

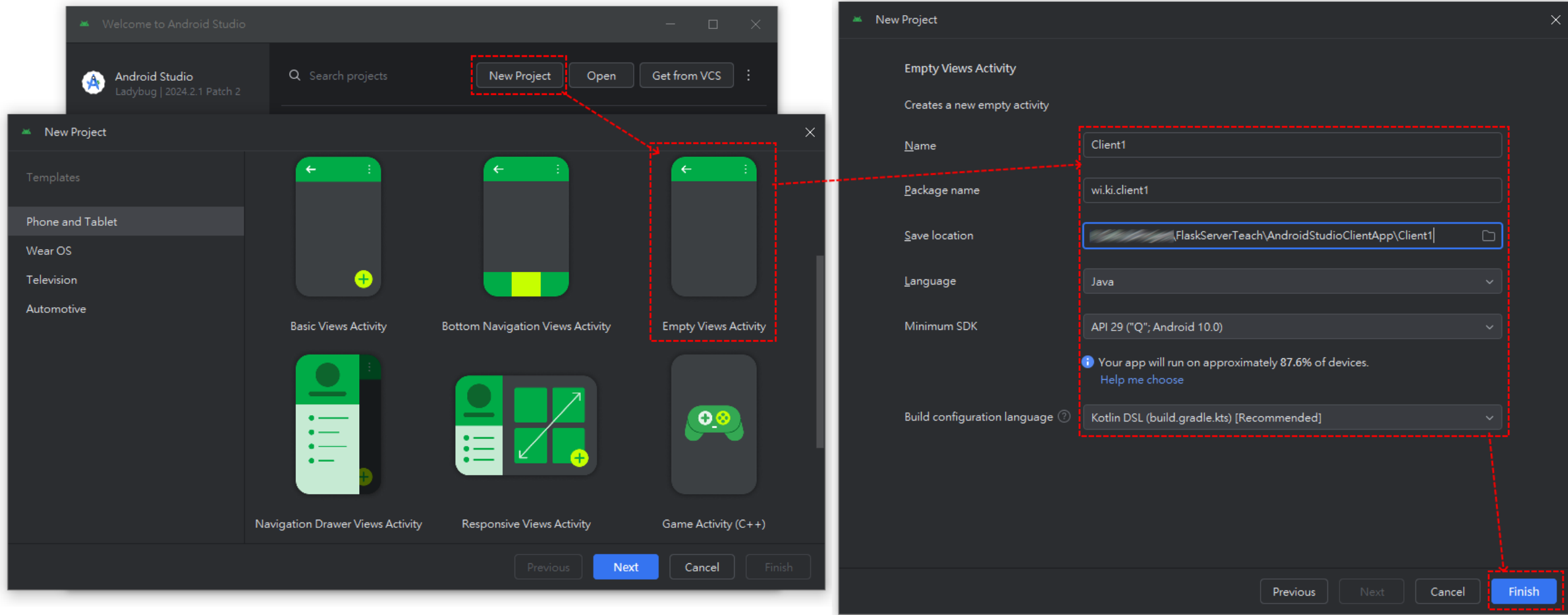
# Android Studio Client App

# 1. Install Android Studio & Create App Project

IDE Download: <https://developer.android.com/studio>

just next, next or download, download...

