Experiment - 5

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Aim:

Create an Android App using various controls such TexEdit, CheckBox, RadioButton, RadioGroup, etc.

Objectives:

To install and run applications on Android Studio, we will require Android Studio, Android SDK, Android Virtual Device (AVD) Manager, Gradle and (JDK).

Procedure and Steps:

1. Open Android Studio and create a new project.
2. Choose a project name, package name, and choose "Empty Activity" as the template for your project.
3. In the layout file (activity_main.xml), write the designing part of the application i.e., frontend UI design.
4. In the java file (MainActivity.java), write the code used for the functionality of the app.

1. App with Checkbox:

CheckBox belongs to android.widget.CheckBox class. Android CheckBox class is the subclass of CompoundButton class. It is generally used in a place where user can select one or more than choices from a given list of choices. For example, selecting hobbies.

public class CheckBox *extends* CompoundButton

(activity_main.xml) code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:background="#ffffff"
    android:orientation="vertical">
```

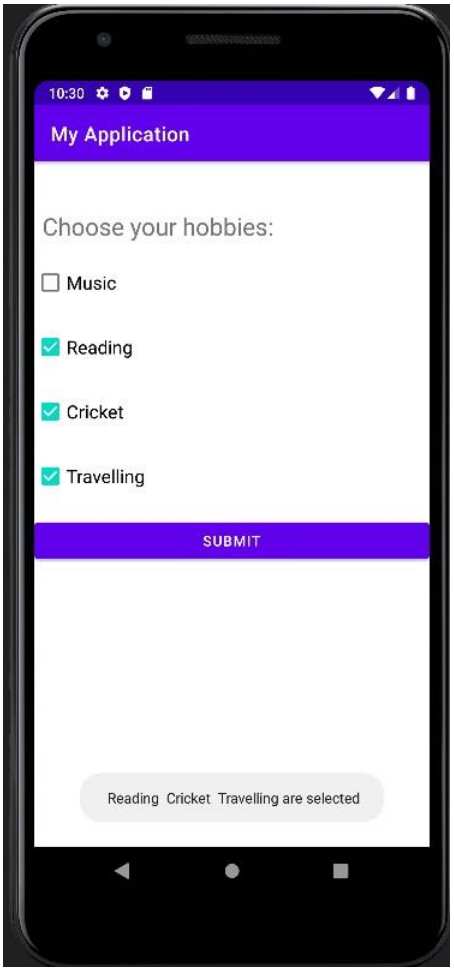
```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginTop="48dp"
    android:layout_marginEnd="8dp"
    android:text="Choose your hobbies:"
    android:textSize="24sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />


<CheckBox
    android:id="@+id/checkBox"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="Music"
    android:textSize="18sp">

</CheckBox>

<CheckBox
    android:id="@+id/checkBox2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="Reading"
    android:textSize="18sp">

</CheckBox>

<CheckBox
    android:id="@+id/checkBox3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="Cricket"
    android:textSize="18sp"
    app:layout_constraintTop_toTopOf="@+id/textView"
    tools:layout_editor_absoluteX="382dp">

</CheckBox>

<CheckBox
    android:id="@+id/checkBox4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="Travelling"
    android:textSize="18sp"
    app:layout_constraintTop_toBottomOf="@+id/checkBox"
    tools:layout_editor_absoluteX="386dp">

</CheckBox>
```

```
    <Button
        android:id="@+id/button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:onClick="Check"
        android:text="submit" />

</LinearLayout>
```

MainActivity.java Code:

```
package com.abhimanyu.myapplication;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import  android.view.View;
import android.widget.CheckBox;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    CheckBox ch, ch1, ch2, ch3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        ch=(CheckBox)findViewById(R.id.checkBox);
        ch1=(CheckBox)findViewById(R.id.checkBox2);
        ch2=(CheckBox)findViewById(R.id.checkBox3);
        ch3=(CheckBox)findViewById(R.id.checkBox4);
    }

    public void Check(View v)
    {
        String msg="";

        if(ch.isChecked())
            msg = msg + " Music ";
        if(ch1.isChecked())
            msg = msg + " Reading ";
        if(ch2.isChecked())
            msg = msg + " Cricket ";
        if(ch3.isChecked())
            msg = msg + " Travelling ";

        Toast.makeText(this, msg + "are selected",
                Toast.LENGTH_LONG).show();
    }
}
```

Output:



2. App with Radio Buttons:

Android radio button is a widget that can have more than one option to choose from. The user can choose only one option at a time. Each option here refers to a radio button and all the options for the topic are together referred to as Radio Group. Hence, Radio Buttons are used inside a RadioGroup.

(activity_main.xml) code:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   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="Select your Subject ?"
      android:textStyle="bold"
      android:layout_marginLeft="10dp"
      android:textSize="20sp"/>
```

```
<RadioGroup
   android:layout_marginTop="50dp"
   android:id="@+id/groupradio"
   android:layout_marginLeft="10dp"
   android:layout_width="fill_parent"
   android:layout_height="wrap_content">


   <RadioButton
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:id="@+id/radia_id1"
      android:text="Mobile App Development"
      android:textSize="20sp"/>

   <RadioButton
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:id="@+id/radia_id2"
      android:text="Internet of Things"
      android:textSize="20sp"/>

   <RadioButton
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:id="@+id/radia_id3"
      android:text="Discrete Mathematics"
      android:textSize="20sp"/>

   <RadioButton
      android:id="@+id/radia_id4"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:text="Theory of Computation"
      android:textSize="20sp" />


   <RadioButton
      android:id="@+id/radia_id5"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:text="Information Security and Cryptography"
      android:textSize="20sp" />

   <RadioButton
      android:id="@+id/radia_id6"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:text="Web programming Using .Net"
      android:textSize="20sp" />

</RadioGroup>

<Button
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:text="Submit"
   android:id="@+id/submit"
   android:textStyle="bold"
   android:textSize="20sp"
   android:layout_marginTop="400dp"
   android:layout_marginLeft="180dp"
   />
```

```
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Clear"
        android:id="@+id/clear"
        android:textSize="20sp"
        android:textStyle="bold"
        android:layout_marginTop="400dp"
        android:layout_marginLeft="40dp"
        />

</RelativeLayout>
```

MainActivity.java Code:

```
package com.abhimanyu.radiobuttons;

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.Toast;

public class MainActivity extends AppCompatActivity {

    private RadioGroup radioGroup;
    Button submit, clear;

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

        submit = (Button)findViewById(R.id.submit);
        clear = (Button)findViewById(R.id.clear);
        radioGroup = (RadioGroup)findViewById(R.id.groupradio);

        radioGroup.clearCheck();

        radioGroup.setOnCheckedChangeListener(
                new RadioGroup
                        .OnCheckedChangeListener() {
                    @Override
                    public void onCheckedChanged(RadioGroup group,
                                                 int checkedId)
                    {
                        RadioButton
                                radioButton
                                = (RadioButton)group
                                .findViewById(checkedId);
                    }
                });

        submit.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v)
            {
```

```
            int selectedId = radioGroup.getCheckedRadioButtonId();
            if (selectedId == -1) {
               Toast.makeText(MainActivity.this,
                        "No answer has been selected",
                        Toast.LENGTH_SHORT)
                     .show();
            }
            else {

               RadioButton radioButton
                     = (RadioButton)radioGroup
                     .findViewById(selectedId);

               Toast.makeText(MainActivity.this,
                        radioButton.getText(),
                        Toast.LENGTH_SHORT)
                     .show();
            }
         }
      });
      clear.setOnClickListener(new View.OnClickListener() {

         @Override
         public void onClick(View v)
         {
            radioGroup.clearCheck();
         }
      });
   }
}
```

Output: