ANDROID PROGRAMMING

PROGRAM 1 – Hello World Program

Aim: Write a program to toast hello world.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:visibility="visible"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/toastButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Toast"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.499" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.hellotoast;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button ToastButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        ToastButton = findViewById(R.id.toastButton);
        ToastButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(MainActivity.this,"hello
world",Toast.LENGTH_SHORT).show();
            }
        });
```
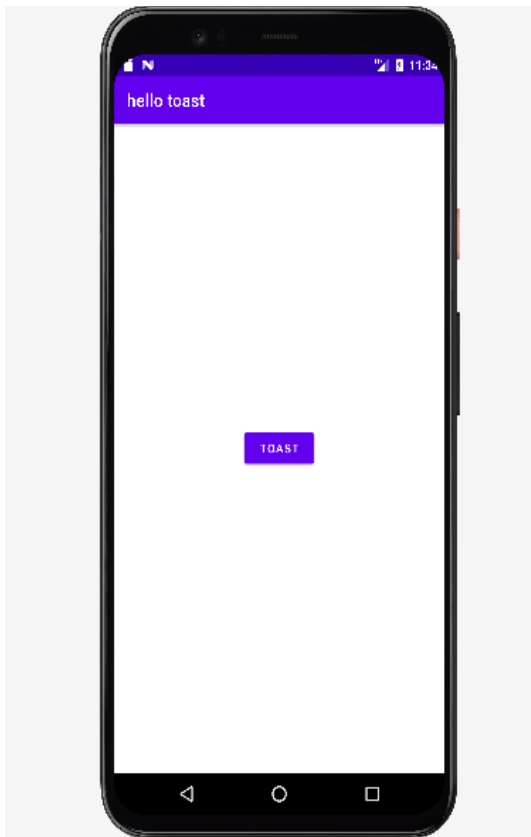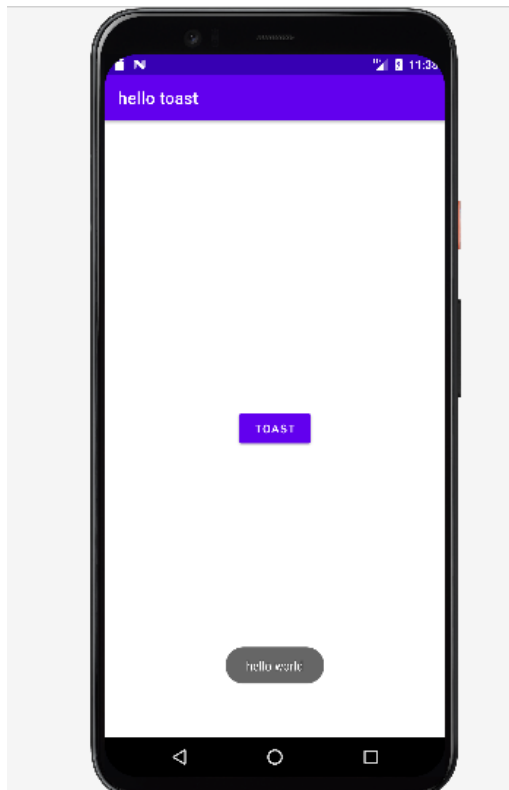
```
        }
}
```

User Interface:

Output:

PROGRAM 2 – Addition of two numbers

Aim: Write a program to add numbers.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <EditText
        android:id="@+id/num1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="enter num1"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        tools:ignore="MissingConstraints"
        tools:layout_editor_absoluteY="91dp" />

    <EditText
        android:id="@+id/num2"
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="64dp"
        android:ems="10"
        android:hint="enter num2"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/num1" />

    <Button
        android:id="@+id/add"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="48dp"
        android:onClick="addNumbers"
        android:text="add"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/num2"
        tools:ignore="InvalidId" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="64dp"
        android:text="result"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/add" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.additionoftwonum;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText num1,num2;
    TextView result;


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

        num1 = findViewById(R.id.num1);
        num2 = findViewById(R.id.num2);
```
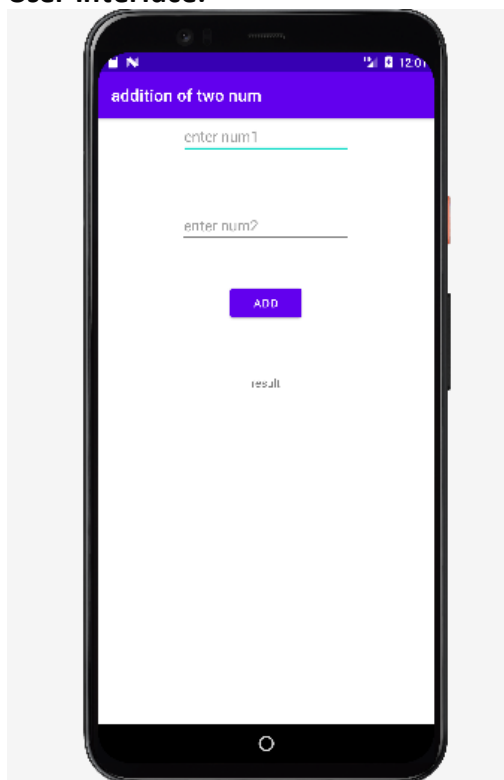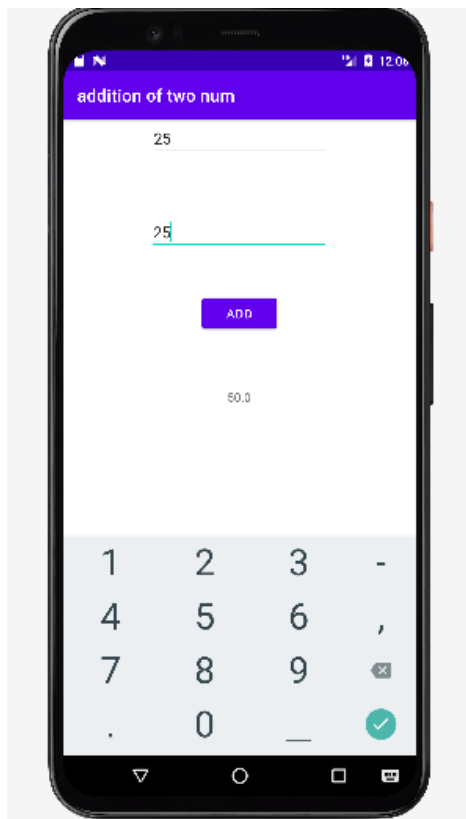
```
        result = findViewById(R.id.result);
    }
    public void addNumbers(View v){
        double n1,n2,r;

        n1 = Double.parseDouble(num1.getText().toString());
        n2 = Double.parseDouble(num2.getText().toString());
        r = n1+n2;
        result.setText(String.valueOf(r));
    }


}
```