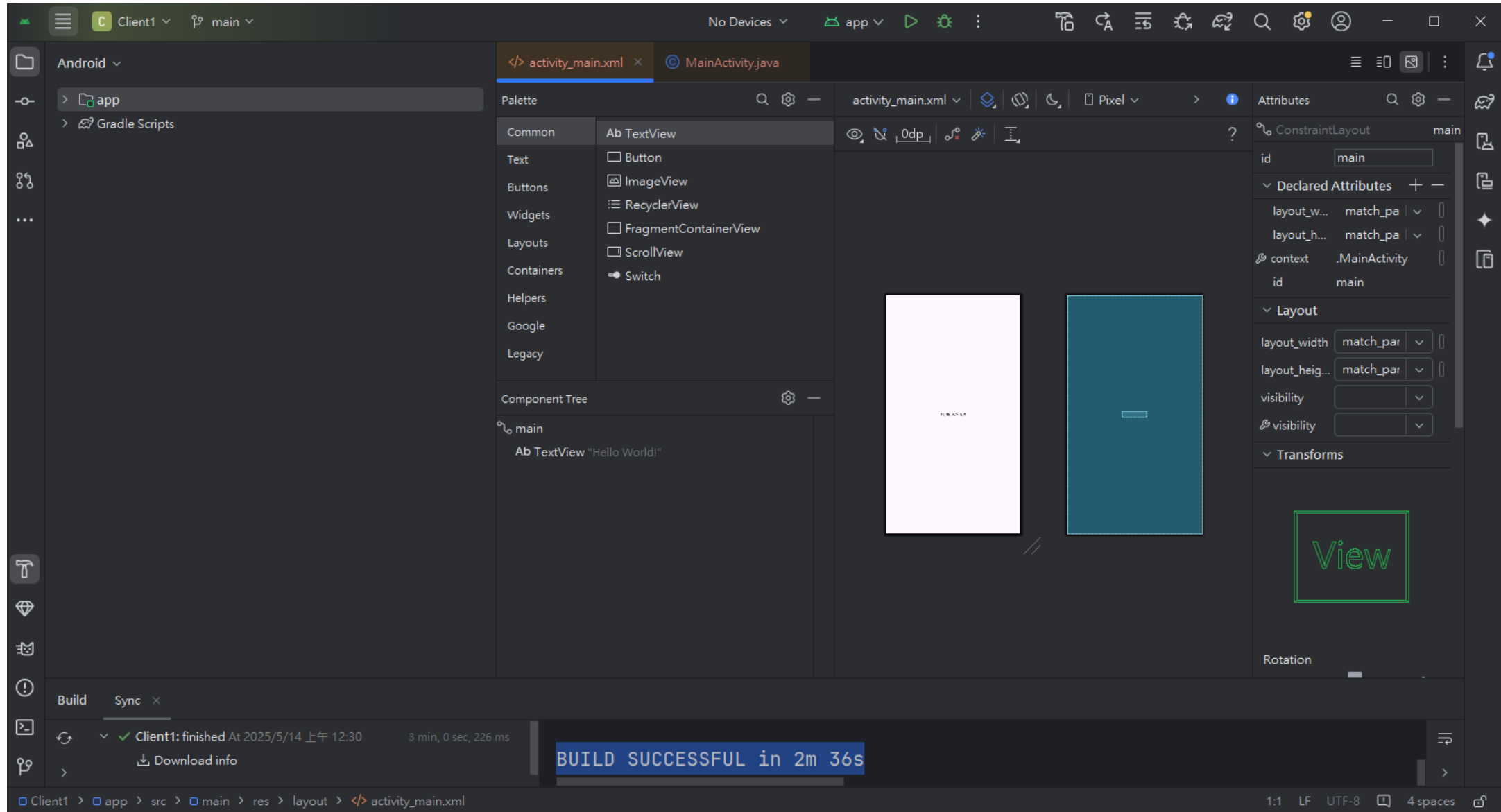
Create App Project:



New project has 'activity\_main.xml' & 'MainActivity.java'...

'activity\_main.xml' is UI design.

'MainActivity.java' is control Code.



It usually takes some time to create a new project.

