Experiment2.1

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Branch: CSE **Section/Group: 606/B**
Semester: 6th **Date of Performance: 23/02/24**
Subject Name: Mobile App Development **Subject Code: 21CSH-355**

1. **Aim:** Create an Android App using various controls such TexEdit, CheckBox, RadioButton, RadioGroup, etc.

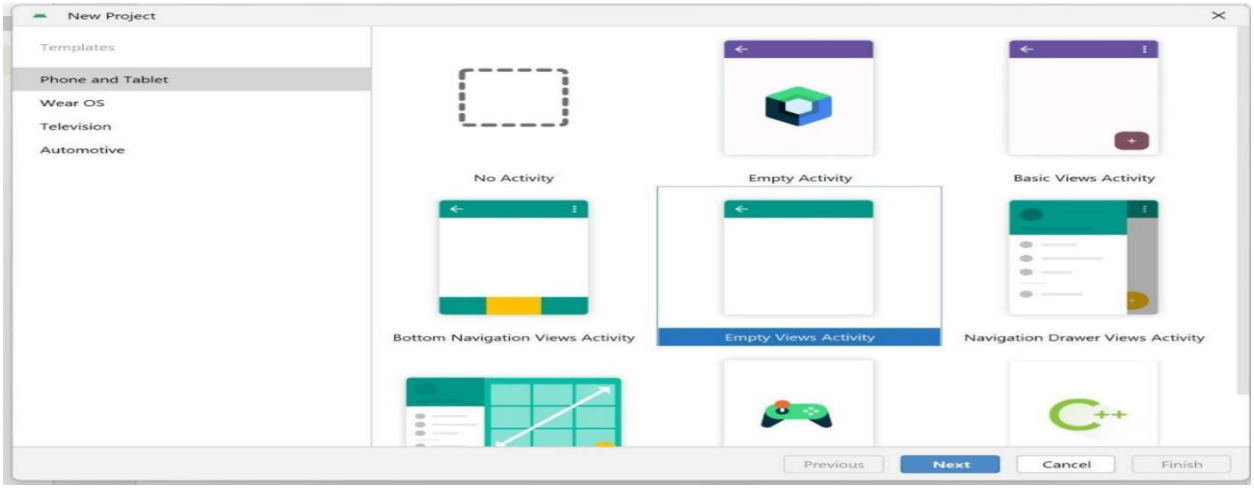
2. **Objective:** The objective of an Android app using various controls such as EditText, CheckBox, RadioButton, and RadioGroup could be to create a user interface that involves user input, selection, and interaction with different types of controls. This type of app aims to showcase the usage and functionalities of these UI elements to enhance the user experience.

3. **Input/Apparatus Used:**

- **Android Studio:** The official IDE for Android development. Download and install Android Studio from the official website: Android Studio.
- **Android SDK:** The Android Software Development Kit (SDK) is essential for developing Android applications. Android Studio usually comes bundled with the SDK, but you may need to update it through the SDK Manager within Android Studio.
- **Java Development Kit (JDK):** Android apps are primarily written in Java or Kotlin. Make sure you have the Java Development Kit installed. Android Studio supports JDK. You can download it from the Oracle website: Java SE Downloads.
- **Android Virtual Device (AVD) or Physical Android Device:** You need a device to test your Android application. You can use an emulator (AVD) that comes with Android Studio or a physical Android device connected to your computer.

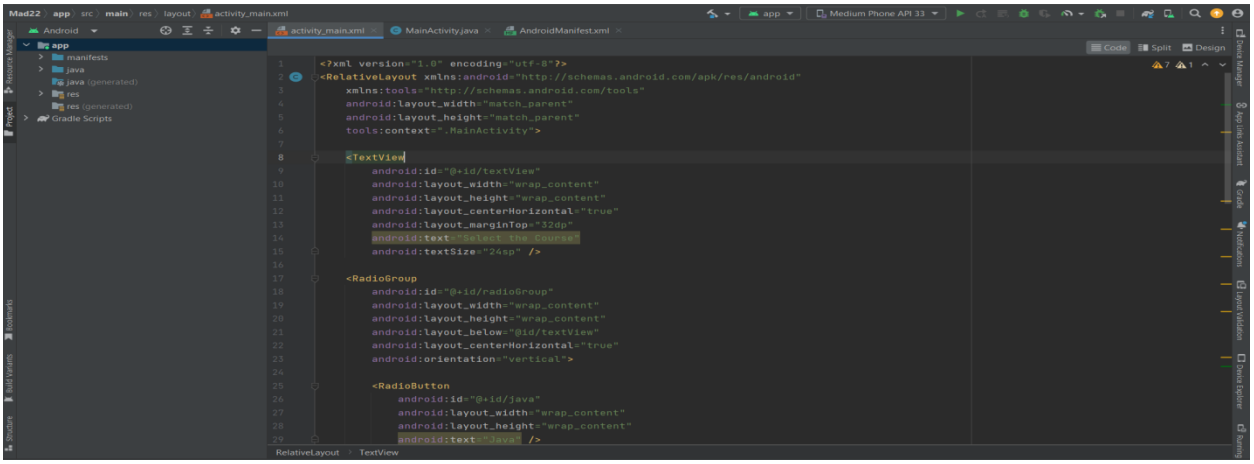
4. Procedure:

Step 1: Open Android Studio: Open Android Studio and create a new project.



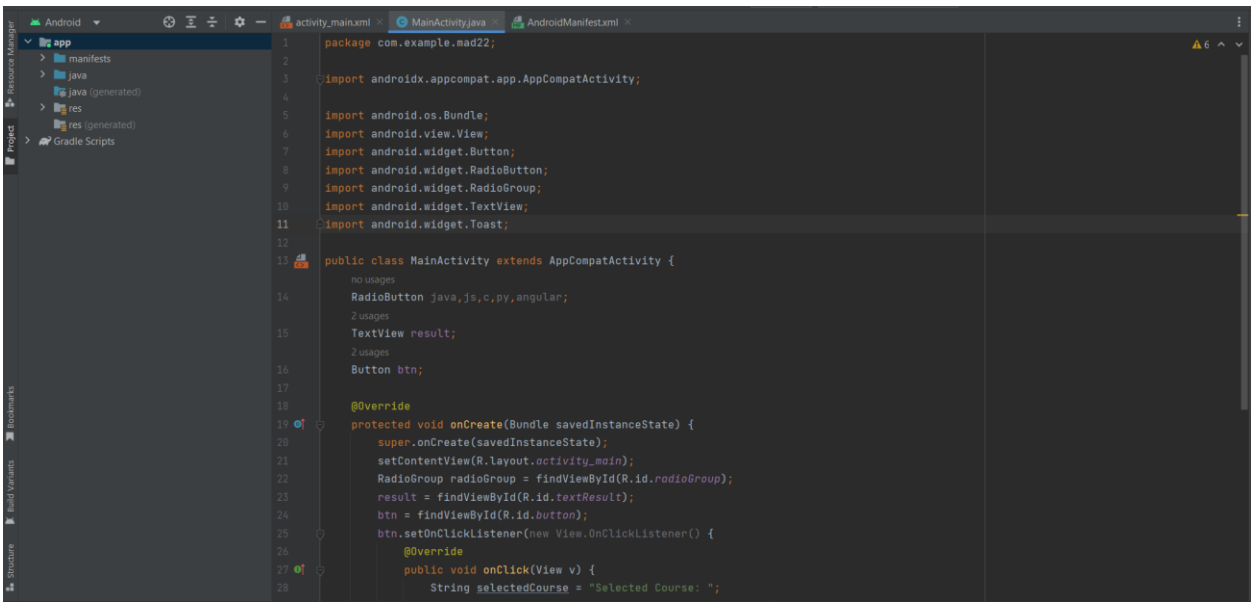
Step 2: Open the "activity_main.xml" file and add the following widgets in aRelative Layout:

- A TextView to display the question message
- A RadioGroup to hold the option Radio Buttons which are the possibleanswers
- 4 RadioButtons to hold an answer each.
- A Submit and a Clear button to store the response.



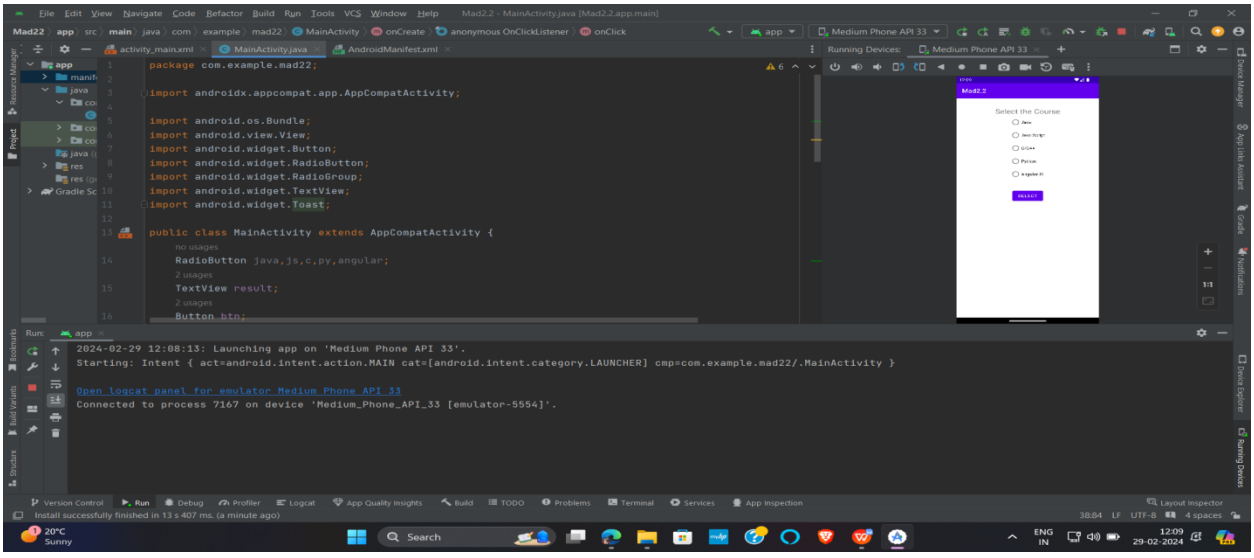
Step 3: Now, after the UI, this step will create the Backend of Application. For this, open the "MainActivity.java" file and instantiate the components made in the XML file (RadioGroup,

TextView, Clear, and Submit Button) using findViewById() method. This method binds the created object to the UI Components with the help of the assigned ID.



```
package com.example.mad22;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    RadioButton java,js,c,py,angular;
    TextView result;
    Button btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        RadioGroup radioGroup = findViewById(R.id.radioGroup);
        result = findViewById(R.id.textResult);
        btn = findViewById(R.id.button);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String selectedCourse = "Selected Course: ";
```

Step 4: Create an emulated virtual device in Device Manager and Run the App:



SOURCE CODE:

MainActivity:

```
package com.example.mad22;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
  RadioButton java,js,c,py,angular;
  TextView result;
  Button btn;

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    RadioGroup radioGroup = findViewById(R.id.radioGroup);
    result = findViewById(R.id.textResult);
    btn = findViewById(R.id.button);
    btn.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        String selectedCourse = "Selected Course: ";
        int selectedId = radioGroup.getCheckedRadioButtonId();
        if (selectedId != -1) {
          RadioButton radioButton = findViewById(selectedId);
          selectedCourse += radioButton.getText();
          result.setText(selectedCourse);
        } else {
          Toast.makeText(MainActivity.this, "Please select a course",
Toast.LENGTH_SHORT).show();
        }
      }
    });
```

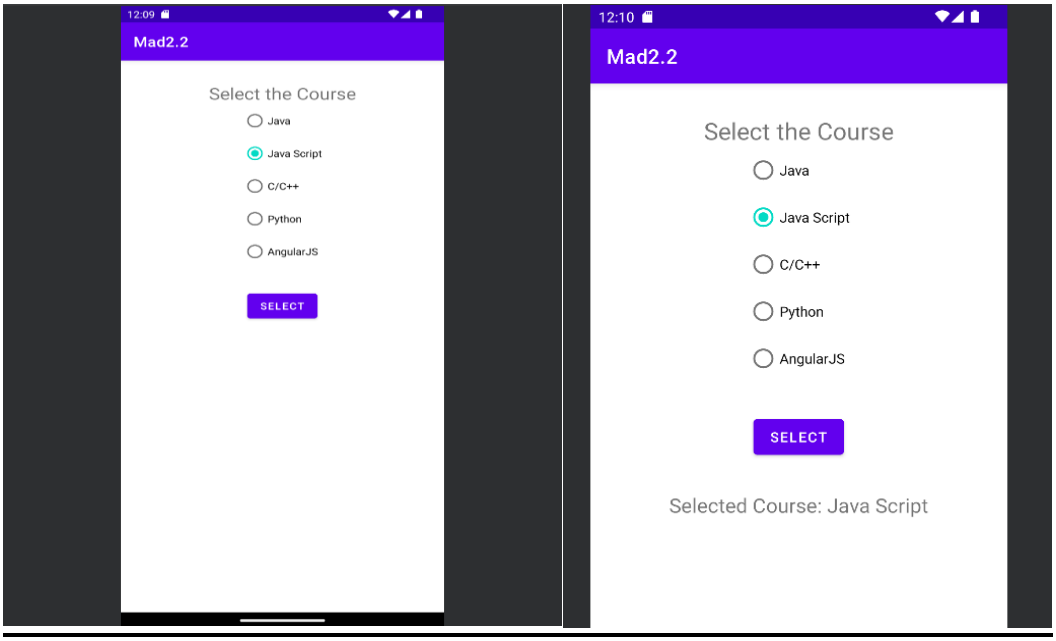
```
    }
}
```

Activity_main.xml:

```
<?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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
<TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:text="Select the Course"
        android:textSize="24sp" />
<RadioGroup
        android:id="@+id/radioGroup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/textView"
        android:layout_centerHorizontal="true"
        android:orientation="vertical">
<RadioButton
            android:id="@+id/java"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Java" />
<RadioButton
            android:id="@+id/js"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Java Script" />
<RadioButton
            android:id="@+id/c"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

```
        android:text="C/C++" />
<RadioButton
        android:id="@+id/py"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Python" />

<RadioButton
        android:id="@+id/angular"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="AngularJS" />
</RadioGroup>
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/radioGroup"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="32dp"
    android:text="Select" />
<TextView
    android:id="@+id/textResult"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/button"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="32dp"
    android:text=""
    android:textSize="20sp" />
</RelativeLayout>
```

5. Output:



6. Learning Outcomes:

1. I have learned the process of installing Android Studio, a tool for Android app development.
2. I understand the importance of configuring SDKs and virtual devices for a smooth development environment.
3. I now understand the significance of testing applications on a virtual device, ensuring a well-prepared development setup.