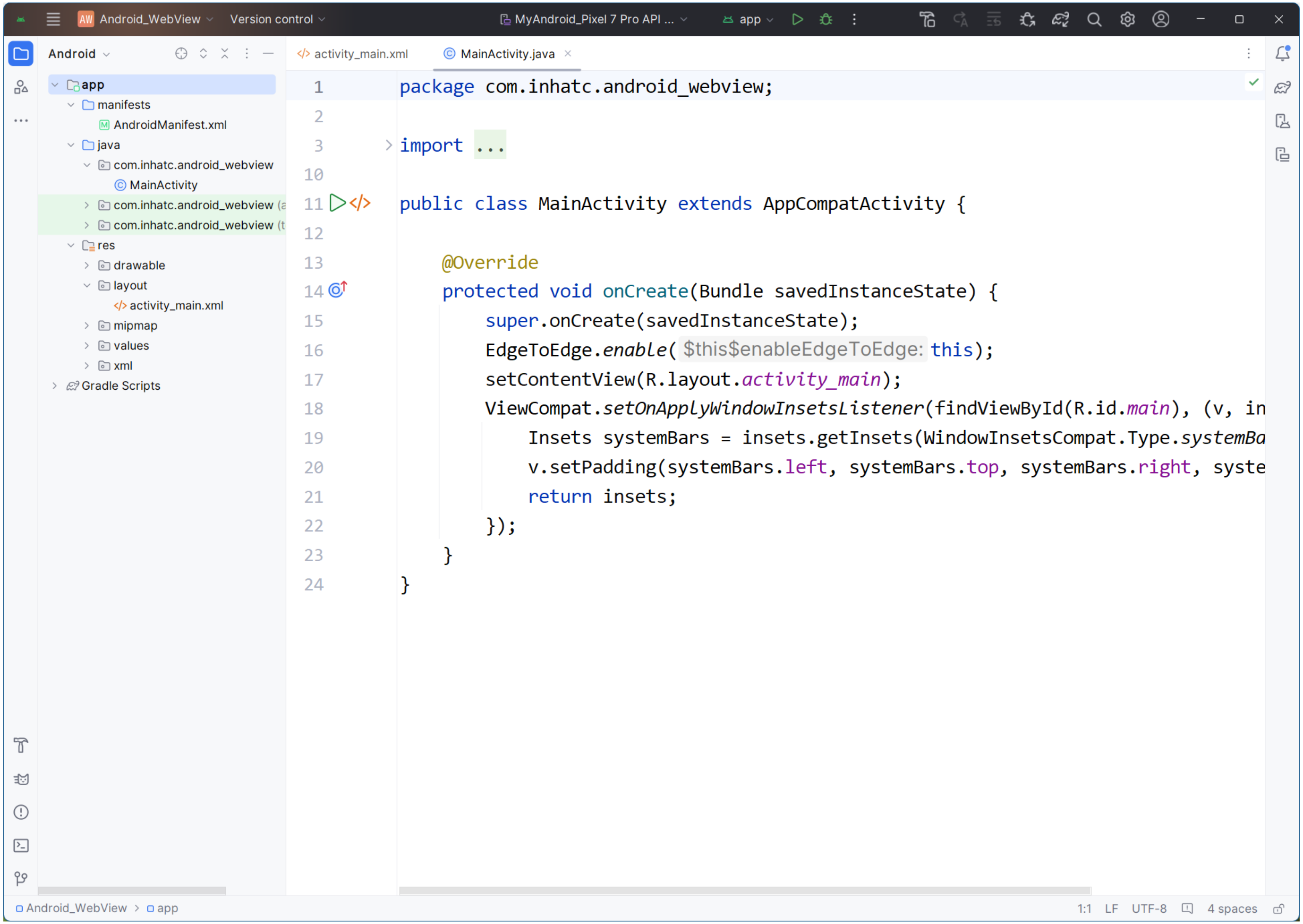
6. Select

7. Select

8. Click

Options Menu Implementation (4)

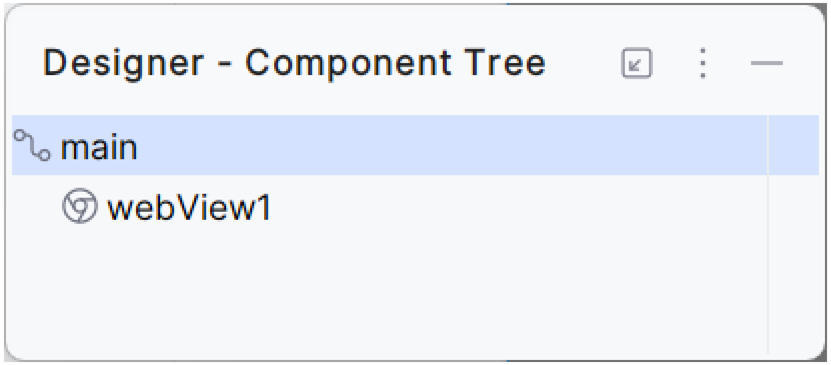
❖ Android Project



```java
package com.inhatc.android_webview;

import ...

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable( $this$enableEdgeToEdge: this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, in
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBa
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, syste
            return insets;
        });
    }
}
```

Web View Implementation (5)

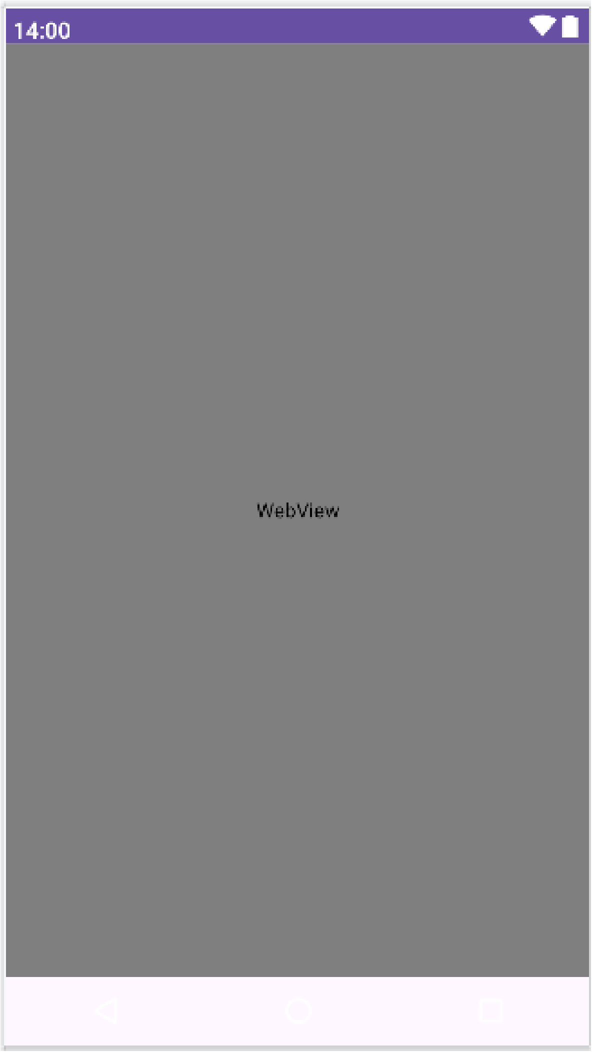
UI 설계



Designer - Component Tree

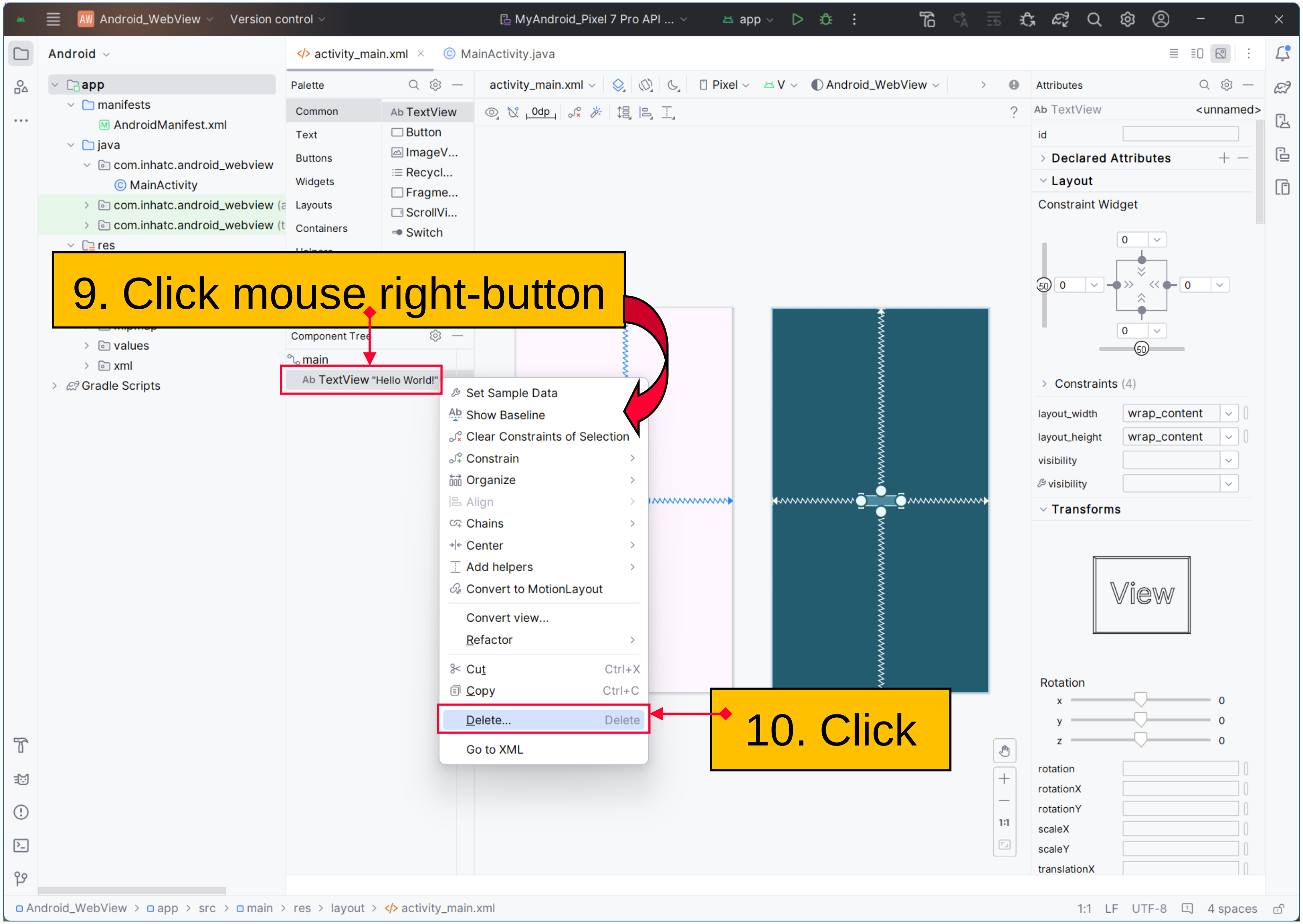
main

webView1



Web View Implementation (6)

❖ Delete TextView

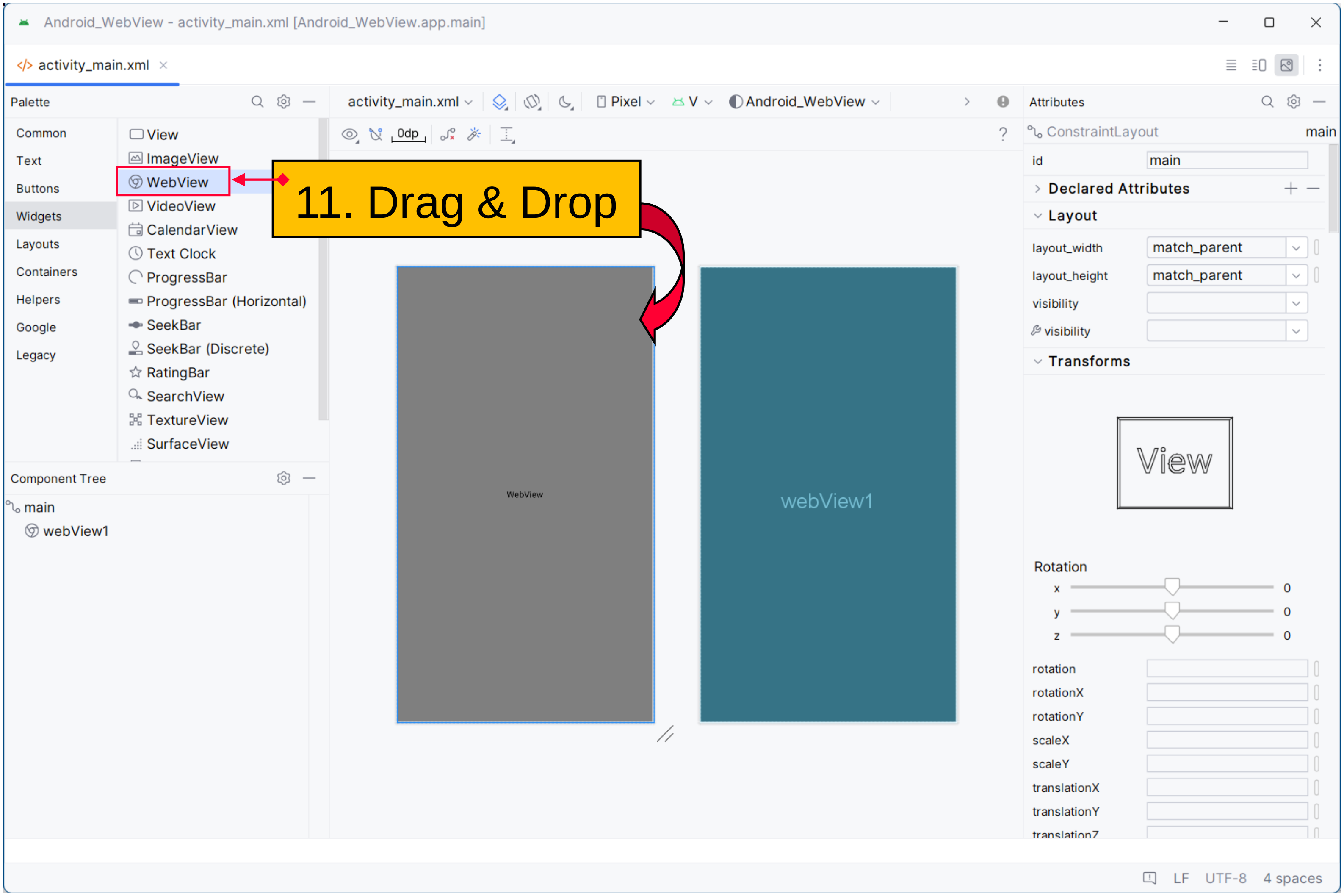


9. Click mouse right-button

10. Click

Web View Implementation (7)

❖ Design UI



11. Drag & Drop

Android_WebView - activity_main.xml [Android_WebView.app.main]

id: main

layout_width: match_parent

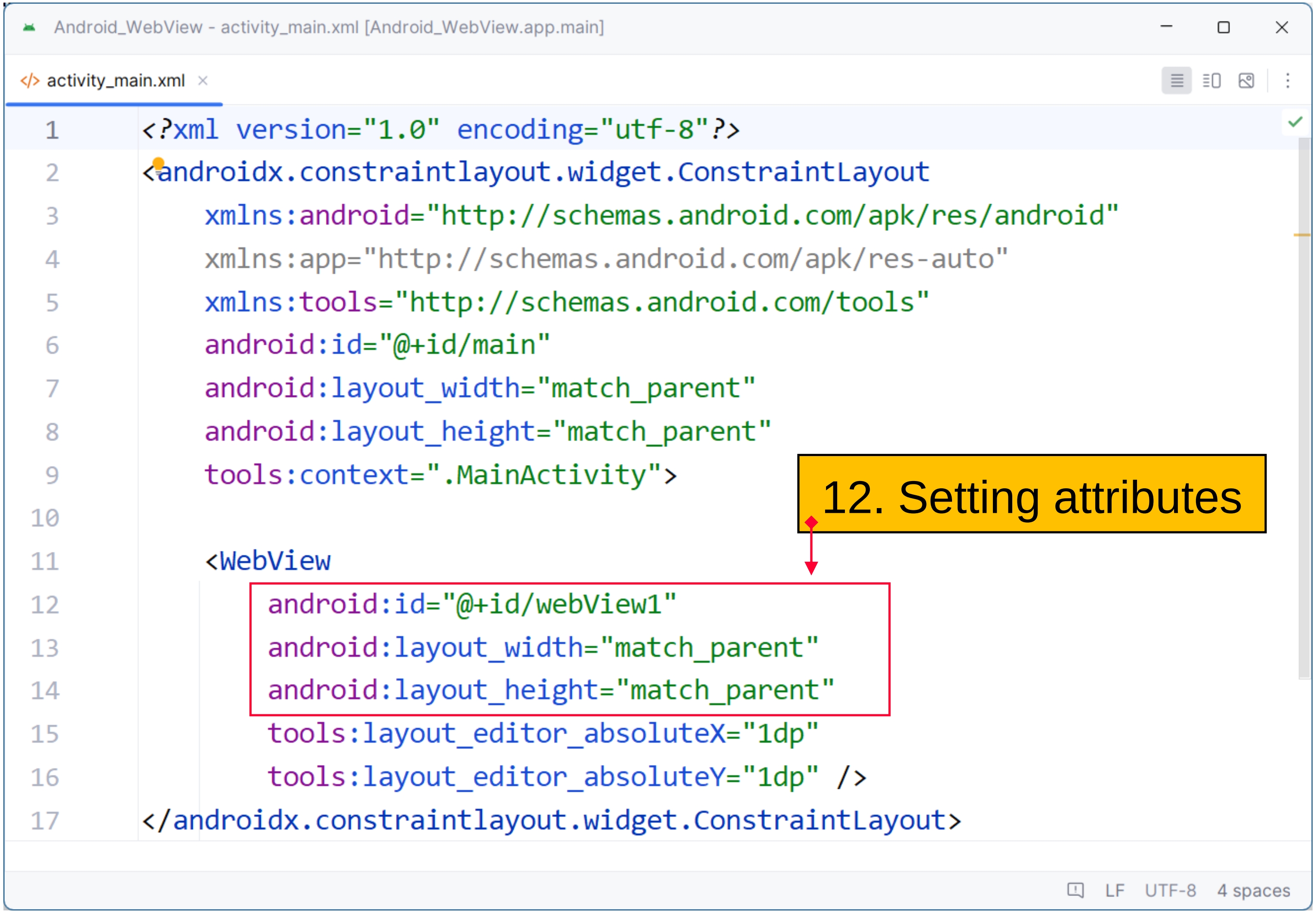
layout_height: match_parent

Rotation x: 0, y: 0, z: 0

LF UTF-8 4 spaces

Web View Implementation (8)

- activity_main.xml



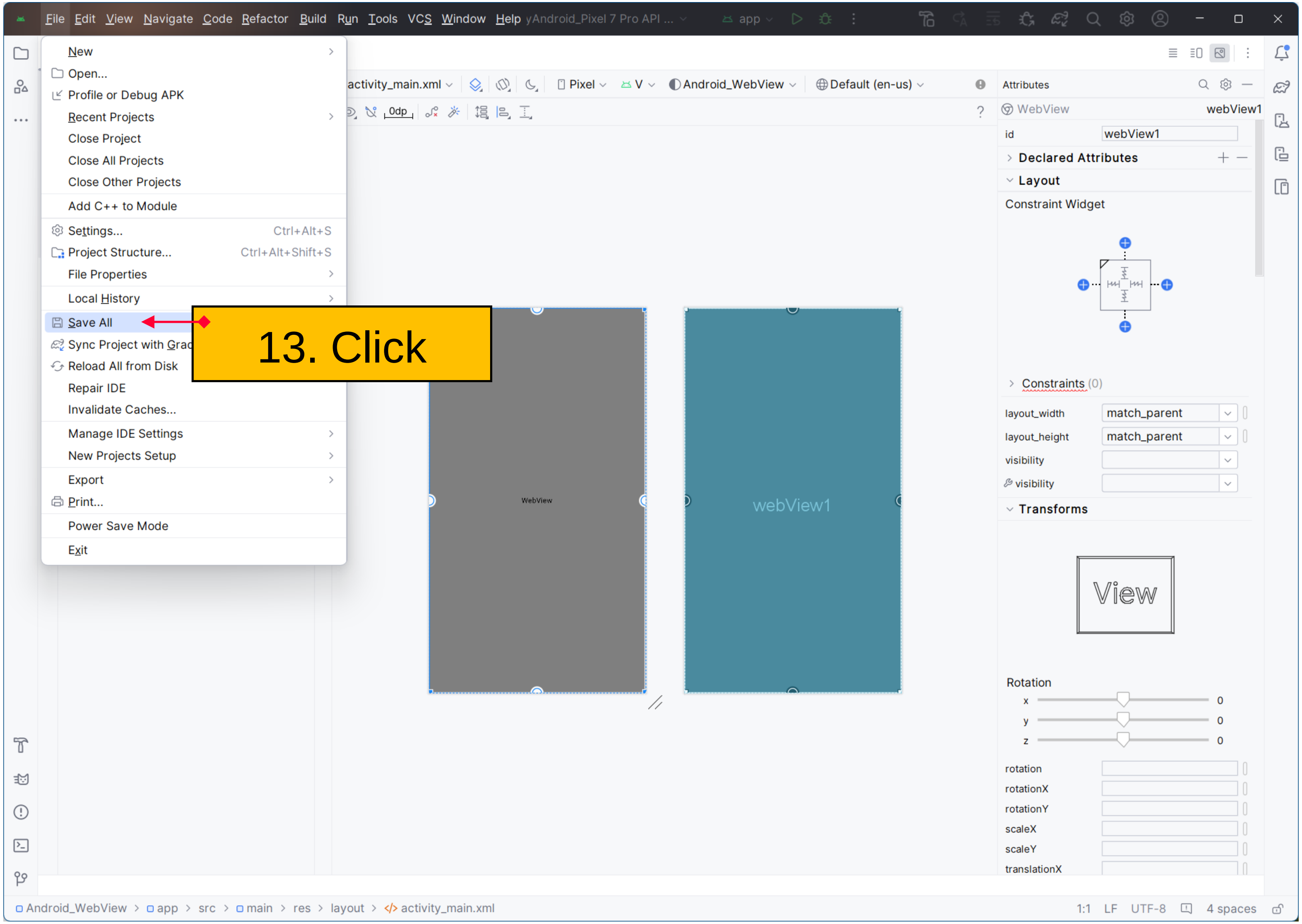
Android_WebView - activity_main.xml [Android_WebView.app.main]
activity_main.xml
LF
UTF-8
4 spaces

```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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <WebView
        android:id="@+id/webView1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

12. Setting attributes

Web View Implementation (9)

- Save activity_main.xml



13. Click

WebView webView1

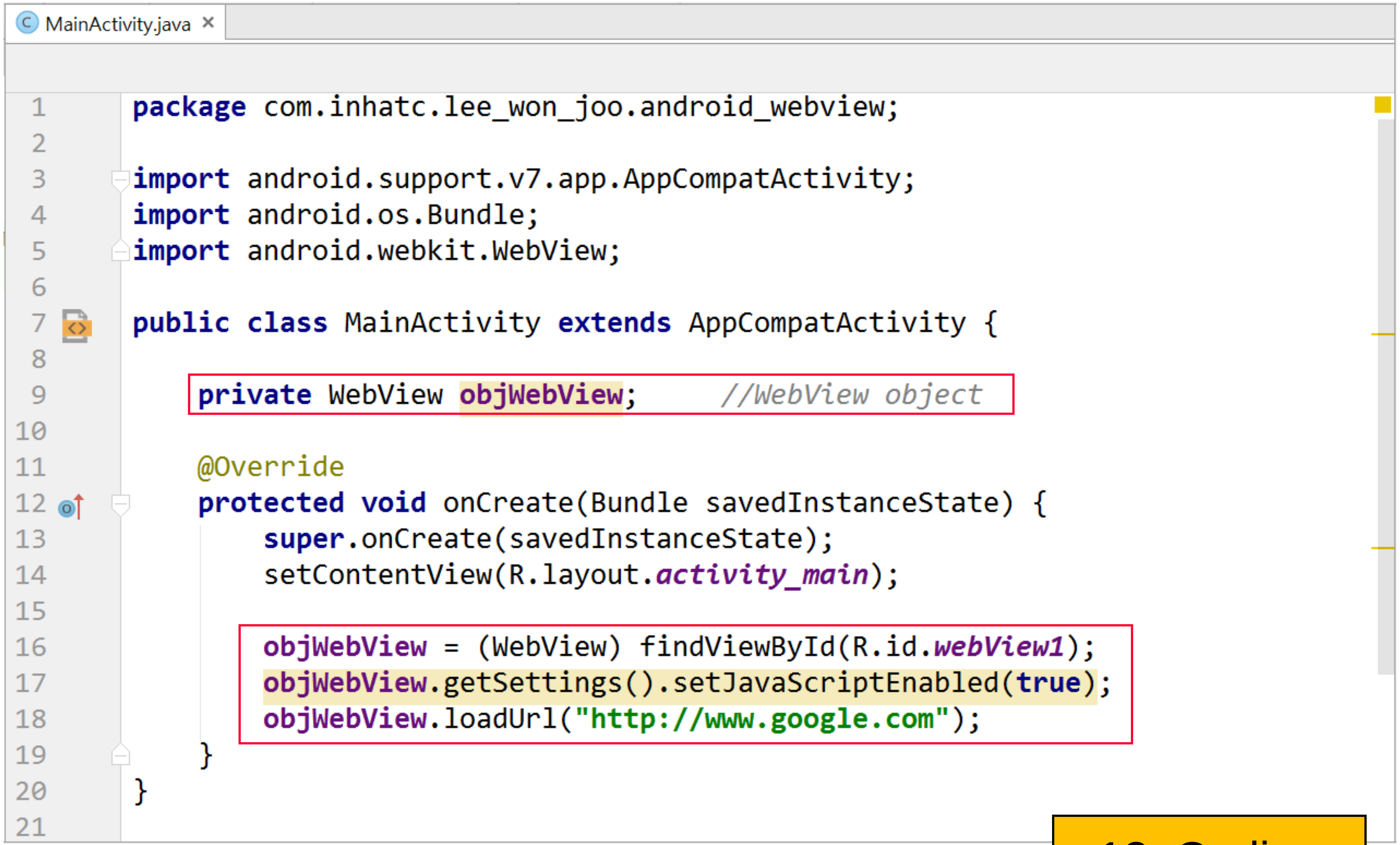
id: webView1

layout_width: match_parent

layout_height: match_parent

Web View Implementation (10)

- MainActivity.java

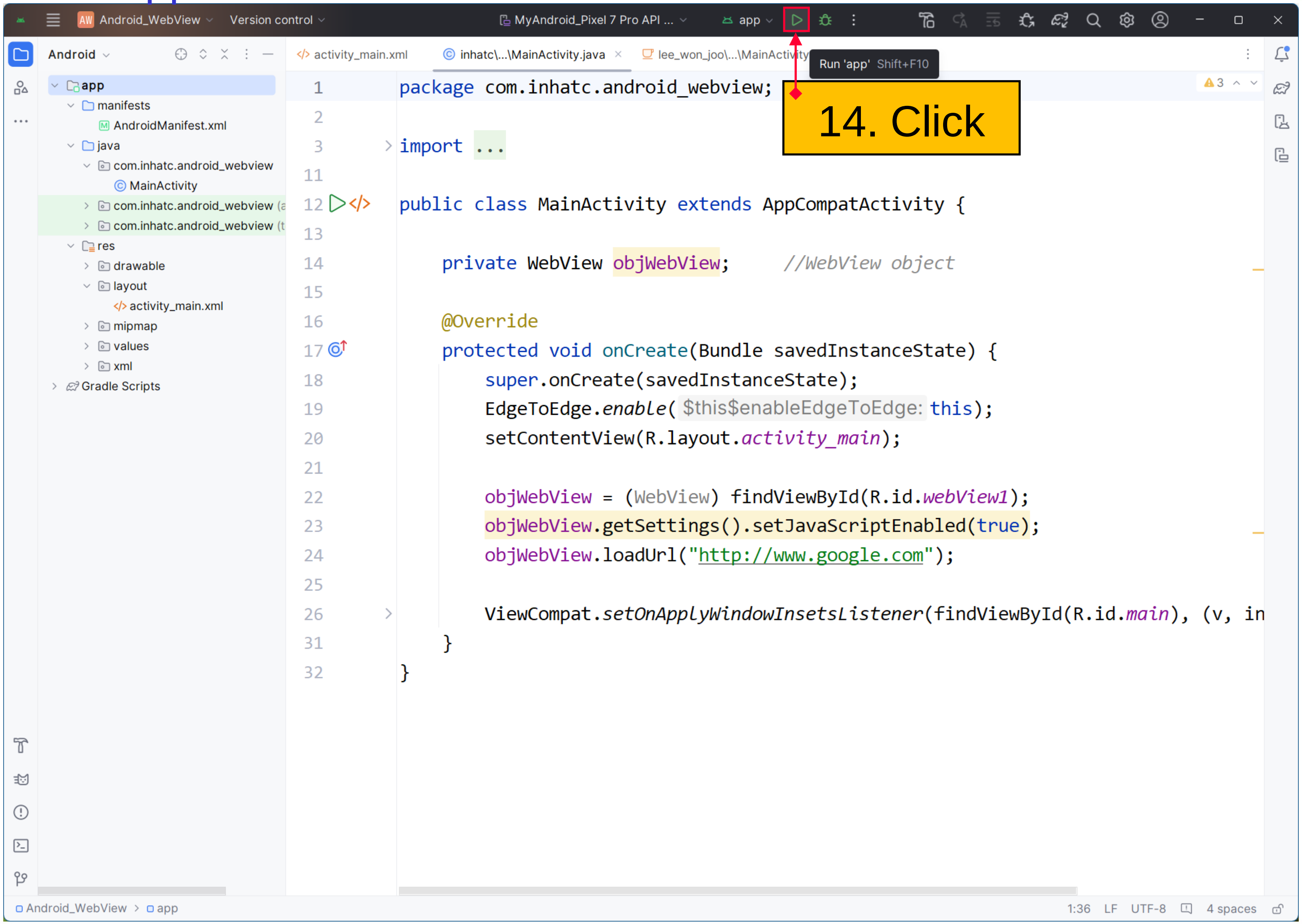


```java
package com.inhatc.lee_won_joo.android_webview;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.webkit.WebView;

public class MainActivity extends AppCompatActivity {

    private WebView objWebView;      //WebView object

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

        objWebView = (WebView) findViewById(R.id.webView1);
        objWebView.getSettings().setJavaScriptEnabled(true);
        objWebView.loadUrl("http://www.google.com");
    }
}

```

13. Coding

Web View Implementation (11)

❖ Run app

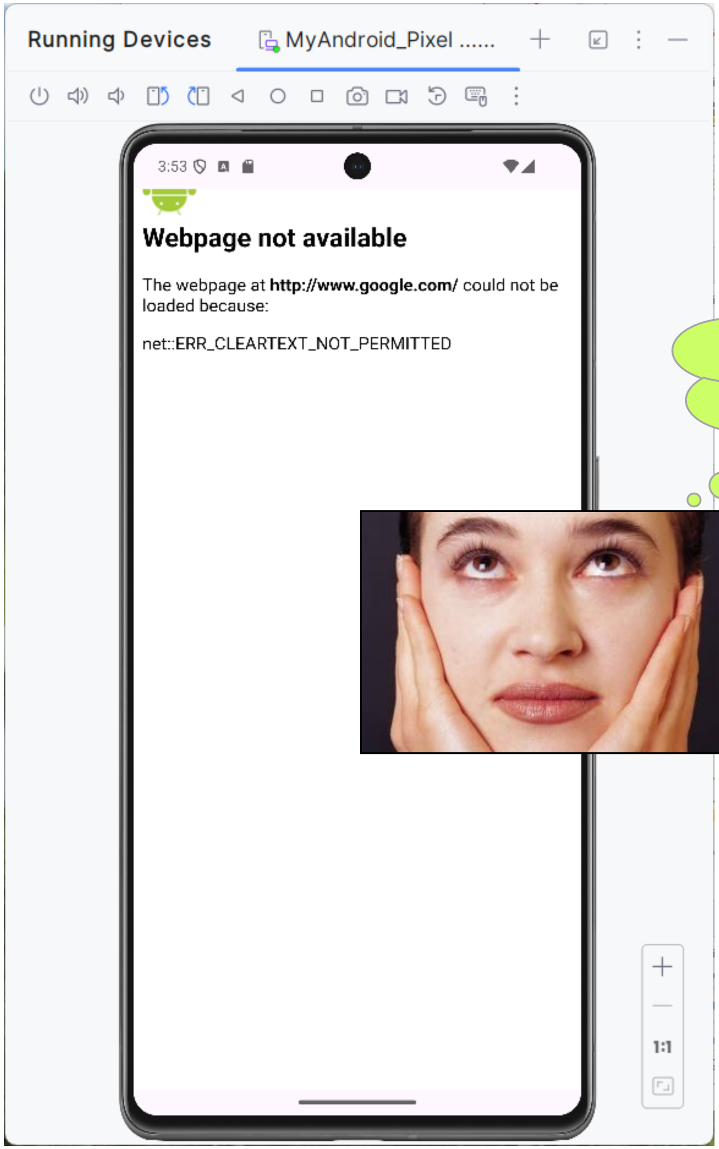


14. Click

```java
package com.inhatc.android_webview;

import ...

public class MainActivity extends AppCompatActivity {

    private WebView objWebView;     //WebView object

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable( $this$enableEdgeToEdge: this);
        setContentView(R.layout.activity_main);

        objWebView = (WebView) findViewById(R.id.webView1);
        objWebView.getSettings().setJavaScriptEnabled(true);
        objWebView.loadUrl("http://www.google.com");

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, in
    }
}
```

Web View Implementation (12)

- Run app



Webpage not available

The webpage at **http://www.google.com/** could not be loaded because:

net::ERR_CLEARTEXT_NOT_PERMITTED

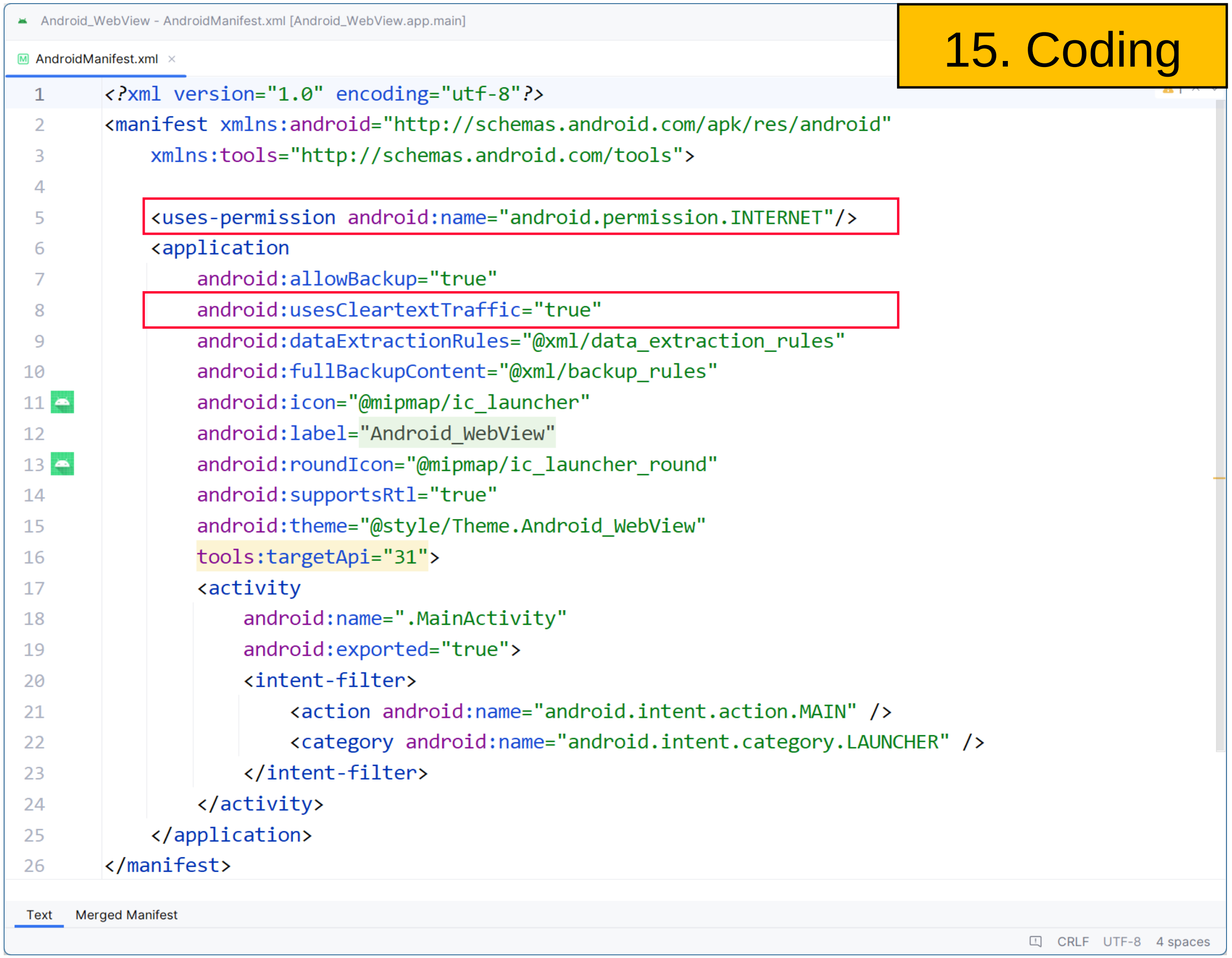
Why not?

Web View Implementation (13)

❖ AndroidManifest.xm

◆ Append <uses-permission>

15. Coding


Android_WebView - AndroidManifest.xml [Android_WebView.app.main]
AndroidManifest.xml
Text
Merged Manifest
CRLF
UTF-8
4 spaces

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

    <uses-permission android:name="android.permission.INTERNET"/>
    <application
        android:allowBackup="true"
        android:usesCleartextTraffic="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="Android_WebView"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Android_WebView"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Web View Implementation (14)

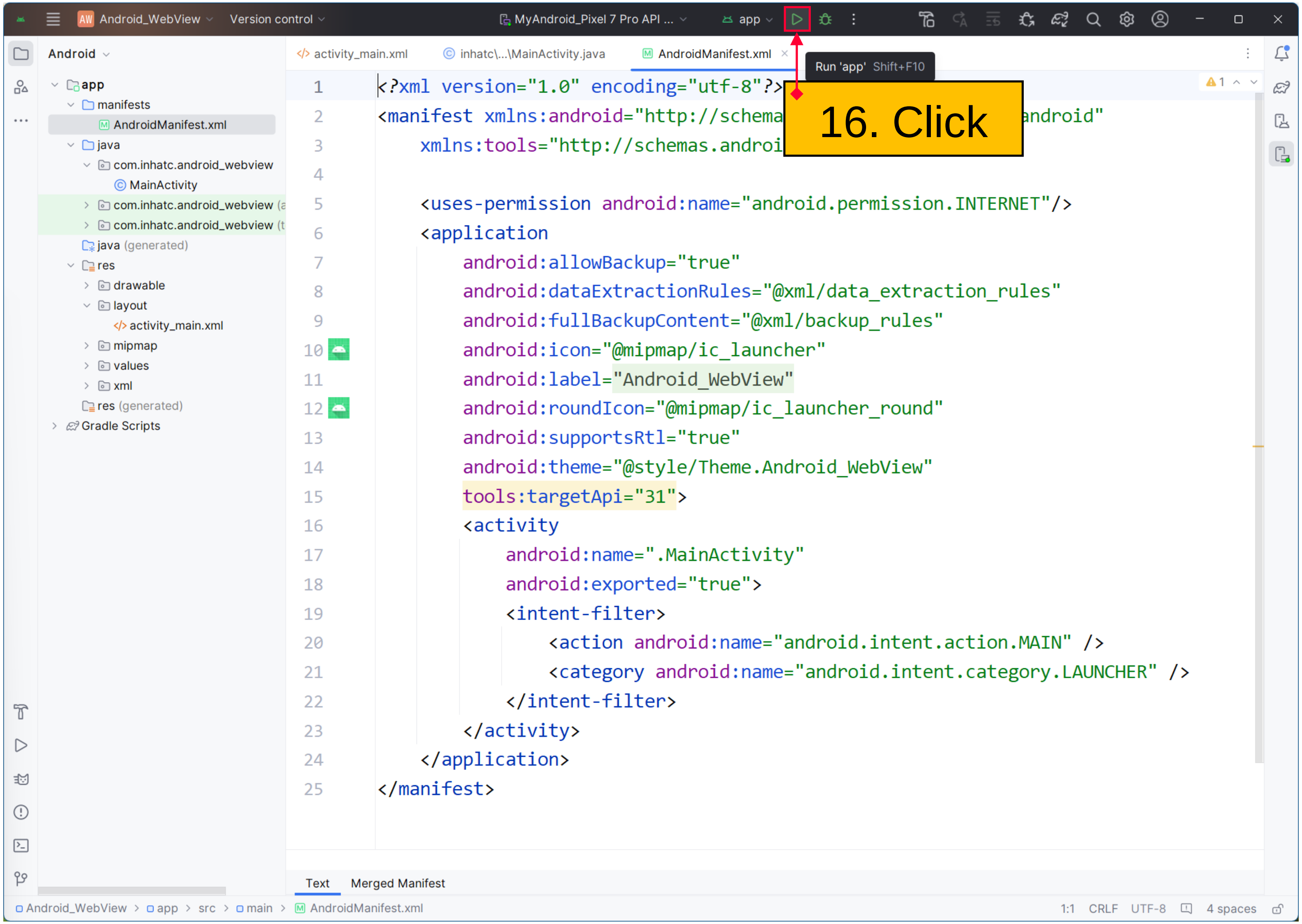
AndroidManifest.xml

- <uses-permission> Tag
  - Tag for application to gain access to device data
- Format
  - <uses-permission android:name=*"android.permission.INTERNET"* />

Field		Comment
android.permission.	**INTERNET**	Internet connection
	RECEIVE_SMS	SMS message
	ACCESS_COARSE_LOCATION	Location(Cell-ID, WiFi)
	ACCESS_FINE_LOCATION	Location(GPS)

Web View Implementation (15)

Run app

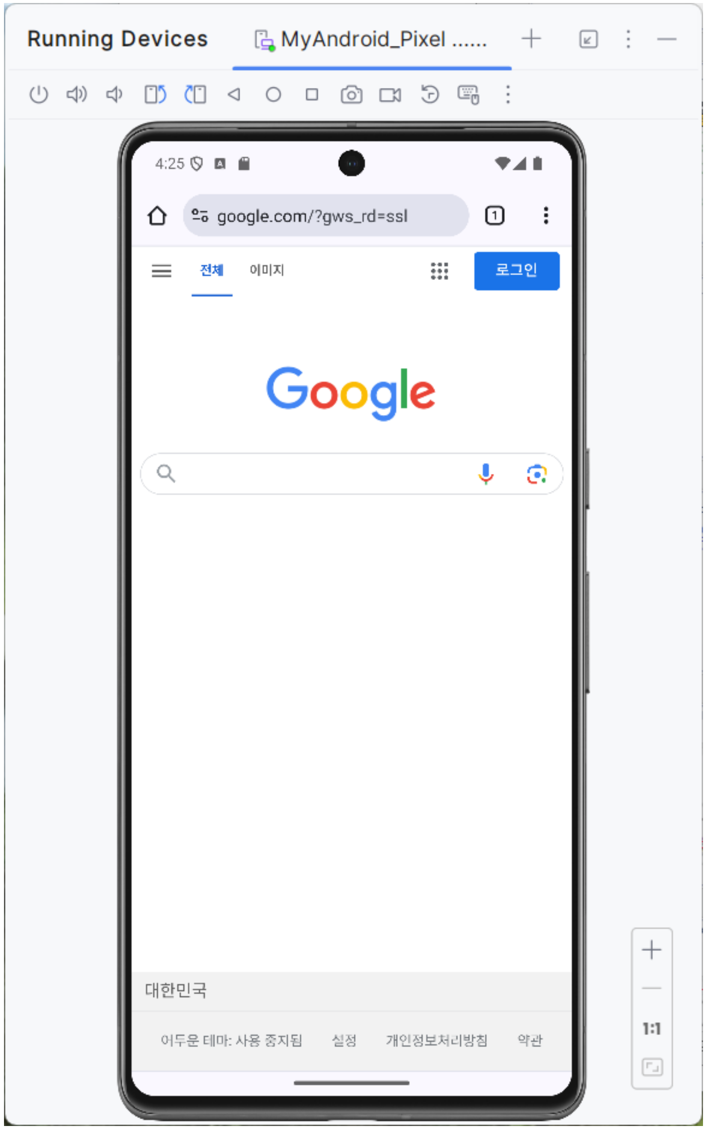


16. Click

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schema                    android"
    xmlns:tools="http://schemas.androi

    <uses-permission android:name="android.permission.INTERNET"/>
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="Android_WebView"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Android_WebView"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Web View Implementation (16)

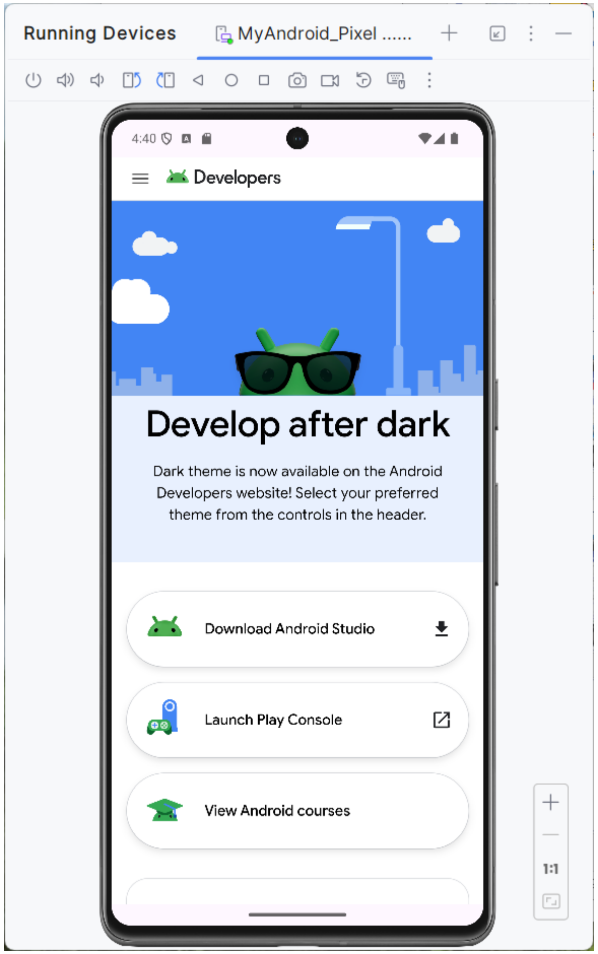
- Run app



Practice 1: Web View Implementation

Android_WebView (Time : 30minutes)

- Implement the forward / backward functions as shown below.



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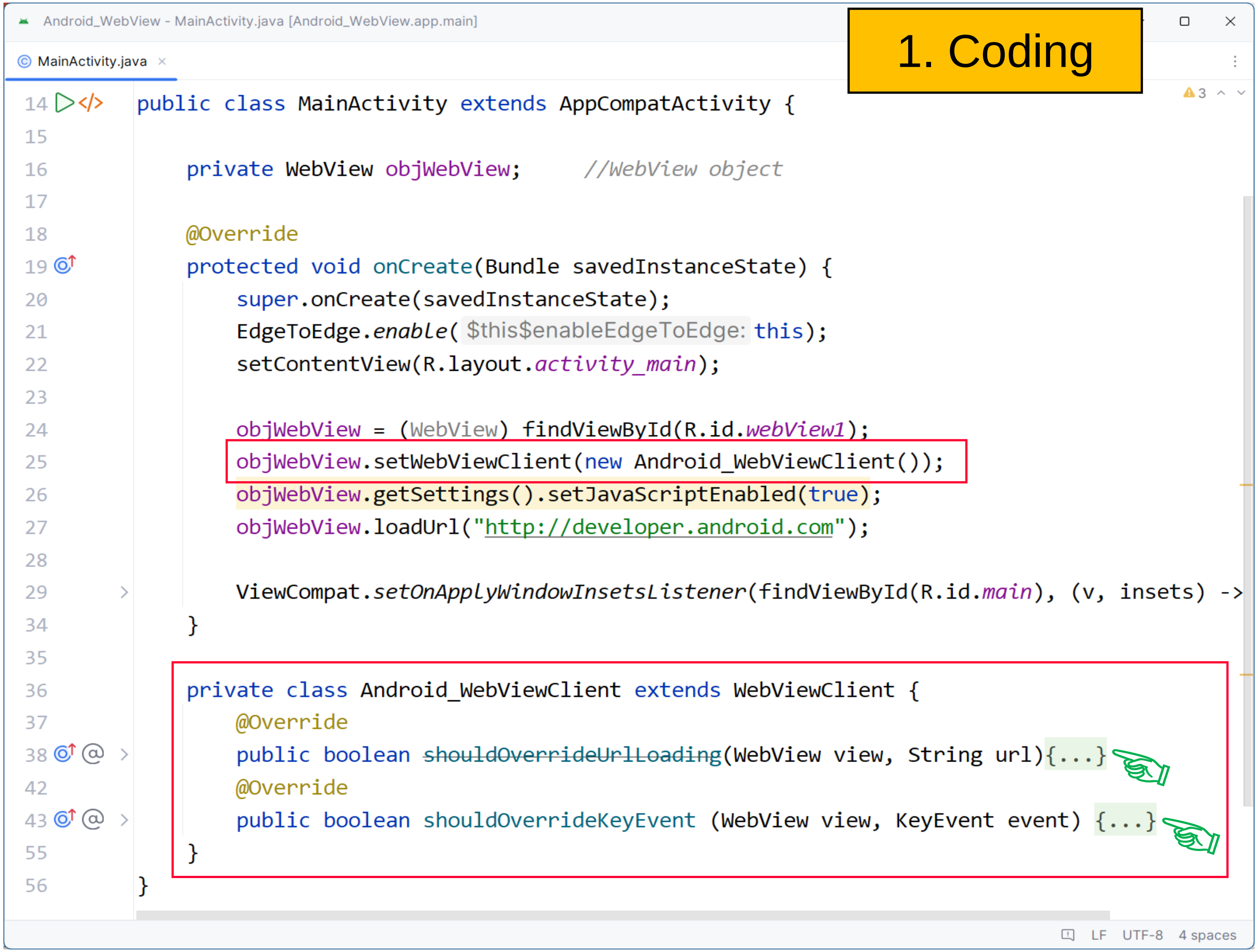
Practice 1: Web View Implementation (1)

❖ Append Android_WebViewClient Class

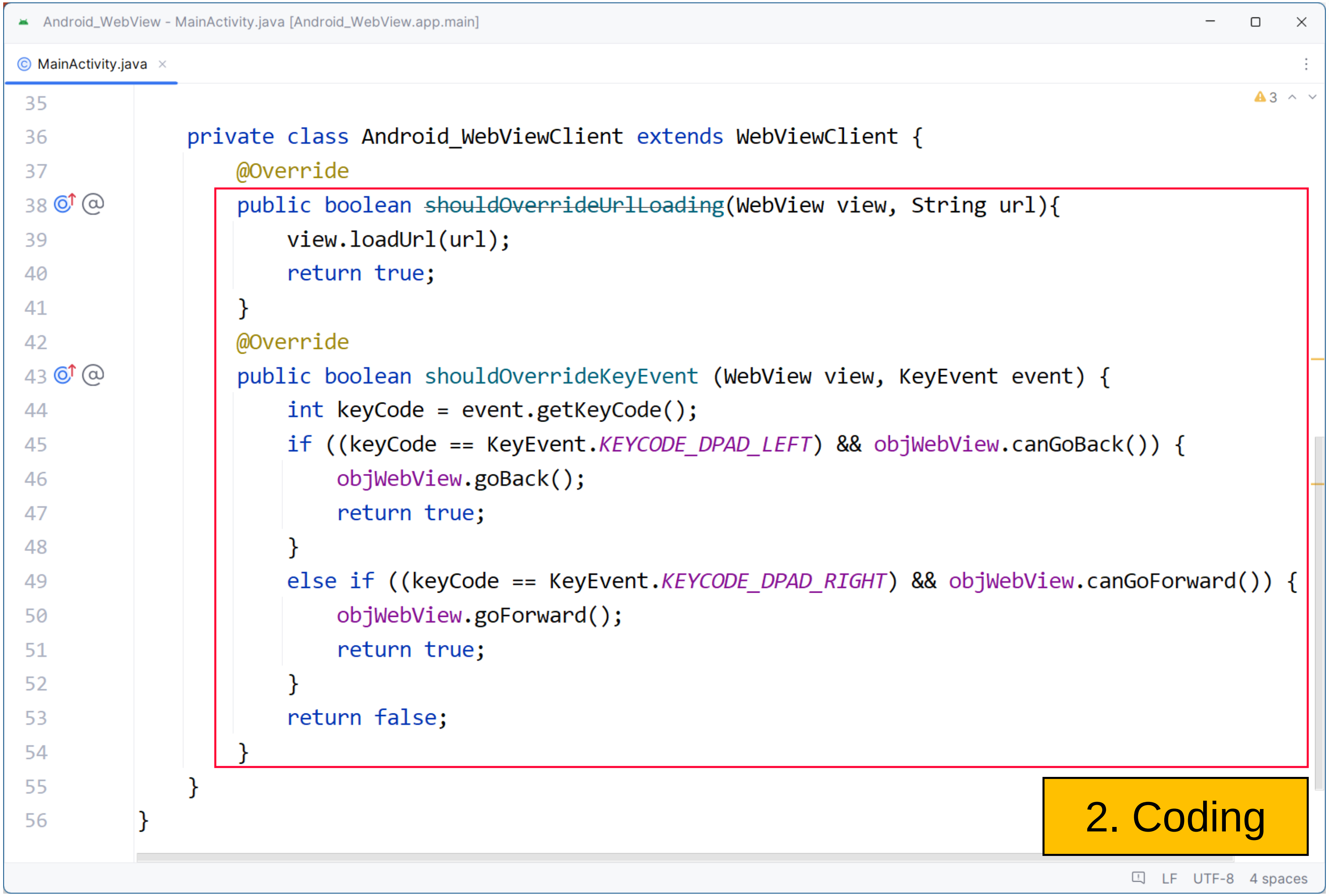


1. Coding

Android_WebView - MainActivity.java [Android_WebView.app.main]
MainActivity.java
LF UTF-8 4 spaces

```java
public class MainActivity extends AppCompatActivity {

    private WebView objWebView;     //WebView object

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable( $this$enableEdgeToEdge: this);
        setContentView(R.layout.activity_main);

        objWebView = (WebView) findViewById(R.id.webView1);
        objWebView.setWebViewClient(new Android_WebViewClient());
        objWebView.getSettings().setJavaScriptEnabled(true);
        objWebView.loadUrl("http://developer.android.com");

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
    }

    private class Android_WebViewClient extends WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url){...}
        @Override
        public boolean shouldOverrideKeyEvent (WebView view, KeyEvent event) {...}
    }
}
```

Practice 1 : Web View Implementation (2)

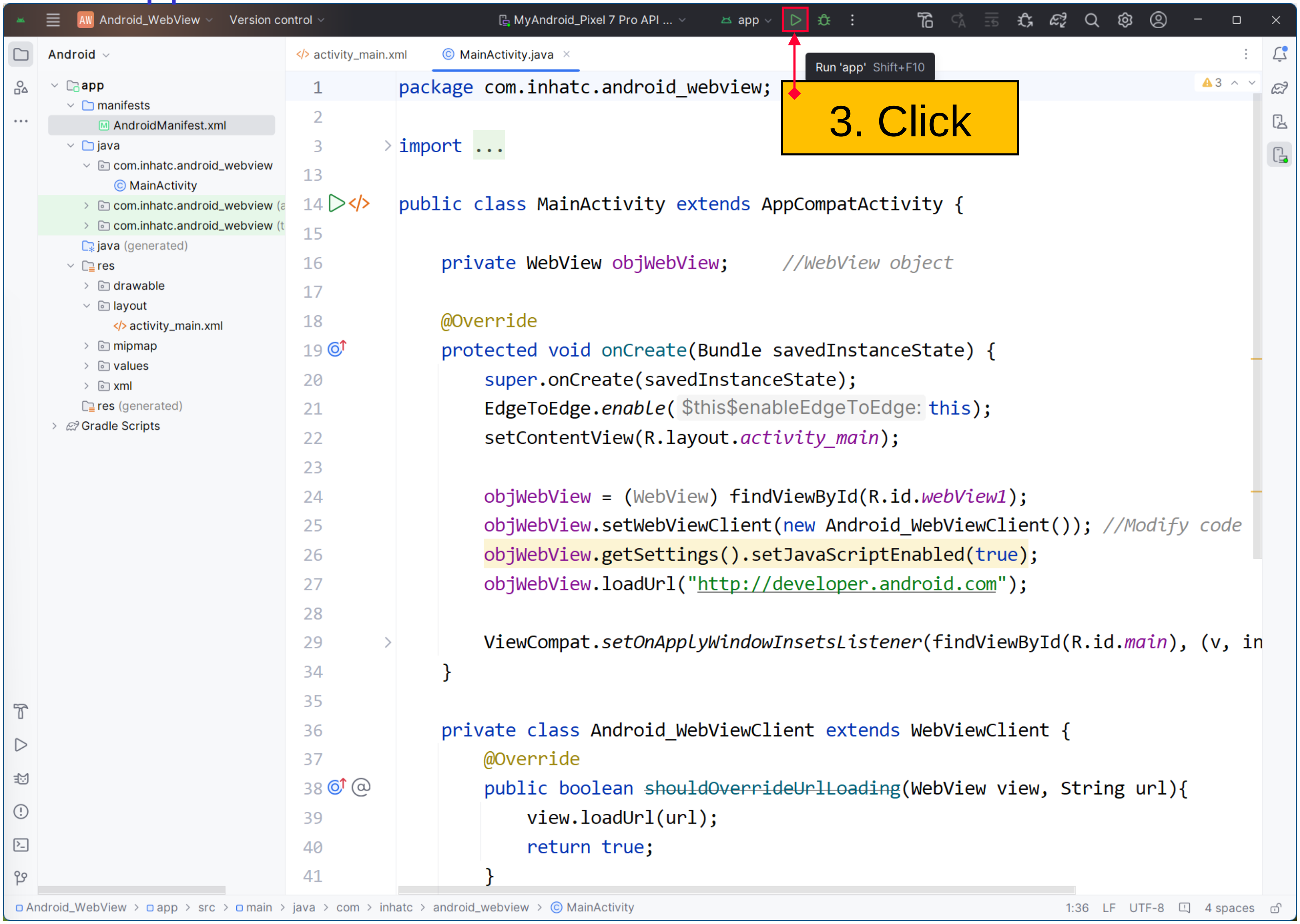

Android_WebView - MainActivity.java [Android_WebView.app.main]
MainActivity.java
3
LF
UTF-8
4 spaces

```

    private class Android_WebViewClient extends WebViewClient {
        @Override
        public boolean ~~shouldOverrideUrlLoading~~(WebView view, String url){
            view.loadUrl(url);
            return true;
        }
        @Override
        public boolean shouldOverrideKeyEvent (WebView view, KeyEvent event) {
            int keyCode = event.getKeyCode();
            if ((keyCode == KeyEvent.KEYCODE_DPAD_LEFT) && objWebView.canGoBack()) {
                objWebView.goBack();
                return true;
            }
            else if ((keyCode == KeyEvent.KEYCODE_DPAD_RIGHT) && objWebView.canGoForward()) {
                objWebView.goForward();
                return true;
            }
            return false;
        }
    }
}
```

2. Coding

Practice 1 : Web View Implementation (3)

❖ Run app

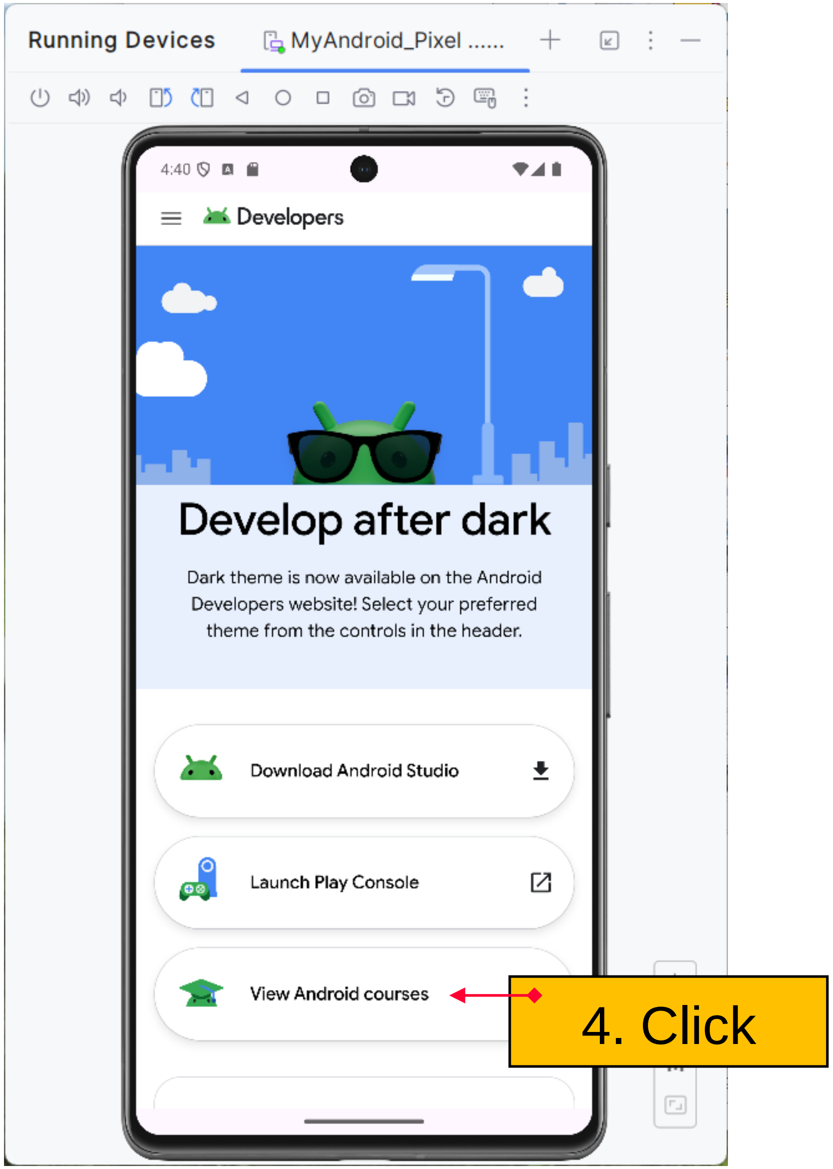


3. Click

```java
package com.inhatc.android_webview;

import ...

public class MainActivity extends AppCompatActivity {

    private WebView objWebView;     //WebView object

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable( $this$enableEdgeToEdge: this);
        setContentView(R.layout.activity_main);

        objWebView = (WebView) findViewById(R.id.webView1);
        objWebView.setWebViewClient(new Android_WebViewClient()); //Modify code
        objWebView.getSettings().setJavaScriptEnabled(true);
        objWebView.loadUrl("http://developer.android.com");

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, in
    }

    private class Android_WebViewClient extends WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url){
            view.loadUrl(url);
            return true;
        }
```

Practice 1 : Web View Implementation (4)

- Run app



Running Devices

MyAndroid_Pixel ......

4:40

Developers

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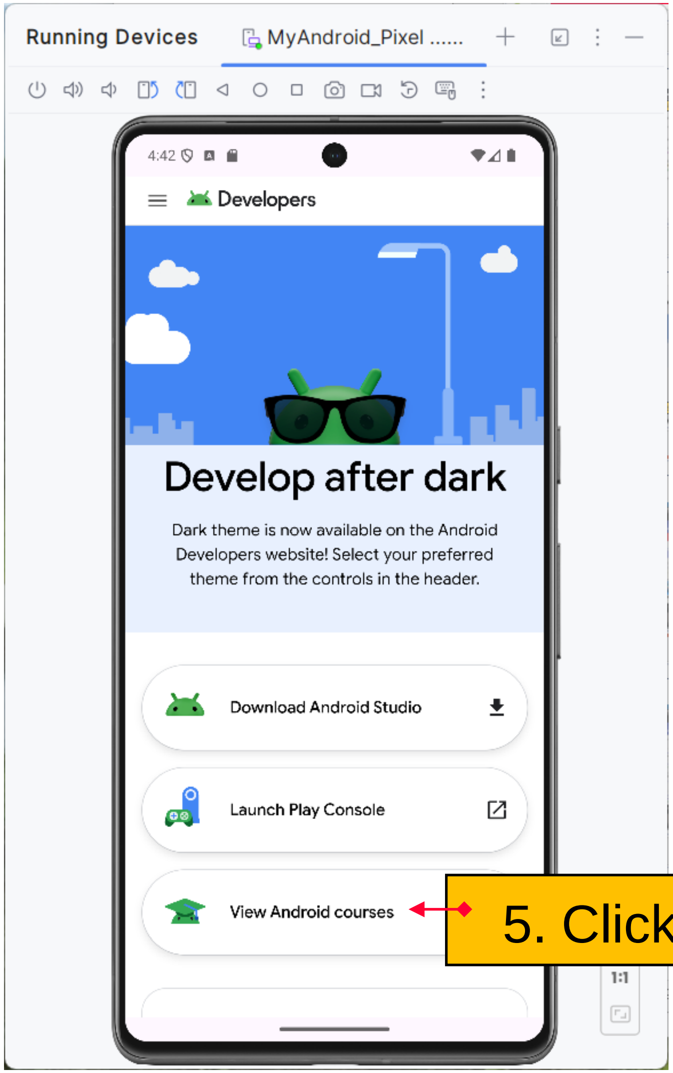
4. Click

Practice 1 : Web View Implementation (5)

❖ Forward



4:42

Developers

Develop after dark

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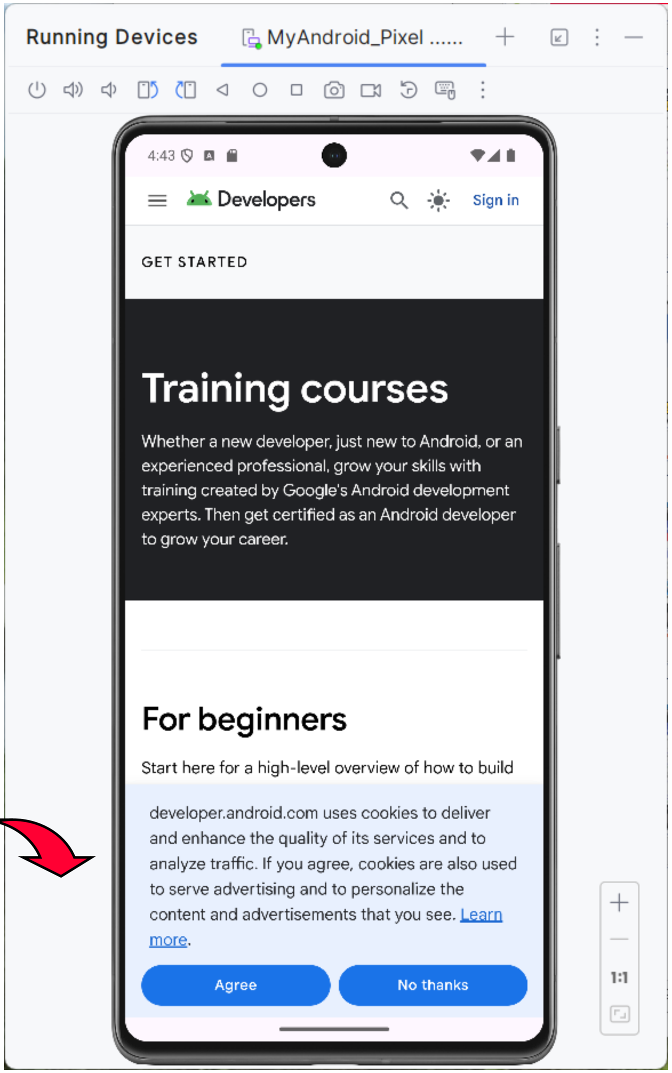
Download Android Studio

Launch Play Console

View Android courses

5. Click



4:43

Developers

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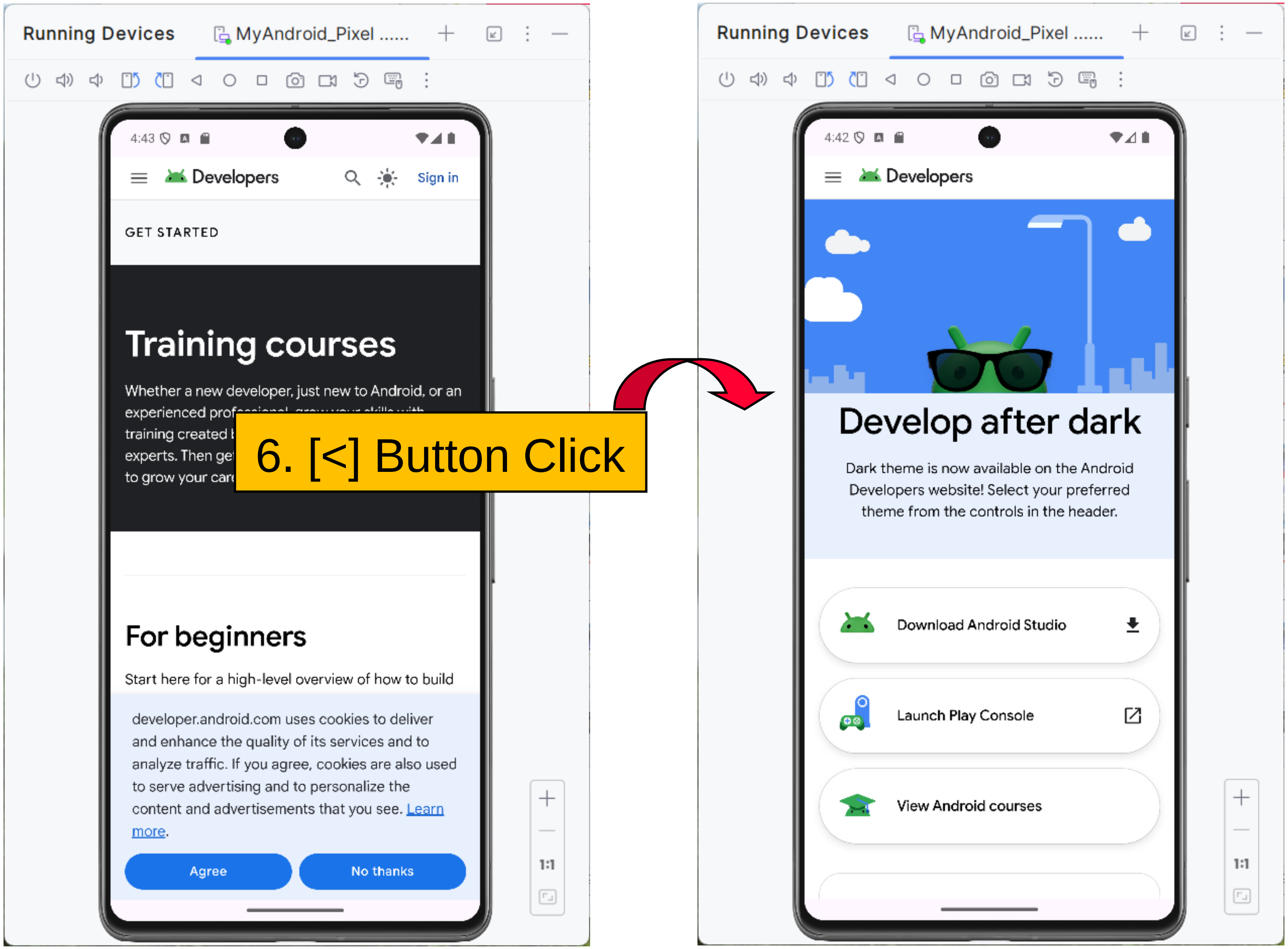
Practice 1 : Web View Implementation (6)

- Backward



6. [<] Button Click

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Summary

- Web View Implementation