# 2.Design UI

'activity\_main.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">
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="24dp">
    <!-- Radio Buttons for Gender -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Gender" />
    <RadioGroup
        android:id="@+id/radioGroupGender"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <RadioButton
            android:id="@+id/radioMale"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male" />
        <RadioButton
            android:id="@+id/radioFemale"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Female" />
    </RadioGroup>
```

```
<!-- Name -->
<EditText
    android:id="@+id/editTextName"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Name" />
<!-- Password -->
<EditText
    android:id="@+id/editTextPassword"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Password"
    android:inputType="textPassword" />
<!-- Birthday -->
<EditText
    android:id="@+id/editTextBirthday"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Birthday (e.g. 1990-04-24)" />
<!-- Height -->
<EditText
    android:id="@+id/editTextHeight"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Height (meters)"
    android:inputType="numberDecimal" />
<!-- Weight -->
<EditText
    android:id="@+id/editTextWeight"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Weight (kg)"
    android:inputType="numberDecimal" />
<!-- Button -->
<Button
    android:id="@+id/buttonSubmit"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Submit" />
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Gender

☐ Male ☐ Female

Name

Password

Birthday (e.g. 1990-04-24)

Height (meters)

Weight (kg)

Submit

# 3. Code Java

'MainActivity.java'

```
package wi.ki.client1;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
import com.android.volley.Request;
import com.android.volley.toolbox.JsonObjectRequest;
import com.android.volley.RequestQueue;
import com.android.volley.toolbox.Volley;
import org.json.JSONException;
import org.json.JSONObject;

public class MainActivity extends AppCompatActivity {
    RadioGroup radioGroupGender;
    EditText editTextName, editTextPassword, editTextBirthday, editTextHeight, editTextWeight;
    TextView TextViewRequest;
    final String SERVER_URL = "http://wiciar.com/bmi/submit";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
        radioGroupGender = findViewById(R.id.radioGroupGender);
        editTextName = findViewById(R.id.editTextName);
        editTextPassword = findViewById(R.id.editTextPassword);
        editTextBirthday = findViewById(R.id.editTextBirthday);
        editTextHeight = findViewById(R.id.editTextHeight);
        editTextWeight = findViewById(R.id.editTextWeight);
        TextViewRequest = findViewById(R.id.TextViewRequest);
    }
}
```

```
public void OnClick_Submit(View v)
{
    int selectedGenderId = radioGroupGender.getCheckedRadioButtonId();
    String gender = "";
    if (selectedGenderId == R.id.radioMale) {
        gender = "male";
    } else if (selectedGenderId == R.id.radioFemale) {
        gender = "female";
    }
    String name = editTextName.getText().toString();
    String password = editTextPassword.getText().toString();
    String birthday = editTextBirthday.getText().toString();
    String heightStr = editTextHeight.getText().toString();
    String weightStr = editTextWeight.getText().toString();

    RequestQueue queue = Volley.newRequestQueue(this);
    try {
        JSONObject postData = new JSONObject();
        postData.put("name", name);
        postData.put("birthday", birthday);
        postData.put("height", Float.parseFloat(heightStr));
        postData.put("weight", Float.parseFloat(weightStr));
        postData.put("password", password);
        postData.put("gender", gender);

        JsonObjectRequest jsonObjectRequest = new JsonObjectRequest(
            Request.Method.POST,
            SERVER_URL,
            postData,
            response -> {
                try {
                    TextViewRequest.setText(response.getString("message"));
                } catch (JSONException e) {
                    Toast.makeText(this, "error: message null.", Toast.LENGTH_SHORT).show();
                }
            },
            error -> Toast.makeText(MainActivity.this, "password error.", Toast.LENGTH_LONG).show()
        );
        queue.add(jsonObjectRequest);
    } catch (Exception e) {
        Toast.makeText(this, "error: " + e.getMessage(), Toast.LENGTH_SHORT).show();
    }
}
}
```

# 4. Check App Permission

'AndroidManifest.xml' is permission manager for Android App.

```
AndroidManifest.xml x
1  <?xml version="1.0" encoding="utf-8"?>
2  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3    xmlns:tools="http://schemas.android.com/tools">
4    <uses-permission android:name="android.permission.INTERNET" />
5    <application
6      android:networkSecurityConfig="@xml/network_security_config"
7      android:usesCleartextTraffic="true"
8      android:allowBackup="true"
9      android:dataExtractionRules="@xml/data_extraction_rules"
10     android:fullBackupContent="@xml/backup_rules"
11     android:icon="@mipmap/ic_launcher"
12     android:label="@string/app_name"
13     android:roundIcon="@mipmap/ic_launcher_round"
14     android:supportsRtl="true"
15     android:theme="@style/Theme.Client1"
16     tools:targetApi="31">
17     <activity
18       android:name=".MainActivity"
19       android:exported="true">
20       <intent-filter>
21         <action android:name="android.intent.action.MAIN" />
22         <category android:name="android.intent.category.LAUNCHER" />
23       </intent-filter>
24     </activity>
25   </application>
26 </manifest>
```

add network\_security\_config in xml folder.

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

```
android:networkSecurityConfig="@xml/network_security_config"
android:usesCleartextTraffic="true"
```

'network\_security\_config.xml' is network permission.

```
<?xml version="1.0" encoding="utf-8"?>
<network-security-config>
  <base-config cleartextTrafficPermitted="true" />
</network-security-config>
```

```
<?xml version="1.0" encoding="utf-8"?>
<network-security-config>
  <base-config cleartextTrafficPermitted="true" />
</network-security-config>
```

# 5. Check 'volley' plugin

'Volley' is a TCP request method unique at Android.

'Build.gradle.kts' is libraries dependency edit.

'local.properties' is libraries import and version edit.

`implementation(libs.volley)`

`volley = { group = "com.android.volley", name = "volley", version = "1.2.1" }`

Android ▾

- app
  - manifests
  - java
  - res
- Gradle Scripts
  - build.gradle.kts (Project: Client1)
  - build.gradle.kts (Module: app)**
  - proguard-rules.pro (ProGuard Rules for ".app")
  - gradle.properties (Project Properties)
  - gradle-wrapper.properties (Gradle Version)
  - libs.versions.toml (Version Catalog)
  - local.properties (SDK Location)**
  - settings.gradle.kts (Project Settings)

build.gradle.kts (app) ×

You can use the Project Structure dialog to view and edit your project configuration

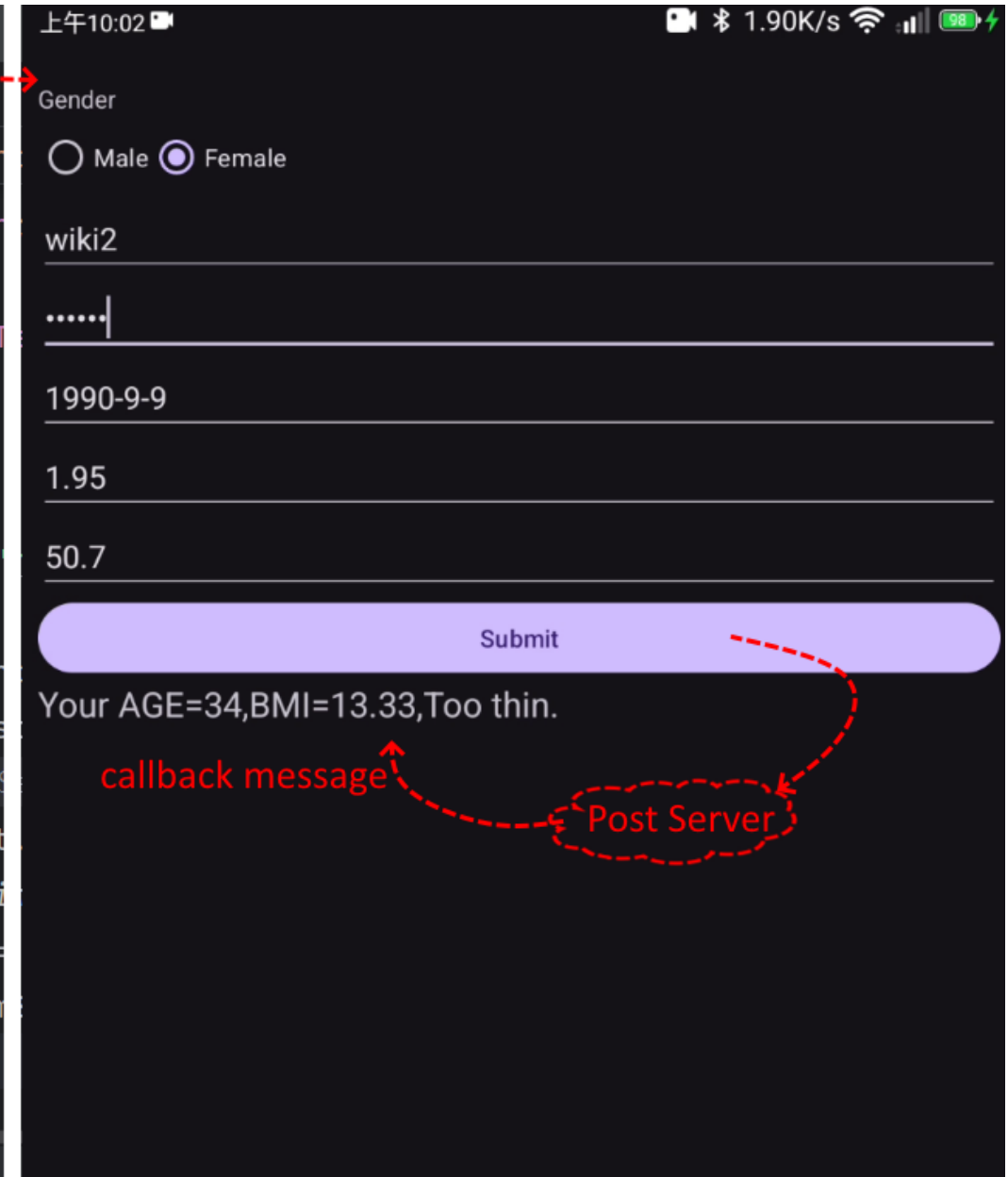
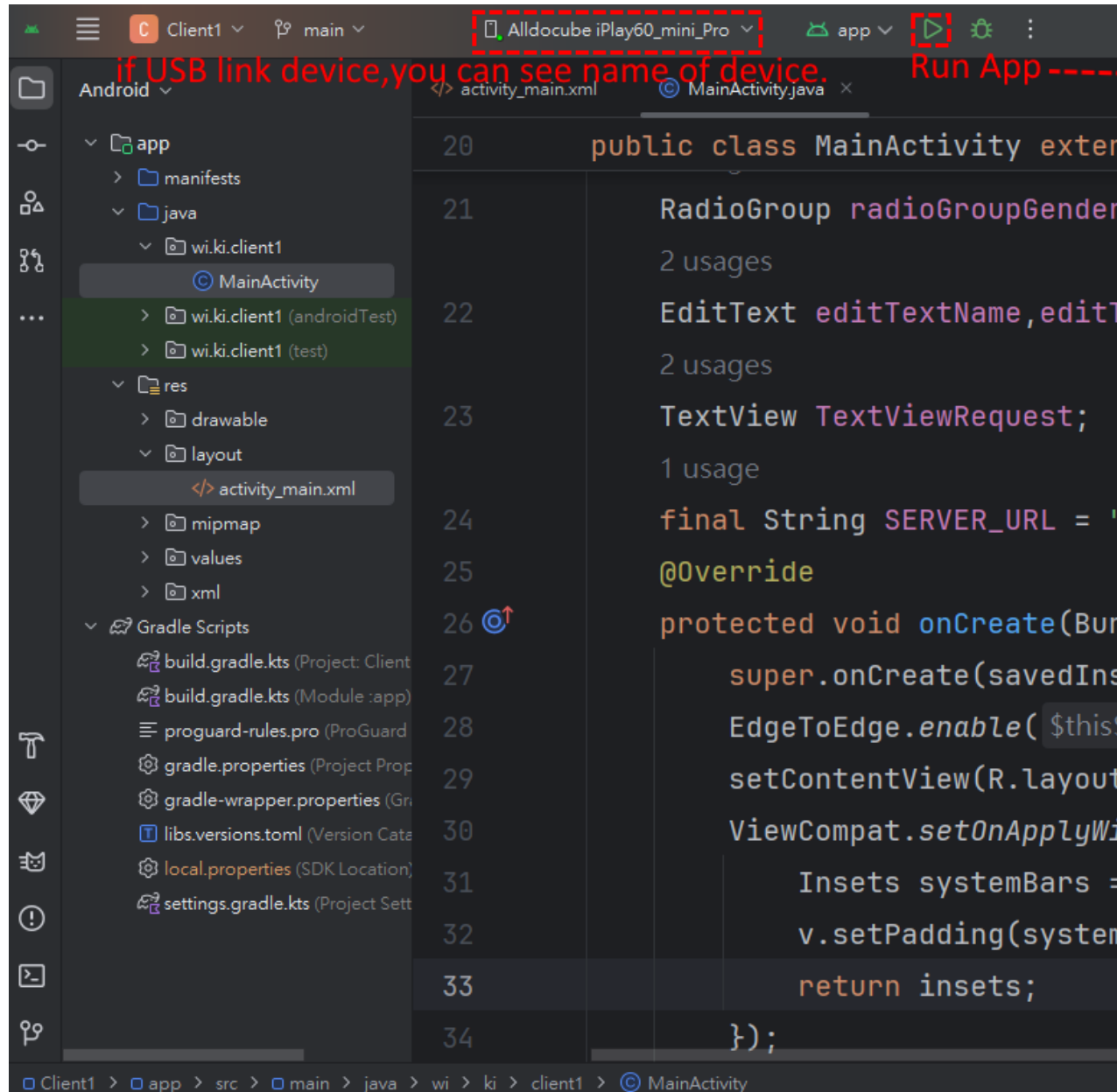
```
5  android {
19      buildTypes {
27      }
28      compileOptions {
29          sourceCompatibility = JavaVersion.VERSION_11
30          targetCompatibility = JavaVersion.VERSION_11
31      }
32  }
33
34  dependencies {
35
36      implementation(libs.volley)
37      implementation(libs.appcompat)
38      implementation(libs.material)
39      implementation(libs.activity)
40      implementation(libs.constraintlayout)
41      testImplementation(libs.junit)
42      androidTestImplementation(libs.ext.junit)
43      androidTestImplementation(libs.espresso.core)
44
45  }
```

libs.versions.toml ×

```
1  [versions]
2  agp = "8.7.2"
3  junit = "4.13.2"
4  junitVersion = "1.2.1"
5  espressoCore = "3.6.1"
6  appcompat = "1.7.0"
7  material = "1.12.0"
8  activity = "1.9.3"
9  constraintlayout = "2.2.0"
10 okhttp = "4.10.0"
11
12 [libraries]
13 volley = { group = "com.android.volley", name = "volley", version = "1.2.1" }
14 junit = { group = "junit", name = "junit", version.ref = "junit" }
15 ext-junit = { group = "androidx.test.ext", name = "junit", version.ref = "junit" }
16 espresso-core = { group = "androidx.test.espresso", name = "espresso-core", version.ref = "espresso-core" }
17 appcompat = { group = "androidx.appcompat", name = "appcompat", version.ref = "appcompat" }
18 material = { group = "com.google.android.material", name = "material", version.ref = "material" }
19 activity = { group = "androidx.activity", name = "activity", version.ref = "activity" }
20 constraintlayout = { group = "androidx.constraintlayout", name = "constraintlayout", version.ref = "constraintlayout" }
21 okhttp = { module = "com.squareup.okhttp3:okhttp", version.ref = "okhttp" }
22
```



# 6. Run App



✖ Android device needs to enable developer options and USB adapter.