User Interface:

Output:

PROGRAM 3 – Alert Box

Aim: Write a program to display an alert box with ok and cancel.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Button
        android:id="@+id/alertme"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="alertme"
        android:text="alert me"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.alertbox;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;

public class MainActivity<setTitle> extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void alertme(View v){
        AlertDialog dlg = new
                AlertDialog.Builder(MainActivity.this)
                .setTitle("Message")
                .setMessage("alert box is awesome")
                .setPositiveButton("ok", new
DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialogInterface, int
i) {
                        dialogInterface.dismiss();
                        Toast.makeText(MainActivity.this, "clicked ok!",
Toast.LENGTH_SHORT).show();
                    }
                })
                .setNegativeButton("cancel", new
DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialogInterface, int
i) {
                        dialogInterface.dismiss();
                        Toast.makeText(MainActivity.this,"clicked
cancel!",Toast.LENGTH_SHORT).show();
                    }
                })
                .create();
        dlg.show();

    }


}
```

AndroidManifest.xml

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="AlertDialog Box"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
```
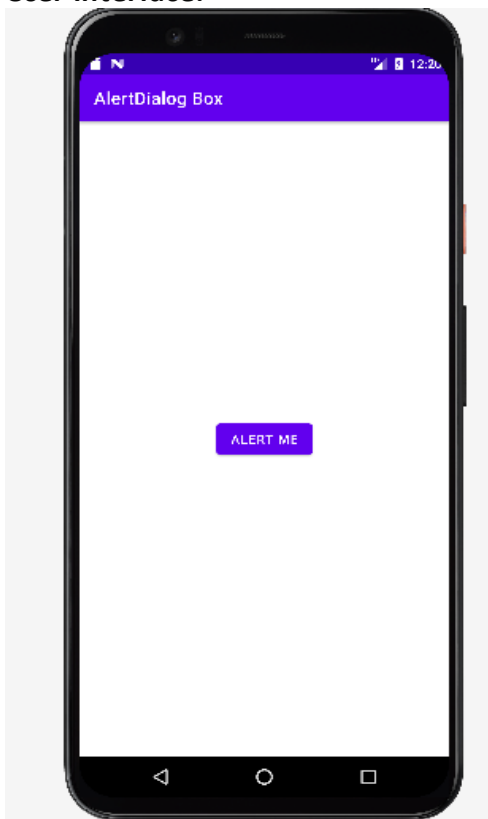
```xml
            android:theme="@style/Theme.Alertbox">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>
    </application>

</manifest>
```
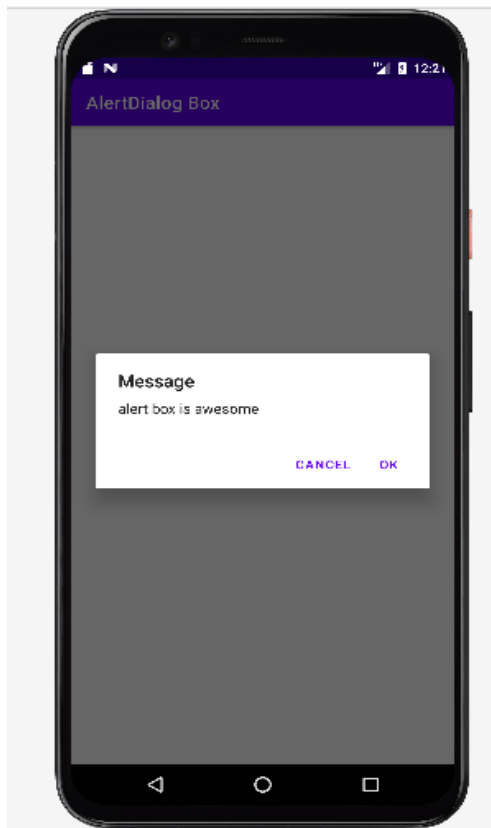
User Interface:

Output:

PROGRAM 4 – Menu program

Aim: Write a program to create menu with three items.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    </androidx.constraintlayout.widget.ConstraintLayout>
```

Menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
   <item android:id="@+id/settings"
       android:title="settings"/>
   <item android:id="@+id/contact"
        android:title="contact"/>
   <item android:id="@+id/aboutus"
        android:title="About us"/>
</menu>
```

MainActivity.java

```java
package com.example.menu;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.Toast;

import java.util.zip.Inflater;

public class MainActivity extends AppCompatActivity {

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

    @Override
    public boolean onCreatePanelMenu(int featureId, @NonNull Menu menu) {
      //  return super.onCreatePanelMenu(featureId, menu);
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        switch(item.getItemId()) {
            case R.id.settings:
                Toast.makeText(MainActivity.this, "settings",
Toast.LENGTH_SHORT).show();
            case R.id.contact:
                Toast.makeText(MainActivity.this, "thank you for contacting
us", Toast.LENGTH_SHORT).show();
            case R.id.aboutus:
                Toast.makeText(MainActivity.this, "made with",
Toast.LENGTH_SHORT).show();
            default:
                return super.onOptionsItemSelected(item);
        }

        }

    }
```
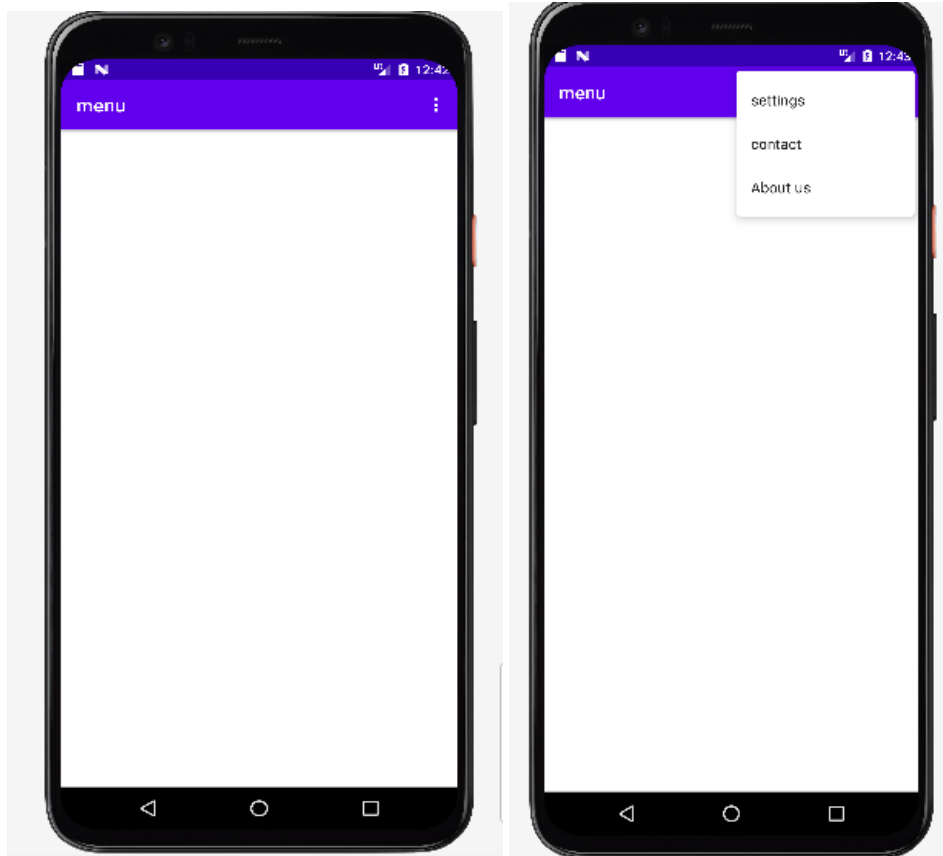**User Interface:**

Output:

PROGRAM 5 – Radio Button

Aim: write a program to select gender using radio button.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <RadioGroup
        android:id="@+id/radioGroup3"
        android:layout_width="270dp"
        android:layout_height="189dp"
        android:layout_marginTop="244dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <RadioButton
            android:id="@+id/male"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:onClick="isChecked"
            android:text="male"
            android:textSize="20sp" />

        <RadioButton
            android:id="@+id/female"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:onClick="isChecked"
            android:text="female"
            android:textSize="20sp" />
    </RadioGroup>

    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="choose your gender"
        android:textSize="34sp"
        app:layout_constraintBottom_toTopOf="@+id/radioGroup3"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.688" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="16sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```xml
            app:layout_constraintHorizontal_bias="0.472"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.681" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    RadioButton radioButton;
    RadioGroup radioGroup;
    TextView result;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        radioGroup = findViewById(R.id.radioGroup3);
        result = findViewById(R.id.result);
    }
    public void isChecked(View v){
        int radioid = radioGroup.getCheckedRadioButtonId();
        radioButton = findViewById(radioid);
        switch(radioid){
            case R.id.male:
                result.setText("you selected :" + radioButton.getText());
            case R.id.female:
                result.setText("you selected :" + radioButton.getText());
        }
    }
}
```
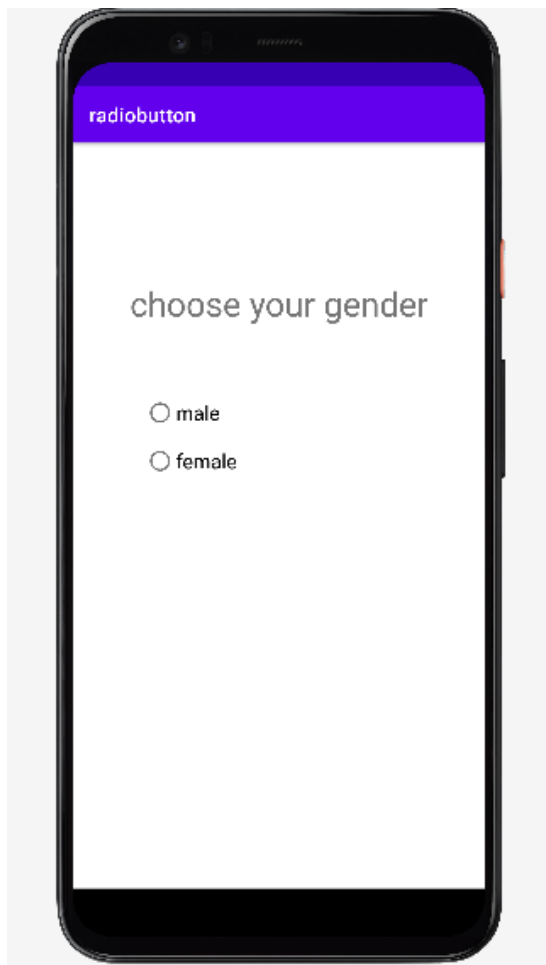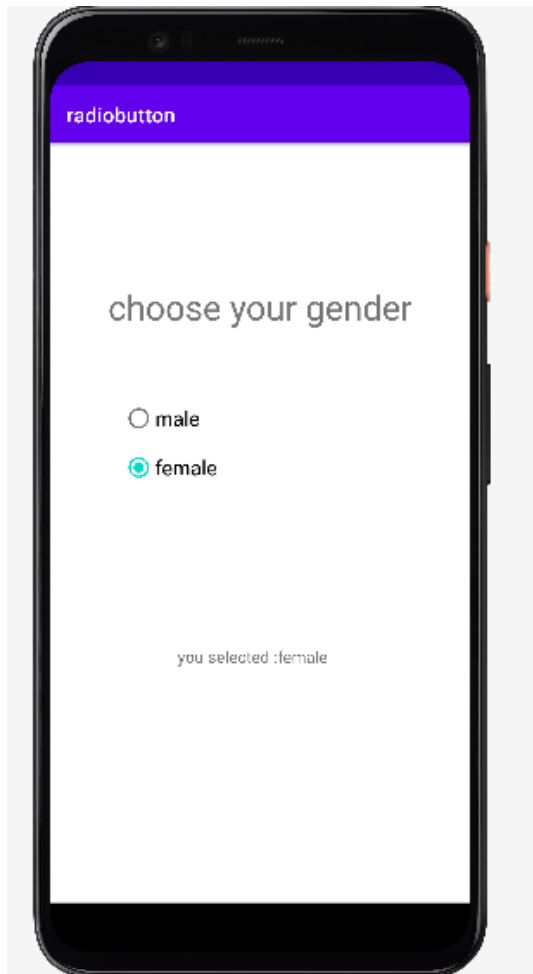**User Interface:**

Output:

PROGRAM 6 – Spinner

Aim: Write a Program to Spin the four items.

Source code:

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Spinner
        android:id="@+id/spinner"
        android:layout_width="291dp"
        android:layout_height="26dp"
        app:layout_constraintBottom_toBottomOf="parent"
```

```
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.419" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.spinner;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemSelectedListener {
    Spinner spinner;

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

        spinner =findViewById(R.id.spinner);

ArrayAdapter<CharSequence>adapter=ArrayAdapter.createFromResource(this,R.ar
ray.fruit, android.R.layout.simple_spinner_item);

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_it
em);
        spinner.setAdapter(adapter);
        spinner.setOnItemSelectedListener(this);
    }

    @Override
    public void onItemSelected(AdapterView<?> adapterView, View view, int
i, long l) {
        String choice = adapterView.getItemAtPosition(i).toString();
        Toast.makeText(this, choice, Toast.LENGTH_SHORT).show();

    }

    @Override
    public void onNothingSelected(AdapterView<?> adapterView) {

    }
}
```

ARRAYS.XML

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string-array name="fruit" >
      <item>apple</item>
```
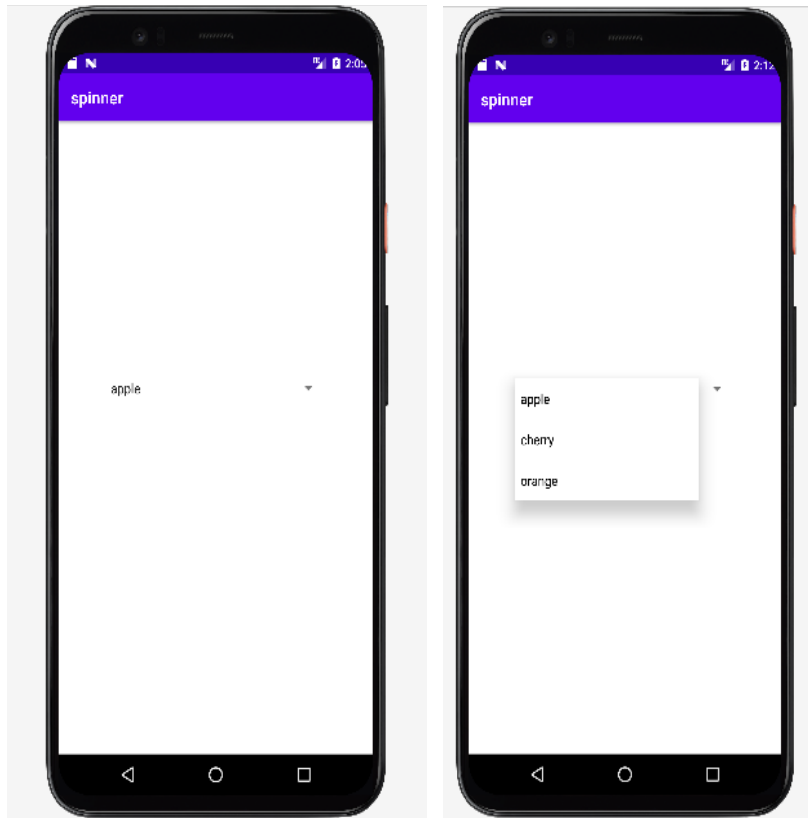
```
        <item>cherry</item>
            <item>orange</item>
        </string-array>
</resources>
```

User Interface:

Output:

PROGRAM 7 – Check box

Aim: Write a Program to check the items listed.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <TextView
        android:id="@+id/textView2"
        android:layout_width="226dp"
        android:layout_height="53dp"
        android:text="Choose your hobby:"
        android:textSize="24sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.367" />

    <CheckBox
        android:id="@+id/checkBox1"
        android:layout_width="105dp"
        android:layout_height="37dp"
        android:onClick="itemcheck"
        android:text="Cricket"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.477"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView2"
        app:layout_constraintVertical_bias="0.102" />

    <CheckBox
        android:id="@+id/checkBox2"
        android:layout_width="100dp"
        android:layout_height="31dp"
        android:onClick="itemcheck"
        android:text="football"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.471"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/checkBox1"
        app:layout_constraintVertical_bias="0.091" />

    <CheckBox
        android:id="@+id/checkBox3"
        android:layout_width="84dp"
        android:layout_height="44dp"
        android:onClick="itemcheck"
        android:text="volley ball"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.446"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/checkBox2"
        app:layout_constraintVertical_bias="0.141" />

    <CheckBox
        android:id="@+id/checkBox4"
        android:layout_width="86dp"
        android:layout_height="32dp"
        android:layout_marginBottom="4dp"
        android:onClick="itemcheck"
        android:text="hockey"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.452"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/checkBox3"
        app:layout_constraintVertical_bias="0.229" />

    <TextView
        android:id="@+id/result"
        android:layout_width="154dp"
        android:layout_height="29dp"
        app:layout_constraintBottom_toBottomOf="parent"
```

```
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.459"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/checkBox4" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.checkbox;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.CheckBox;
import android.widget.TextView;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    CheckBox ch1,ch2,ch3,ch4;
    TextView result;
    ArrayList<String>arraylist;


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

        ch1=findViewById(R.id.checkBox1);
        ch2=findViewById(R.id.checkBox2);
        ch3=findViewById(R.id.checkBox3);
        ch4=findViewById(R.id.checkBox4);
        result=findViewById(R.id.result);
        arraylist=new ArrayList<>();

    }
    public void itemcheck(View view) {
        boolean checked = ((CheckBox) view).isChecked();
        switch (view.getId()) {
            case R.id.checkBox1:
                if (checked) {
                    arraylist.add(ch1.getText().toString());
                } else {
                    arraylist.remove(ch1.getText().toString());
                }
                break;
            case R.id.checkBox2:
                if (checked) {
                    arraylist.add(ch2.getText().toString());
                } else {
                    arraylist.remove(ch2.getText().toString());
                }
                break;
            case R.id.checkBox3:
                if (checked) {
                    arraylist.add(ch3.getText().toString());
                } else {
                    arraylist.remove(ch3.getText().toString());
```

```
                }
                break;
            case R.id.checkBox4:
                if (checked) {
                    arraylist.add(ch4.getText().toString());
                } else {
                    arraylist.remove(ch4.getText().toString());
                }
                break;
        }
        StringBuilder stringBuilder = new StringBuilder();
        for (String s : arraylist) {
            stringBuilder.append(s).append(",");
            Log.i("ME", s);
        }
        result.setText("you selected:" + stringBuilder.toString());
    }



    }
```
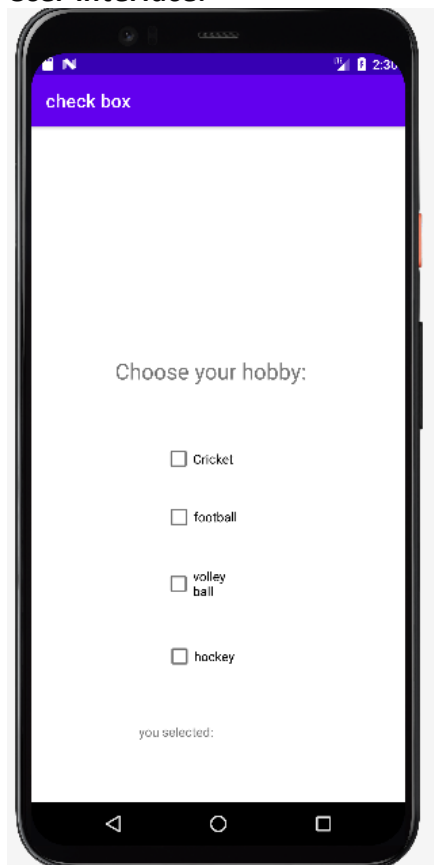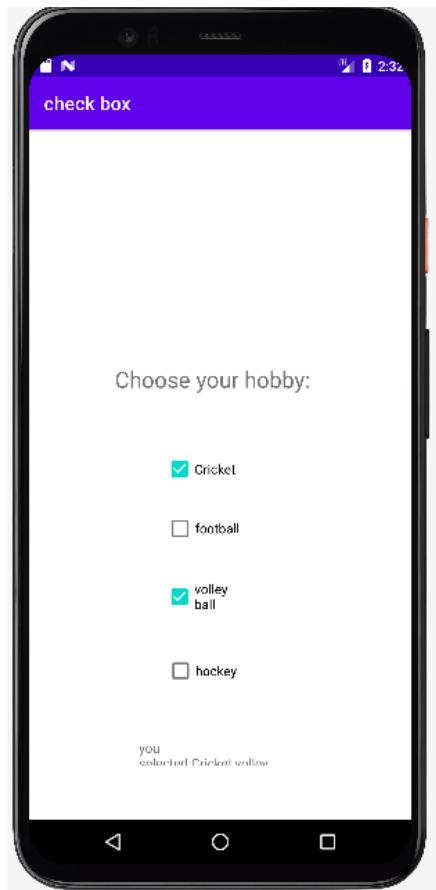
User Interface:

Output:

PROGRAM 8 – Image View

Aim: Write a Program to Display images from local drive of the computer.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="setImageView"
        android:text="Image 1"
        app:layout_constraintBottom_toTopOf="@+id/button2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.46"
        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.937" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="16dp"
        android:onClick="setImageView"
        android:text="Image2"
        app:layout_constraintBottom_toTopOf="@+id/button3"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.451"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.986" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="setImageView"
        android:text="Image3"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.451"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.759" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="277dp"
        android:layout_height="221dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.537"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />



</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    ImageView imageView;
    Button Image1,Image2,Image3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        imageView=findViewById((R.id.imageView));
        Image1=findViewById(R.id.button1);
        Image2=findViewById(R.id.button2);
        Image3=findViewById(R.id.button3);
    }
```

```java
    public void setImageView(View view) {
        switch(view.getId()){
            case R.id.button1:
                imageView.setBackgroundResource(R.drawable.image);
                break;
            case R.id.button2:
                imageView.setBackgroundResource(R.drawable.image2);
                break;
            case R.id.button3:
                imageView.setBackgroundResource(R.drawable.image3);
                break;
        }
    }
}
```
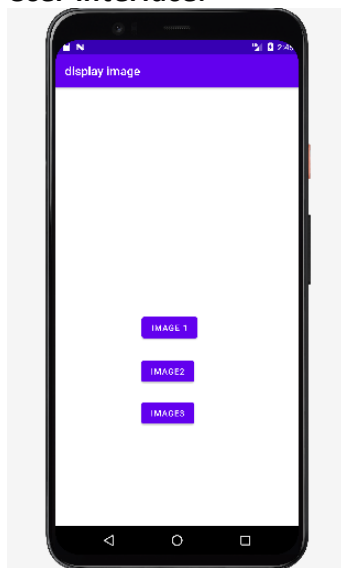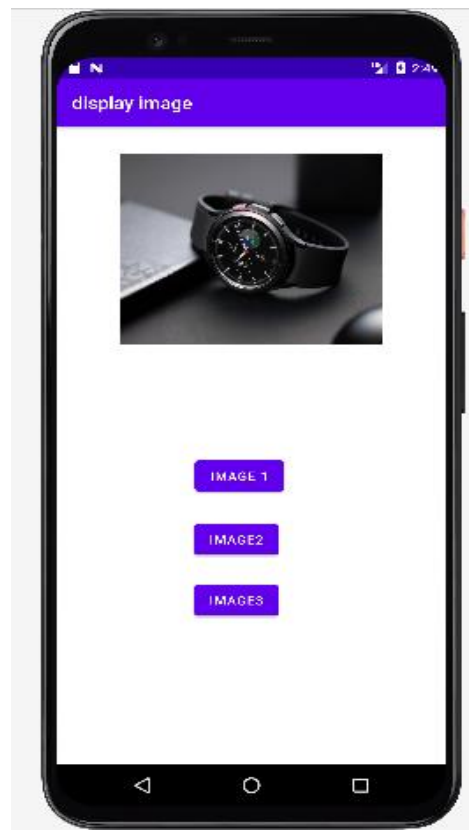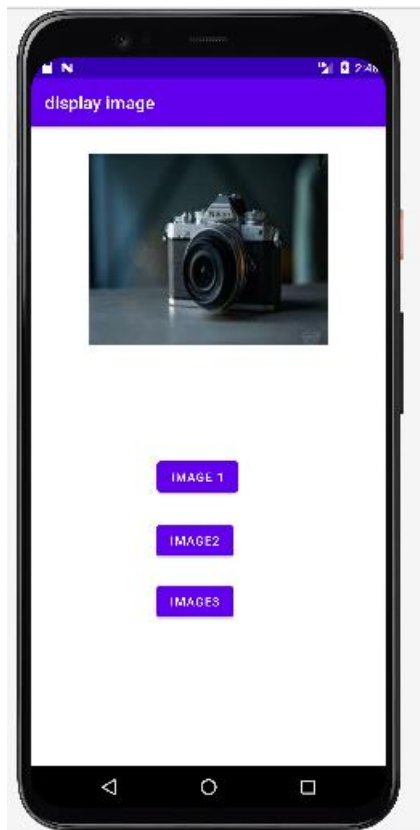
User Interface:

Output:

PROGRAM 9 – List View

Aim : Write a Program to Display the items in a list.
Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ListView
        android:id="@+id/listview"
        android:layout_width="419dp"
        android:layout_height="722dp"
        app:layout_editor_absoluteX="1dp"
        app:layout_editor_absoluteY="1dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.listview;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {
    ListView listView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        listView=findViewById(R.id.listview);
        String title[]={"facebook","amazon","netflix","tesla","google"};
        ArrayAdapter<String>adapter=new ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1,android.R.id.text1,title);
        listView.setAdapter(adapter);

    }
}
```

User Interface:

Output:

PROGRAM 10 – Fetch data

Aim: Fetch data from an EditText and display it in a TextView.

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.567"
        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.227" />

    <Button
        android:id="@+id/fetch"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="fetch"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.361" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.476" />
```

MainActivity.java

```java
package com.example.fetchdata;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText editText;
    TextView textView;
    Button button;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button=findViewById(R.id.fetch);
        editText=findViewById(R.id.editText);
        textView =findViewById(R.id.result);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                textView.setText(editText.getText().toString());
            }
        });
    }
}
```
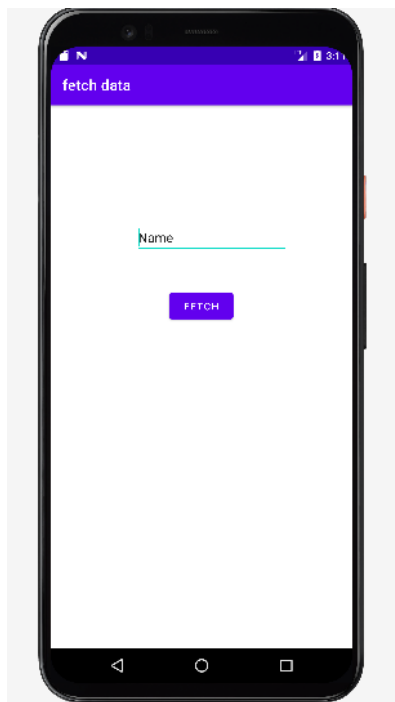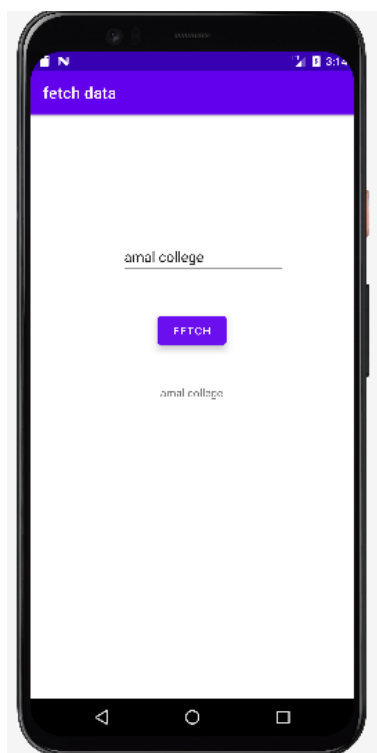
User Interface:

Output:

PROGRAM 11 – Multiplication table

Aim: Write a program to display multiplication table of a given number

Source code:

Activity_main.xml

```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: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:text="multiplication table"
        app:layout_constraintBottom_toTopOf="@+id/editText"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.376" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="enter a number"
        android:inputType="number"

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.149"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.186" />

    <Button
        android:id="@+id/submit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="40dp"
        android:layout_marginTop="128dp"
        android:text="submit"
        app:layout_constraintBottom_toTopOf="@+id/result"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toEndOf="@+id/editText"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="72dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.308"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText"
```

```
            app:layout_constraintVertical_bias="0.072" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.multiplicationtable;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;


public class MainActivity extends AppCompatActivity  {

    EditText editText;
    Button submit;
    TextView result;

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

        editText = findViewById(R.id.editText);
        submit = findViewById(R.id.submit);
        result = findViewById(R.id.result);

        submit.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View view) {
                Integer num =
Integer.parseInt(editText.getText().toString());
                Integer answer;
                StringBuffer r = new StringBuffer();
                for(Integer i=1;i<=10;i++){
                    answer = i*num;
                    r.append(i+" X "+num+" = "+answer).append("\n");
                }
                result.setText(r.toString());
            }
        });

    }



}
```
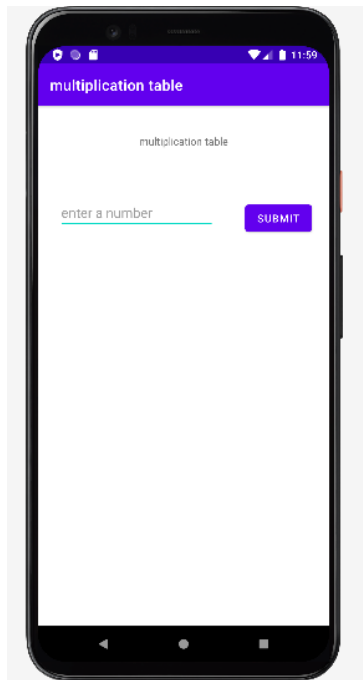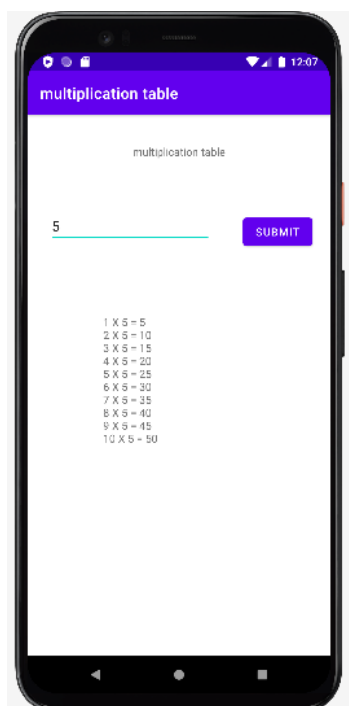
User Interface:

Output:

PROGRAM 12 – IP Address

Aim: Write a program to Get IP Address of the device

Source code:

Activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TextView"
        android:textSize="34sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.ipaddress;

import androidx.appcompat.app.AppCompatActivity;

import android.net.wifi.WifiManager;
import android.os.Bundle;
import android.text.format.Formatter;
import android.widget.TextView;


public class MainActivity extends AppCompatActivity {
    TextView result;

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

        result=findViewById(R.id.result);
        WifiManager wf=(WifiManager)
getApplicationContext().getSystemService(WIFI_SERVICE);

        int ip=wf.getConnectionInfo().getIpAddress();
        result.setText(Formatter.formatIpAddress(ip));
    }
}
```

AndroidManifest

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

    <uses-permission android:name="android.permission.ACCESS_WIFI_STATE" />
    <uses-permission android:name="android.permission.READ_PHONE_STATE" />
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
```

```xml
        android:supportsRtl="true"
        android:theme="@style/Theme.IpAddress">
        <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>
```

User Interface:

Output:

PROGRAM 13 – Change the Background colour

Aim: Write a program to Change the Background colour of the Activity

Source code:

Activity_main.xml

```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/Clayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Button
        android:id="@+id/change"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="change me"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/reset"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="reset"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/change"
        app:layout_constraintVertical_bias="0.051" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.changethebackgroundcolor;


import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;

import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;


public class MainActivity extends AppCompatActivity {

    ConstraintLayout layout;
    Button change, reset;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```java
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        layout = findViewById(R.id.Clayout);
        change = findViewById(R.id.change);
        reset = findViewById(R.id.reset);

        change.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                layout.setBackgroundColor(Color.BLUE);
            }
        });
        reset.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                layout.setBackgroundColor(Color.WHITE);
            }
        });

    }

}
```
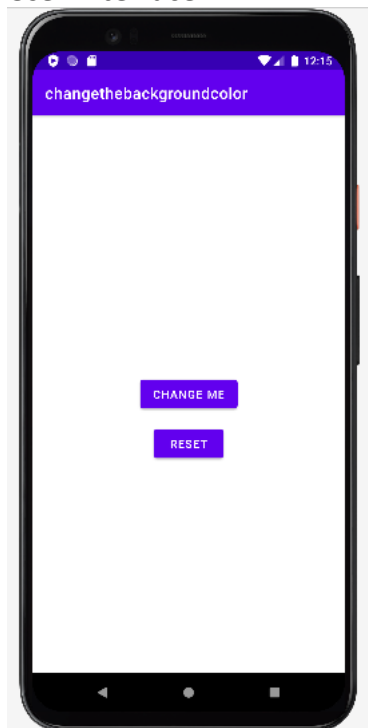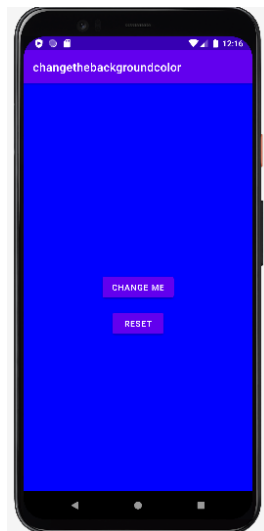
User Interface:

Output:

PROGRAM 14 – Change the Background image

Aim: Write a program to Change the Background image

Source code:

Activity_main.xml

```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/Clayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Button
        android:id="@+id/bg1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="change BG"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.499" />

    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="396dp"
        android:layout_height="720dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <ImageView
```

```xml
        android:id="@+id/imageView3"
        android:layout_width="406dp"
        android:layout_height="713dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <ImageView
        android:id="@+id/imageView4"
        android:layout_width="388dp"
        android:layout_height="712dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.347"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />

    <ImageView
        android:id="@+id/imageView5"
        android:layout_width="410dp"
        android:layout_height="726dp"
        app:layout_constraintBottom_toBottomOf="@+id/imageView4"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.391"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />

    <ImageView
        android:id="@+id/imageView6"
        android:layout_width="263dp"
        android:layout_height="476dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.changethebackgroundimage;


import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;

import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;


import java.util.Random;


public class MainActivity extends AppCompatActivity  {
```

```java
    ConstraintLayout layout;
    Button change;
    int images[];

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

        layout = findViewById(R.id.Clayout);
        change = findViewById(R.id.bg1);

        images = new int[] {R.drawable.bg1, R.drawable.bg2, R.drawable.bg3,
R.drawable.bg4, R.drawable.bg5, R.drawable.bg6};

        change.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                layout.setBackgroundResource(images[new
Random().nextInt(images.length)]);
            }
        });

    }




}
```
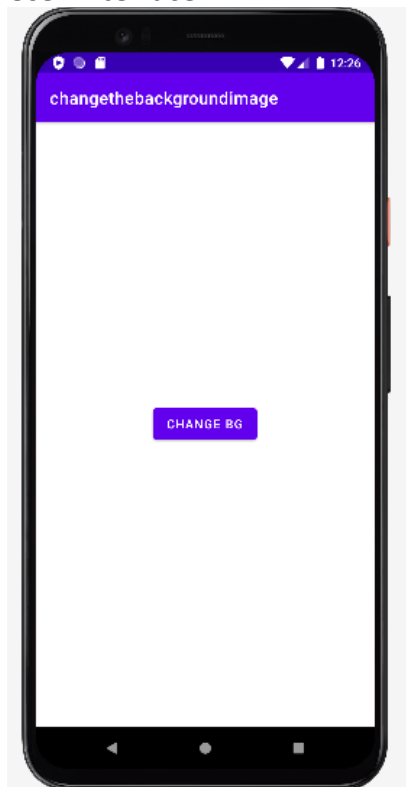
User Interface:

Output:

PROGRAM 15 — start another activity from your own activity using intent

Aim: Write a program to start another activity from your own activity using intent

Source code:

Activity_main.xml

```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/Clayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Button
        android:id="@+id/next"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Move to activity 2"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView9"
        app:layout_constraintVertical_bias="0.123" />

    <TextView
        android:id="@+id/textView9"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="292dp"
        android:text="Activity 1"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
```

```
            app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_2.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Activity2">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Activity 2"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        app:layout_constraintBottom_toTopOf="@+id/next2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.489"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.782" />

    <Button
        android:id="@+id/next2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="256dp"
        android:text="Move to Activity 1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.495"
        app:layout_constraintStart_toStartOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.start;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;


public class MainActivity extends AppCompatActivity  {

        Button activity1;

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

```java
            activity1 = findViewById(R.id.next);

            activity1.setOnClickListener(new View.OnClickListener() {
                    @Override
                    public void onClick(View view) {
                            openAvtivity2();
                    }
            });

    }

    public void openAvtivity2(){
            Intent intent = new Intent(this, Activity2.class);
            startActivity(intent);
    }




}
```

Activity2.java

```java
package com.example.start;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class Activity2 extends AppCompatActivity  {

    Button activity2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_2);

        activity2 = findViewById(R.id.next2);

        activity2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                openAvtivity1();
            }
        });

    }

    public void openAvtivity1(){
        Intent intent = new Intent(this, MainActivity.class);
        startActivity(intent);
    }
```

}

AndroidManifest.xml

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Start">
        <activity android:name=".Activity2"
            android:exported="true"/>
        <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>
```
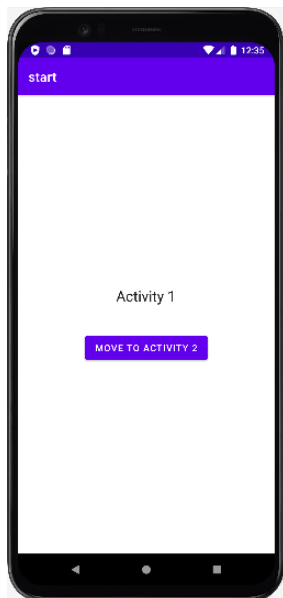
User Interface:

Output: