



Bharati Vidyapeeth's
**Institute of Management & Information
Technology**
C.B.D. Belapur, Navi Mumbai 400614

Vision:

Providing high quality, innovative and value-based education in information technology to build competent professionals.

Mission

M1. Technical Skills:-To provide solid technical foundation theoretically as well as practically capable of providing quality services to industry.

M2. Development: -Department caters to the needs of students through comprehensive educational programs and promotes lifelong learning in the field of computer Applications.

M3. Ethical Leadership: -Department develops ethical leadership insight in the students to succeed in industry, government and academia.

CERTIFICATE

This is to certify that the journal is the work of
Mr. **Sayas Sonawane** Roll No. **51** of MCA(Sem- **III** Div: **B**) for the
academic year 2022 - 2023

Subject Code: MCAL34

Subject Name: Skill based Lab Mobile Computing Lab

Subject-in-charge

Principal

Date: _____

External Examiner

Date: _____

Bharati Vidyapeeth's Institute of Management & Information Technology

MCA Semester III AY 2021-22

Subject : MCAL34 Mobile Computing Lab

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CO2	Implement various android applications using different layouts & rich user interactive interfaces
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CO4	Demonstrate their ability to develop programs with dart programming and flutter

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Module 1: Introduction to Android and it's components

Q1.) Create an android application to display the android life cycle in Logcat.

Program:

MainActivity.java

```
package com.example.logcat;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.i("Life Cycle", "OnCreate called");
    }

    @Override
    protected void onStart() {
        super.onStart();
        Log.i("Life Cycle", "OnStart called");
    }

    @Override
    protected void onResume() {
        super.onResume();
        Log.i("Life Cycle", "OnResume called");
    }

    @Override
    protected void onPause() {
        super.onPause();
        Log.i("Life Cycle", "OnPause called");
    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.i("Life Cycle", "OnStop called");
    }

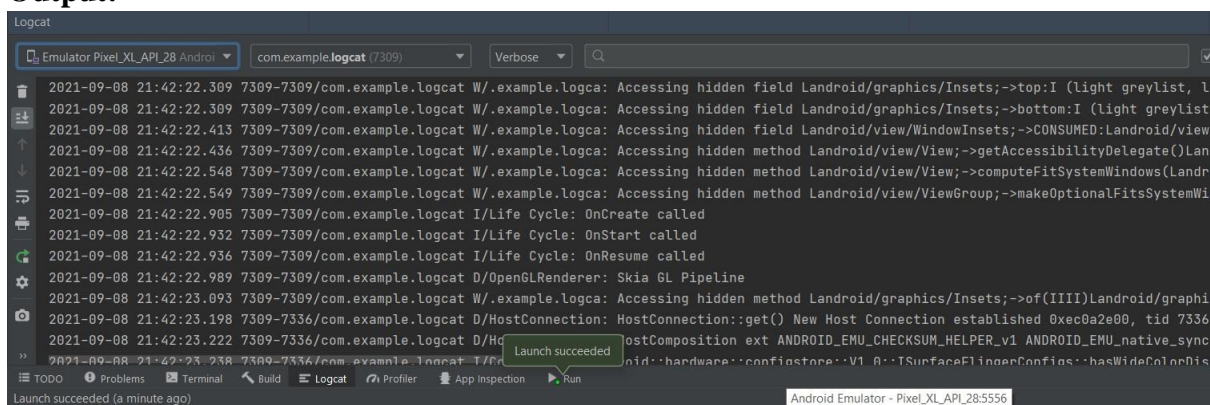
    @Override
```

```
protected void onRestart() {
    super.onRestart();
    Log.i("Life Cycle", "OnRestart called");
}
```

@Override

```
protected void onDestroy() {
    super.onDestroy();
    Log.i("Life Cycle", "OnDestroy called");
}
}
```

Output:



**Q2 A.) Create a basic calculator to perform arithmetic operations +-*/.Program:
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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/black"
    tools:context=".MainActivity">
```

```
<TextView
    android:id="@+id/TextView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Number 1"
    android:textColor="#E80D58"
    android:textSize="20sp"
    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="0.248" />
```

```
<TextView
    android:id="@+id/TextView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Number 2"
    android:textColor="#E80D58"
    android:textSize="20sp"
    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="0.336" />
```

```
<EditText
    android:id="@+id/number1"
    android:layout_width="wrap_content"
```



```

android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:hint="Enter Number"
android:textColorHint="#6E6C6C"
android:textColor="@color/white"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.809"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.229" />

```

<EditText

```

android:id="@+id/number2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:hint="Enter Number"
android:textColor="@color/white"
android:textColorHint="#6E6C6C"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.809"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.32" />

```

<Button

```

android:id="@+id/ADD_button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:background="#8F0635"
android:text="ADD"
android:textColor="@color/white"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.16"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.487" />

```

<Button

```

android:id="@+id/SUB_button"

```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:background="#053F47"
android:text="SUB"
android:textSize="20sp"
android:textColor="@color/white"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.543"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.487" />
```

<Button

```
android:id="@+id/MULT_button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:background="#430C4C"
android:text="MULT"
android:textColor="@color/white"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.877"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.487" />
```

<Button

```
android:id="@+id/DIV_button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:background="#063708"
android:text="DIV"
android:textColor="@color/white"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.543"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.589" />
```

<EditText

```
android:id="@+id/result"
android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Result"
        android:textColor="#EDD606"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.577"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.739" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.Manifest;
import android.view.View;
import android.view.accessibility.AccessibilityManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import com.google.android.material.button.MaterialButtonToggleGroup;

public class MainActivity extends AppCompatActivity {
    EditText number1;
    EditText number2;
    Button ADD_button;
    Button SUB_button;
    Button MULT_button;
    Button DIV_button;
    Button Mod_button;
    TextView result;
    int ans=0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        number1 = (EditText) findViewById(R.id.number1);
        number2 = (EditText) findViewById(R.id.number2);
    }
}

```

```

ADD_button = (Button) findViewById(R.id.ADD_button);
SUB_button = (Button) findViewById(R.id.SUB_button);
MULT_button = (Button) findViewById(R.id.MULT_button);
DIV_button = (Button) findViewById(R.id.DIV_button);
result = (EditText) findViewById(R.id.result);
ADD_button.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View view) {
        double num1 = Double.parseDouble(number1.getText().toString());
        double num2 = Double.parseDouble(number2.getText().toString());

        double sum = num1 + num2;

        result.setText(Double.toString(sum));

        number1.getText().clear();
        number2.getText().clear();
    }
});
SUB_button.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View view) {
        double num1 = Double.parseDouble(number1.getText().toString());
        double num2 = Double.parseDouble(number2.getText().toString());
        double diff = num1 - num2;
        result.setText(Double.toString(diff));

        Toast.makeText(MainActivity.this, String.valueOf(diff),
Toast.LENGTH_LONG).show();
        Toast.makeText(MainActivity.this, String.valueOf(diff),
Toast.LENGTH_SHORT).show();

        number1.getText().clear();
        number2.getText().clear();

    }
});
MULT_button.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View view) {
        double num1 = Double.parseDouble(number1.getText().toString());

```

```

        double num2 = Double.parseDouble(number2.getText().toString());

        double diff = num1 * num2;

        result.setText(Double.toString(diff));

        Toast.makeText(MainActivity.this, String.valueOf(diff),
Toast.LENGTH_LONG).show();
        Toast.makeText(MainActivity.this,
String.valueOf(diff),Toast.LENGTH_SHORT).show();

        number1.getText().clear();
        number2.getText().clear();

    }
});
DIV_button.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        double num1 = Double.parseDouble(number1.getText().toString());
        double num2 = Double.parseDouble(number2.getText().toString());

        double diff = num1 / num2;

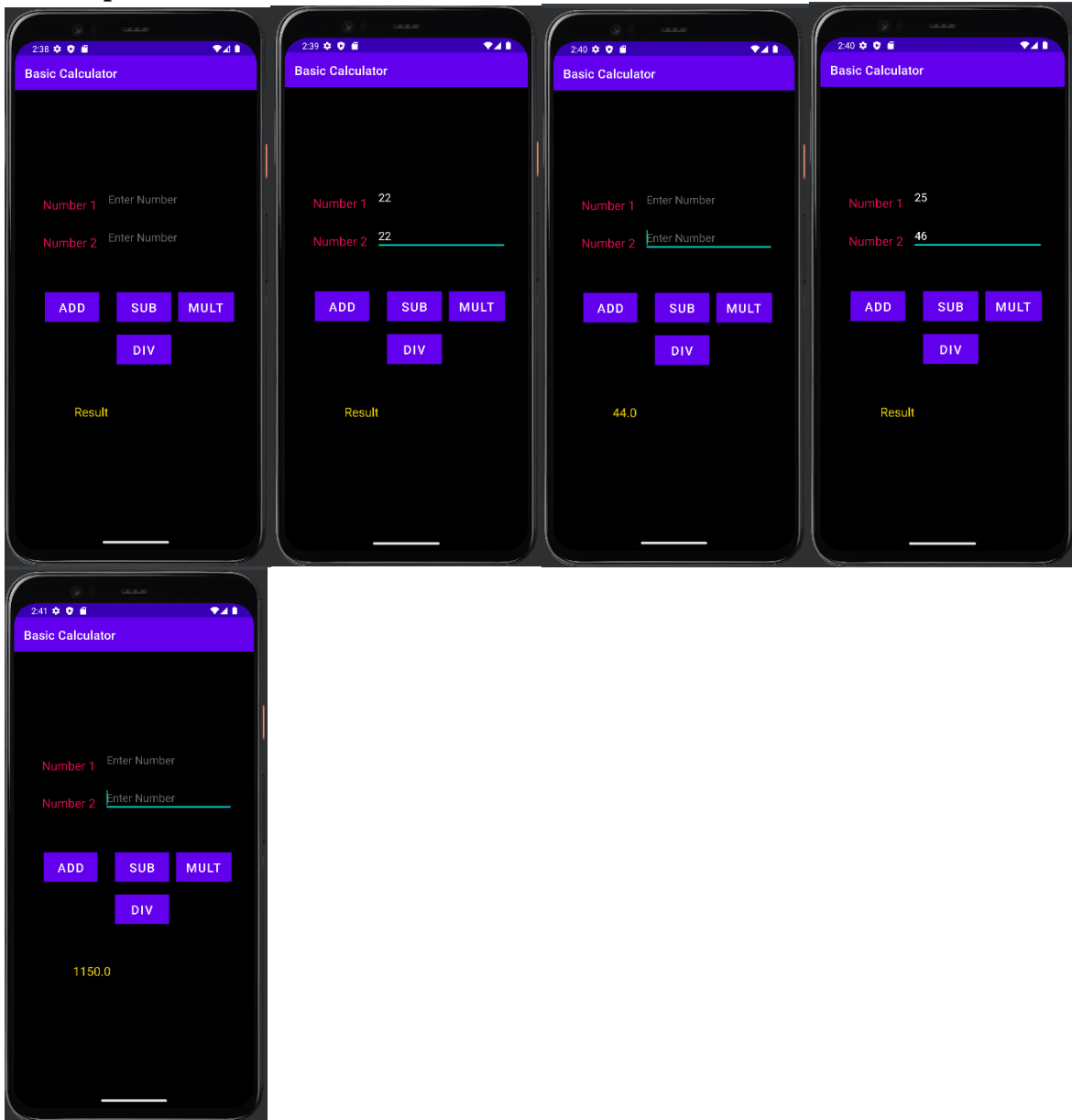
        result.setText(Double.toString(diff));

        Toast.makeText(MainActivity.this, String.valueOf(diff),
Toast.LENGTH_LONG).show();
        Toast.makeText(MainActivity.this, String.valueOf(diff),
Toast.LENGTH_SHORT).show();

        number1.getText().clear();
        number2.getText().clear();
    }
});
}
}

```

Output:



Q2 B.) Create a Registration form using LinearLayout and RelativeLayout.

Program:

activity_main.xml

```
<?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"
    android:orientation="vertical"
    android:visibility="visible"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/nextbutton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="20dp"
        android:text="next"
        tools:layout_editor_absoluteX="148dp"
        tools:layout_editor_absoluteY="393dp" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="58dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="0dp"
        android:layout_marginTop="94dp"
        android:text="Name"
        android:textSize="18sp"
        tools:layout_editor_absoluteX="16dp"
        tools:layout_editor_absoluteY="94dp" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/textView5"
        android:layout_alignParentStart="true"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
```

```
android:layout_marginStart="167dp"
android:layout_marginTop="-39dp"
android:layout_marginBottom="302dp"
android:entries="@array/country_arrays" />
```

```
<TextView
    android:id="@+id/textView3"
    android:layout_width="47dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="4dp"
    android:layout_marginTop="151dp"
    android:text="DOB"
    android:textSize="18sp"
    tools:layout_editor_absoluteX="16dp"
    tools:layout_editor_absoluteY="140dp" />
```

```
<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="2dp"
    android:layout_marginTop="317dp"
    android:layout_marginEnd="354dp"
    android:text="Gender"
    android:textSize="18sp" />
```

```
<RadioGroup
    android:id="@+id/gender"
    android:layout_width="297dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="16dp"
    android:layout_marginTop="299dp"
    android:layout_marginEnd="17dp"
    android:orientation="horizontal">
```

```
<RadioButton
    android:id="@+id/radioButton1"
```



```
    android:layout_width="115dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="30dp"
    android:layout_marginBottom="20dp"
    android:text="Female"
    android:textSize="18sp"
    tools:layout_editor_absoluteX="129dp"
    tools:layout_editor_absoluteY="182dp" />
```

```
<RadioButton
    android:id="@+id/radioButton2"
    android:layout_width="95dp"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/textView4"
    android:layout_alignParentEnd="true"
    android:layout_marginEnd="63dp"
    android:text="Male"
    android:textSize="18sp"
    tools:layout_editor_absoluteX="245dp"
    tools:layout_editor_absoluteY="182dp" />
```

```
</RadioGroup>
```

```
<TextView
    android:id="@+id/textView5"
    android:layout_width="80dp"
    android:layout_height="41dp"
    android:layout_below="@+id/switchstatus"
    android:layout_alignParentStart="true"
    android:layout_centerVertical="true"
    android:layout_marginStart="1dp"
    android:layout_marginTop="-197dp"
    android:text="Country"
    android:textSize="16sp"
    tools:layout_editor_absoluteX="16dp"
    tools:layout_editor_absoluteY="245dp" />
```

```
<EditText
    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/textView3"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="29dp"
    android:layout_marginBottom="-14dp"
    android:layout_toEndOf="@+id/textView5"
```

```
android:ems="10"
android:inputType="textPersonName"
tools:layout_editor_absoluteX="139dp"
tools:layout_editor_absoluteY="78dp" />
```

```
<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/textView2"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="29dp"
    android:layout_toEndOf="@+id/textView5"
    android:ems="10"
    android:inputType="textPersonName"
    tools:layout_editor_absoluteX="139dp"
    tools:layout_editor_absoluteY="140dp" />
```

```
<EditText
    android:id="@+id/editText4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/textView8"
    android:layout_alignStart="@+id/gender"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="15dp"
    android:layout_marginTop="212dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textSize="18sp" />
```

```
<RadioGroup
    android:id="@+id/marital"
    android:layout_width="228dp"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="159dp"
    android:layout_toEndOf="@+id/textView5">
```

```
</RadioGroup>
```

```
<TextView
    android:id="@+id/textView8"
    android:layout_width="46dp"
    android:layout_height="39dp"
```

```
android:layout_alignParentStart="true"
android:layout_alignParentTop="true"
android:layout_marginStart="-1dp"
android:layout_marginTop="222dp"
android:text="Age:"
android:textSize="18sp" />
```

```
<CheckBox
    android:id="@+id/checkBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView10"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="147dp"
    android:layout_marginTop="-14dp"
    android:layout_marginBottom="187dp"
    android:text="English"
    android:textSize="18sp" />
```

```
<TextView
    android:id="@+id/textView10"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="198dp"
    android:text="Languages:"
    android:textSize="18sp" />
```

```
<CheckBox
    android:id="@+id/checkBox2"
    android:layout_width="94dp"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/checkBox"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="43dp"
    android:layout_marginBottom="187dp"
    android:text="Hindi"
    android:textSize="18sp" />
```

```
<TextView
    android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="2dp"
android:layout_marginBottom="136dp"
android:text="Marital status:"
android:textSize="18sp" />
```

```
<Switch
    android:id="@+id/switchstatus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView6"
    android:layout_centerHorizontal="true"
    android:text="Yes"
    android:textSize="18sp" />
```

```
<TextView
    android:id="@+id/textView12"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="88dp"
    android:text="Rating:"
    android:textSize="18sp" />
```

```
<SeekBar
    android:id="@+id/seekBar"
    android:layout_width="210dp"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/gender"
    android:layout_alignBottom="@+id/textView12"
    android:layout_marginBottom="1dp"
    android:max="100" />
```

```
<TextView
    android:id="@+id/textView14"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="108dp"
    android:layout_marginTop="35dp"
    android:text="Registration Form"
    android:textSize="24sp" />
```

</RelativeLayout>

MainActivity.java

```
package com.example.uicomregistration;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.CompoundButton;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.SeekBar;
import android.widget.Spinner;
import android.widget.Switch;

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText name,dob,age;
    RadioGroup genderRadioGroup;
    CheckBox eng,hindi;
    Switch s;
    String value = "YES";
    SeekBar sb;
    public int seekBarValue;
    Spinner spinner1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.editText2);
        dob = findViewById(R.id.editText);
        age=findViewById(R.id.editText4) ;
        genderRadioGroup = findViewById(R.id.gender);
        eng=findViewById(R.id.checkBox);
        hindi=findViewById(R.id.checkBox2);
        s= findViewById(R.id.switchstatus);
        sb=findViewById(R.id.seekBar);
        spinner1 = (Spinner) findViewById(R.id.spinner);
    }
}
```

```

spinner1.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(AdapterView<?> parent, View view, int i, long l) {

    }

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

    }
});
sb.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {
        seekBarValue=progress;
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {

    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {

    }
});
s.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener() {
    @Override
    public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
        if (isChecked) {
            s.setText("YES");
            value ="YES";
            s.setTextColor(Color.GREEN);
        } else {
            s.setText("NO");
            value="NO";
            s.setTextColor(Color.RED);
        }

    }
});
b1=findViewById(R.id.nextbutton);
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

```

```

        Intent intent;
        intent=new Intent(getApplicationContext(),Nextactivity.class);
//bundle used to pass data between activities
        Bundle b = new Bundle();

//Inserts a String value into the mapping of this Bundle
        b.putString("name", name.getText().toString());
        b.putString("dob", dob.getText().toString());
        b.putString("country",String.valueOf(spinner1.getSelectedItem()));
        int id = genderRadioGroup.getCheckedRadioButtonId();
        RadioButton radioButton = findViewById(id);
        b.putString("gender", radioButton.getText().toString());
        b.putString("age", age.getText().toString());
        if(eng.isChecked() &&hindi.isChecked()){
            b.putString("language","Hindi,English");
//b.putString("eng", hindi.getText().toString());
        }
        else if(hindi.isChecked()) {
            b.putString("language", hindi.getText().toString());
        }
        else if(eng.isChecked()){
            b.putString("language", eng.getText().toString());
        }
        else
        {
            b.putString("language", "NONE");
        }
        b.putString("swi",s.getText().toString());
        b.putString("svalue", String.valueOf(sb.getProgress()));

//Add the bundle to the intent.
        intent.putExtras(b);

        startActivity(intent);

    }
});
}
}

```

activity_next.xml

```

<?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=".Nextactivity">
```

```
<TextView
    android:id="@+id/textView"
    android:layout_width="85dp"
    android:layout_height="45dp"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:text="Name:"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="16dp"
    tools:layout_editor_absoluteY="69dp" />
```

```
<TextView
    android:id="@+id/name"
    android:layout_width="177dp"
    android:layout_height="45dp"
    android:layout_alignStart="@+id/dob"
    android:layout_alignParentTop="true"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="122dp"
    tools:layout_editor_absoluteY="69dp" />
```

```
<TextView
    android:id="@+id/textView7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="2dp"
    android:layout_marginTop="77dp"
    android:text="DOB:"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="16dp"
    tools:layout_editor_absoluteY="146dp" />
```

```
<TextView
    android:id="@+id/dob"
    android:layout_width="177dp"
    android:layout_height="30dp"
    android:layout_alignTop="@+id/textView7"
    android:layout_alignParentEnd="true"
    android:layout_marginEnd="76dp"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="122dp"
```



```

tools:layout_editor_absoluteY="132dp" />

<TextView
    android:id="@+id/textView9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="2dp"
    android:layout_marginTop="239dp"
    android:text="Gender:"
    android:textSize="24sp" />

<TextView
    android:id="@+id/gender"
    android:layout_width="166dp"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView9"
    android:layout_alignParentStart="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="158dp"
    android:layout_marginTop="-2dp"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="134dp"
    tools:layout_editor_absoluteY="214dp" />

<TextView
    android:id="@+id/textView11"
    android:layout_width="91dp"
    android:layout_height="39dp"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginTop="141dp"
    android:text="Age:"
    android:textSize="24sp" />

<TextView
    android:id="@+id/age"
    android:layout_width="159dp"
    android:layout_height="31dp"
    android:layout_alignTop="@+id/textView11"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="145dp"
    android:layout_marginEnd="92dp"
    android:textSize="24sp" />

```

```
<TextView
    android:id="@+id/country"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="244dp"
    android:text="Country:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/coun"
    android:layout_width="170dp"
    android:layout_height="29dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="1dp"
    android:layout_marginBottom="244dp"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/lang"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"

    android:layout_alignParentStart="true"
    android:layout_centerVertical="true"
    android:layout_marginStart="3dp"
    android:layout_marginTop="-89dp"
    android:layout_marginBottom="1dp"
    android:text="Language:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/lang1"
    android:layout_width="170dp"
    android:layout_height="29dp"
    android:layout_alignParentEnd="true"
    android:layout_centerVertical="true"
    android:layout_marginEnd="82dp"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/textView13"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="3dp"
        android:layout_marginBottom="166dp"
        android:text="Marital:"
        android:textSize="24sp" />

```

```

<TextView
    android:id="@+id/marital"
    android:layout_width="168dp"
    android:layout_height="30dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignTop="@+id/textView13"
    android:textSize="24sp" />

```

```

<TextView
    android:id="@+id/textView15"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="1dp"
    android:layout_marginBottom="79dp"
    android:text="Rating:"
    android:textSize="24sp" />

```

```

<TextView
    android:id="@+id/rating"
    android:layout_width="173dp"
    android:layout_height="36dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignTop="@+id/textView15"
    android:textSize="24sp" />

```

```

</RelativeLayout>

```

Strings.xml

```

<resources>
    <string name="app_name">Uicomregistration</string>
    <string name="country_prompt">Choose a country</string>

    <string-array name="country_arrays">
        <item>Malaysia</item>
        <item>India</item>
        <item>United</item>
    
```

```

        <item>Indonesia</item>
        <item>France</item>
        <item>Italy</item>
        <item>New Zealand</item>
        <item> Singapore</item>
    </string-array>
</resources>

```

Nextactivity.java

```

package com.example.uicomregistration;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.PersistableBundle;
import android.widget.TextView;

public class Nextactivity extends AppCompatActivity {
    @Override
    protected void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_next);
        Bundle b = getIntent().getExtras();
        TextView name = findViewById(R.id.name);
        TextView dob = findViewById(R.id.dob);
        TextView gender = findViewById(R.id.gender);
        TextView age = findViewById(R.id.age);
        TextView lang= findViewById(R.id.lang1);
        TextView marital= findViewById(R.id.marital);
        TextView rating= findViewById(R.id.rating) ;
        TextView coun=findViewById(R.id.coun);

        name.setText(b.getCharSequence("name"));
        dob.setText(b.getCharSequence("dob"));
        gender.setText(b.getCharSequence("gender"));
        age.setText(b.getCharSequence("age"));
        lang.setText((b.getCharSequence("language")));
        marital.setText(b.getCharSequence("swi"));
        rating.setText(b.getCharSequence("svalue"));
        coun.setText(b.getCharSequence("country"));

    }
}

```

Output:

AdmissionForm

Name

DOB

Age:

Gender ☐ Female ☐ Male

Country ▼

Languages: ☐ English ☐ Hindi

Marital status: Yes ☐

NEXT

Q3.) Create a basic calculator to perform arithmetic operations +-* /

Program:

activity_main.xml

```
<?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"
    android:orientation="vertical"
    android:visibility="visible"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="13dp"
        android:layout_marginTop="172dp"
        android:text="1"
        android:textSize="24sp" />

    <Button
        android:id="@+id/button2"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="106dp"
        android:layout_marginTop="172dp"
        android:text="2"
        android:textSize="24sp" />

    <Button
        android:id="@+id/button3"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_marginStart="200dp"
        android:layout_marginTop="172dp"
        android:layout_marginEnd="139dp"
        android:text="3"
```

```
android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button4"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="13dp"
    android:layout_marginTop="236dp"
    android:text="4"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button5"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="106dp"
    android:layout_marginTop="236dp"
    android:text="5"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button6"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="200dp"
    android:layout_marginTop="236dp"
    android:layout_marginEnd="139dp"
    android:text="6"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button7"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="13dp"
    android:layout_marginTop="300dp"
    android:text="7"
```

```
<Button
    android:id="@+id/button8"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="108dp"
    android:layout_marginTop="300dp"
    android:text="8"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button9"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="200dp"
    android:layout_marginTop="300dp"
    android:layout_marginEnd="139dp"
    android:text="9"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button10"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="13dp"
    android:layout_marginTop="365dp"
    android:layout_marginEnd="324dp"
    android:text="0"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button15"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="108dp"
```



```
android:layout_marginTop="365dp"
android:layout_marginEnd="234dp"
android:text="."
android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button16"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="200dp"
    android:layout_marginTop="365dp"
    android:layout_marginEnd="139dp"
    android:text=""
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button11"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="172dp"
    android:layout_marginEnd="32dp"
    android:text="+"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button12"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="236dp"
    android:layout_marginEnd="32dp"
    android:text="-"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button13"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
```

```
android:layout_marginTop="300dp"
android:layout_marginEnd="32dp"
android:text="*"
android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button14"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="365dp"
    android:layout_marginEnd="32dp"
    android:text="/"
    android:textSize="24sp" />
```

```
<EditText
    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="74dp"
    android:ems="10"
    android:inputType="textPersonName" />
```

```
<Button
    android:id="@+id/button17"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="57dp"
    android:layout_marginBottom="130dp"
    android:text="Clear"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button18"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="60dp"
    android:layout_marginBottom="130dp"
    android:text="Exit"
```

```
        android:textSize="24sp" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.calculatorwithalertbox;
```

```
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.Button;
import android.widget.EditText;
import android.widget.Toast;
```

```
public class MainActivity extends AppCompatActivity {
    Button button0 , button1 , button2 , button3 , button4 , button5 , button6 ,
        button7 , button8 , button9,button10 , buttonAdd , buttonSub , buttonDivision ,
        buttonMul , buttonClear , buttonEqual, butExit ;
```

```
    EditText edt1 ;
```

```
    float mValueOne , mValueTwo ;
    boolean mAddition , mSubtract ,mMultiplication ,mDivision ;
```

```
@Override
```

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    button0 = (Button) findViewById(R.id.button10);
    button1 = (Button) findViewById(R.id.button1);
    button2 = (Button) findViewById(R.id.button2);
    button3 = (Button) findViewById(R.id.button3);
    button4 = (Button) findViewById(R.id.button4);
    button5 = (Button) findViewById(R.id.button5);
    button6 = (Button) findViewById(R.id.button6);
    button7 = (Button) findViewById(R.id.button7);
    button8 = (Button) findViewById(R.id.button8);
    button9 = (Button) findViewById(R.id.button9);
    button10 = (Button) findViewById(R.id.button15);
    buttonAdd = (Button) findViewById(R.id.button11);
    buttonSub = (Button) findViewById(R.id.button12);
    buttonMul = (Button) findViewById(R.id.button13);
    buttonDivision = (Button) findViewById(R.id.button14);
```

```

butExit=(Button) findViewById(R.id.button18);
buttonClear = (Button) findViewById(R.id.button18);
buttonEqual = (Button) findViewById(R.id.button16);
edt1 = (EditText) findViewById(R.id.editText);

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"1");
    }
});
button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"2");
    }
});
button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"3");
    }
});
button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"4");
    }
});
button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"5");
    }
});
button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"6");
    }
});
button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"7");
    }
});

```

```

});
button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"8");
    }
});
button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"9");
    }
});
button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"0");
    }
});
buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if (edt1 == null){
            edt1.setText("");
        }else {
            mValueOne = Float.parseFloat(edt1.getText() + "");
            mAddition = true;
            edt1.setText(null);
        }
    }
});
buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mSubtract = true ;
        edt1.setText(null);
    }
});
buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mMultiplication = true ;
        edt1.setText(null);
    }
});

```

```

});
buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText()+"");
        mDivision = true ;
        edt1.setText(null);
    }
});

buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueTwo = Float.parseFloat(edt1.getText() + "");

        if (mAddition == true) {

            edt1.setText(mValueOne + mValueTwo + "");
            mAddition = false;
        }

        if (mSubtract == true) {
            edt1.setText(mValueOne - mValueTwo + "");
            mSubtract = false;
        }

        if (mMultiplication == true) {
            edt1.setText(mValueOne * mValueTwo + "");
            mMultiplication = false;
        }
        if (mDivision == true){
            AlertDialog.Builder a1 = new AlertDialog.Builder(MainActivity.this);
            if(mValueTwo==0)
            {
                // Setting Dialog Title
                a1.setTitle("Alert INVALID Number");
                // Setting Dialog Message
                a1.setMessage("You are dividing by 0");
                a1.setPositiveButton("ok", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialog, int which) {
                        dialog.cancel();
                    }
                });
            }
            // Showing Alert Message

```

```

        AlertDialog alertDialog = a1.create();
        a1.show();
        //Toast.makeText(getApplicationContext(),"Cannot divide by
zero",Toast.LENGTH_SHORT).show();
    }
    else {
        edt1.setText(mValueOne / mValueTwo + "");
    }
    mDivision=false;
}

}

});
buttonClear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText("");
    }
});
button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+".");
    }
});
butExit.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
        builder.setTitle("calculator Alert")
            .setMessage("Are you sure, you want to continue ?")
            .setCancelable(false)
            .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(MainActivity.this,"Selected Option:
YES",Toast.LENGTH_SHORT).show();
                }
            })
            .setNegativeButton("No", new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(MainActivity.this,"Selected Option:
No",Toast.LENGTH_SHORT).show();
                }
            })
    }
}

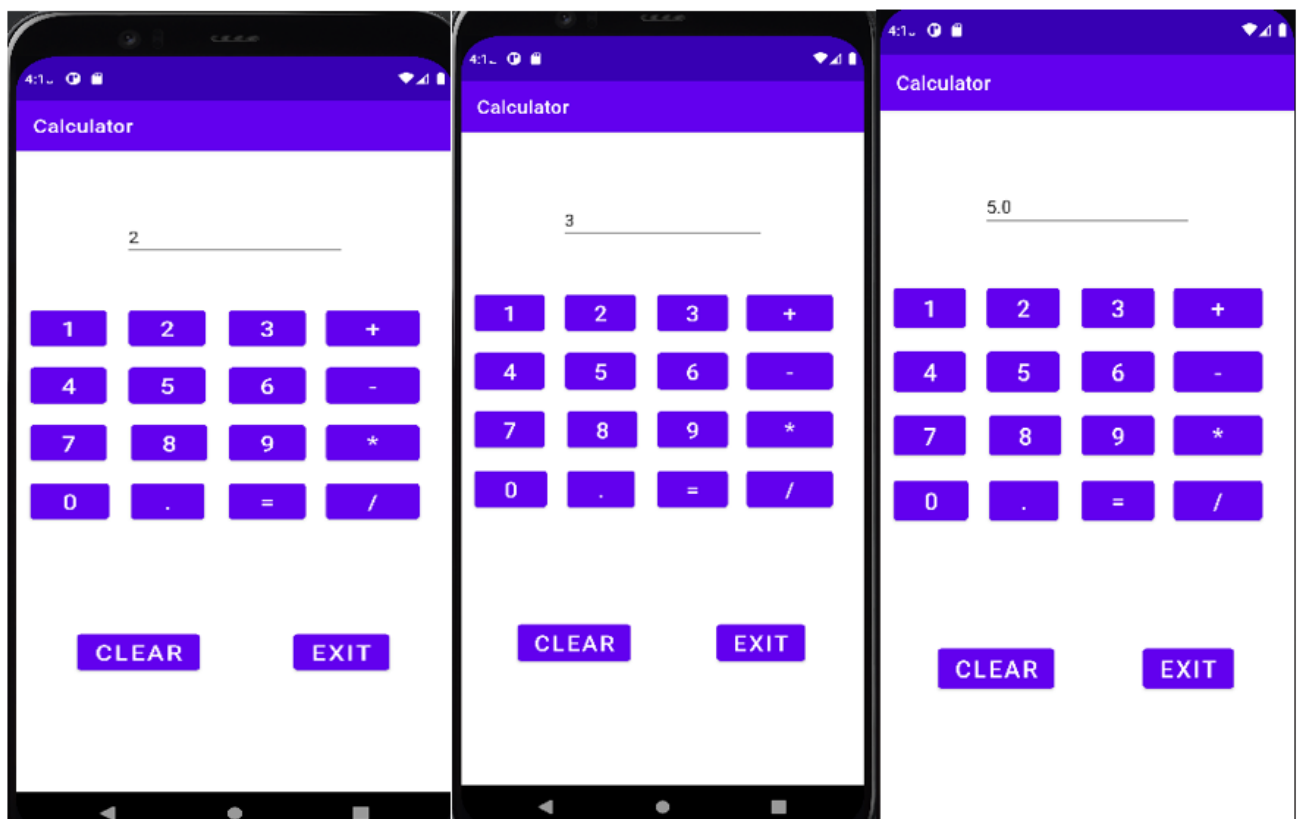
```

```

    });
    //Creating dialog box
    AlertDialog dialog = builder.create();
    dialog.show();
}
});
}
}

```

Output- Addition-



Q4.) Demonstrate the use of Implicit and Explicit intent and pass the data between two activities using intent and bundle.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Explicit Intent"
        android:textColor="#DAC723"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Name:"
        android:textColor="#DA93E4"
        android:textSize="24sp" />

    <EditText
        android:id="@+id/nameeed"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:textColor="@color/white"
        android:singleLine="true"/>

    <Button
        android:id="@+id/explicitbtn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:background="#03A9F4"
        android:text="Submit"
        android:textColor="@color/white"
        android:textSize="20sp" />
```

```

<TextView
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Implicit Intent"
    android:textColor="#FFEB3B"
    android:textSize="24sp"
    android:textStyle="bold" />

<Button
    android:id="@+id/implicitbtn"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="20dp"
    android:background="#673AB7"
    android:text="Submit"
    android:textColor="@android:color/white"
    android:textSize="20sp" />
</LinearLayout>

```

MainActivity.java

```
package com.example.implicitandexplicitintent;
```

```

import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

```

```

public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    Button explicitbtn, implicitbtn;
    EditText nameed;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        nameed = findViewById(R.id.nameed);
        explicitbtn = findViewById(R.id.explicitbtn);
        implicitbtn = findViewById(R.id.implicitbtn);
        explicitbtn.setOnClickListener(this);
        implicitbtn.setOnClickListener(this);
    }

```

```

    @Override
    public void onClick(View view) {
        switch (view.getId()){
            case R.id.explicitbtn:
                Intent intent1 = new Intent(this, WelcomeScreen.class);

```

```

        Bundle bundle1 = new Bundle();
        bundle1.putString("username", nameed.getText().toString());
        intent1.putExtras(bundle1);
        startActivity(intent1);
        break;
    case R.id.implicitbtn:
        Intent i = new Intent();
        i.setAction(Intent.ACTION_VIEW);
        i.setData(Uri.parse("https://www.google.co.in/"));
        startActivity(Intent.createChooser(i, "Title"));
        break;
    }
}
}

```

activity_welcomescreen.xml

```

<?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"
    tools:context=".WelcomeScreen"
    android:orientation="vertical"
    android:layout_margin="5dp">

    <TextView
        android:id="@+id/textView4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:text="Explicit Intent Successful!!!!!"
        android:textColor="#11022B"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/username"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp" />
</LinearLayout>

```

WelcomeScreen.java

```

package com.example.implicitandexplicitintent;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;

```

```

import android.os.PersistableBundle;
import android.widget.TextView;

public class WelcomeScreen extends AppCompatActivity {
    TextView usernametv;

    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_welcomescreen);
        usernametv = findViewById(R.id.usernametv);
        Intent intent = getIntent();
        Bundle bundle = intent.getExtras();
        usernametv.setText("Welcome "+bundle.getString("username"));
    }
}

```

Step 5: AndroidManifest.xml file

```

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

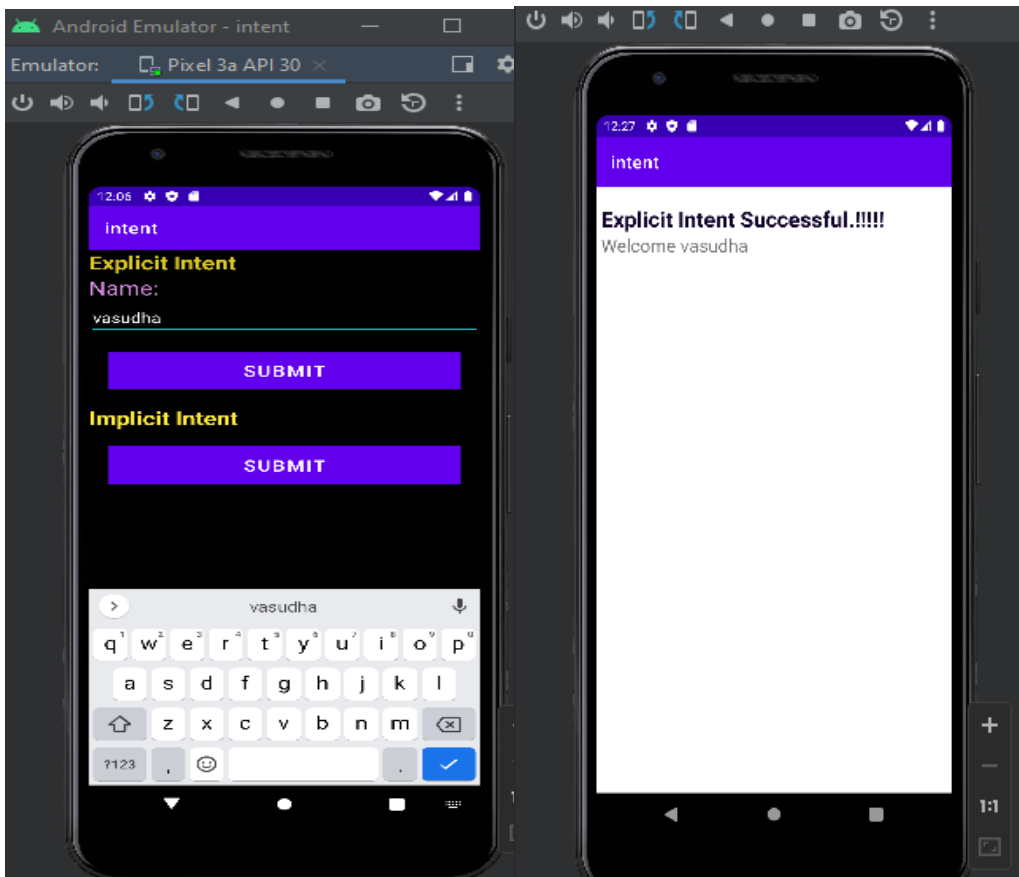
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.ImplicitAndExplicitIntent">
        <activity
            android:name=".WelcomeScreen"
            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>

```

Output:
Click on Explicit Intent → Submit Button



Q5.) Demonstrate the use of fragments And menu

Program:

activity_main.xml

```
<?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:orientation="horizontal"
    tools:context=".MainActivity">

    <fragment
        android:layout_height="match_parent"
        android:layout_width="350px"
        class="com.example.fragmentsandmenu.ListMenuFragment"
        android:id="@+id/fragment"
        tools:ignore="MissingClass" />
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        class="com.example.fragmentsandmenu.Detailsfragment"
        android:id="@+id/fragment2"/>

</LinearLayout>
```

listitems.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <ListView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@android:id/list" />

</LinearLayout>
```

details_info.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="@color/black">

    <TextView
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="#ffffff"
        android:layout_marginTop="200px"
        android:layout_marginLeft="200px"
        android:id="@+id/Name"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="200px"
    android:textColor="#ffffff"
    android:id="@+id/Location"/>
</LinearLayout>

```

activity_details_fragment.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="Detailsfragment">

</androidx.constraintlayout.widget.ConstraintLayout>

```

activity_list_menu_details.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="ListMenuFragment">

</androidx.constraintlayout.widget.ConstraintLayout>

```

Detailsfragment.java

```
package com.example.fragmentsandmenu;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class Detailsfragment extends Fragment {
    TextView name, location;

    @Nullable
    @Override
    //extended class with Fragment and used LayoutInflater to show the details of fragment
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View view = inflater.inflate(R.layout.details_info, container, false);
        name = (TextView) view.findViewById(R.id.Name);
        location = (TextView) view.findViewById(R.id.Location);
        return view;
    }

    //defined a function change() to change the text in textview.
    public void change(String uname, String ulocation) {
        name.setText(uname);
        location.setText(ulocation);
    }
}
```

ListMenuFragment.java

```
package com.example.fragmentsandmenu;
import android.icu.text.ListFormatter;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ListView;

import androidx.annotation.NonNull;
```



```

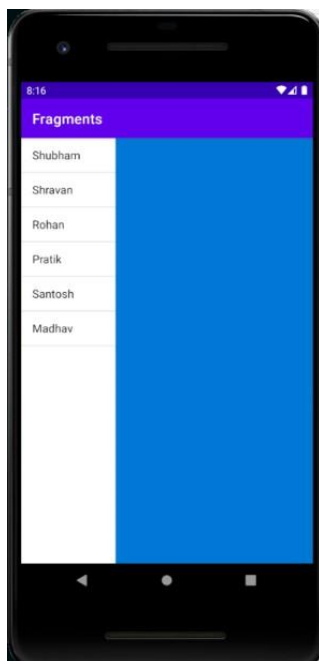
import androidx.annotation.Nullable;
import androidx.fragment.app.ListFragment;
//extended our class using ListFragment and we defined two array of strings users, location
which contains names and locations.

public class ListMenuFragment extends ListFragment {
    String[] users = new String[] { "Ravita","Pooja","Kirti","Shubham","Tanmay","Mayur" };
    String[] location = new String[]{"Panvel","Roadpali","Pune","Roha","Uran","Taloja"};

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View view =inflater.inflate(R.layout.listitems, container, false);
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(getActivity(),
            android.R.layout.simple_list_item_1, users);
        setListAdapter(adapter);
        return view;
    }
}
//onListItemClick event to update the name and location in DetailsFragment based on the list
item which we clicked.
@Override
public void onListItemClick(@NonNull ListView l, @NonNull View v, int position, long id)
{
    Detailsfragment txt =
    (Detailsfragment)getFragmentManager().findFragmentById(R.id.fragment2);
    txt.change("Name: "+ users[position],"Location : "+ location[position]);
    getListView().setSelector(android.R.color.holo_blue_dark);
}}

```

Output:



Q6.) Create a basic calculator to perform arithmetic operations with divide by zero validation. (using Alert box)

Program:

activity_main.xml

```
<?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"
    android:orientation="vertical"
    android:visibility="visible"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="13dp"
        android:layout_marginTop="172dp"
        android:text="1"
        android:textSize="24sp" />

    <Button
        android:id="@+id/button2"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="106dp"
        android:layout_marginTop="172dp"
        android:text="2"
        android:textSize="24sp" />

    <Button
        android:id="@+id/button3"
        android:layout_width="72dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_marginStart="200dp"
        android:layout_marginTop="172dp"
```

```
android:layout_marginEnd="139dp"
android:text="3"
android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button4"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="13dp"
    android:layout_marginTop="236dp"
    android:text="4"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button5"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="106dp"
    android:layout_marginTop="236dp"
    android:text="5"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button6"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="200dp"
    android:layout_marginTop="236dp"
    android:layout_marginEnd="139dp"
    android:text="6"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button7"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="13dp"
```

```
    android:layout_marginTop="300dp"
    android:text="7"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button8"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="108dp"
    android:layout_marginTop="300dp"
    android:text="8"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button9"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="200dp"
    android:layout_marginTop="300dp"
    android:layout_marginEnd="139dp"
    android:text="9"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button10"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="13dp"
    android:layout_marginTop="365dp"
    android:layout_marginEnd="324dp"
    android:text="0"
    android:textSize="24sp" />
```

```
<Button
    android:id="@+id/button15"
    android:layout_width="72dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
```

```
android:layout_alignParentEnd="true"
android:layout_marginStart="108dp"
android:layout_marginTop="365dp"
android:layout_marginEnd="234dp"
android:text="."
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button16"
android:layout_width="72dp"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginStart="200dp"
android:layout_marginTop="365dp"
android:layout_marginEnd="139dp"
android:text="="
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button11"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="172dp"
android:layout_marginEnd="32dp"
android:text="+"
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button12"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="236dp"
android:layout_marginEnd="32dp"
android:text="-"
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button13"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
```

```
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="300dp"
android:layout_marginEnd="32dp"
android:text="*"
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button14"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="365dp"
android:layout_marginEnd="32dp"
android:text="/"
android:textSize="24sp" />
```

<EditText

```
android:id="@+id/editText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentTop="true"
android:layout_centerHorizontal="true"
android:layout_marginTop="74dp"
android:ems="10"
android:inputType="textPersonName" />
```

<Button

```
android:id="@+id/button17"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="57dp"
android:layout_marginBottom="130dp"
android:text="Clear"
android:textSize="24sp" />
```

<Button

```
android:id="@+id/button18"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="60dp"
```

```

        android:layout_marginBottom="130dp"
        android:text="Exit"
        android:textSize="24sp" />
</RelativeLayout>

```

MainActivity.java

```

package com.example.calculatorwithalertbox;

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.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button button0 , button1 , button2 , button3 , button4 , button5 , button6 ,
        button7 , button8 , button9,button10 , buttonAdd , buttonSub , buttonDivision ,
        buttonMul , buttonClear , buttonEqual, butExit ;

    EditText edt1 ;

    float mValueOne , mValueTwo ;
    boolean mAddition , mSubtract ,mMultiplication ,mDivision ;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button0 = (Button) findViewById(R.id.button10);
        button1 = (Button) findViewById(R.id.button1);
        button2 = (Button) findViewById(R.id.button2);
        button3 = (Button) findViewById(R.id.button3);
        button4 = (Button) findViewById(R.id.button4);
        button5 = (Button) findViewById(R.id.button5);
        button6 = (Button) findViewById(R.id.button6);
        button7 = (Button) findViewById(R.id.button7);
        button8 = (Button) findViewById(R.id.button8);
        button9 = (Button) findViewById(R.id.button9);
        button10 = (Button) findViewById(R.id.button15);
        buttonAdd = (Button) findViewById(R.id.button11);
        buttonSub = (Button) findViewById(R.id.button12);
    }
}

```

```

buttonMul = (Button) findViewById(R.id.button13);
buttonDivision = (Button) findViewById(R.id.button14);
butExit=(Button) findViewById(R.id.button18);
buttonClear = (Button) findViewById(R.id.button18);
buttonEqual = (Button) findViewById(R.id.button16);
edt1 = (EditText) findViewById(R.id.editText);

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"1");
    }
});
button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"2");
    }
});
button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"3");
    }
});
button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"4");
    }
});
button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"5");
    }
});
button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"6");
    }
});
button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

```



```

        edt1.setText(edt1.getText()+"7");
    }
});
button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"8");
    }
});
button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"9");
    }
});
button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"0");
    }
});
buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if (edt1 == null){
            edt1.setText("");
        }else {
            mValueOne = Float.parseFloat(edt1.getText() + "");
            mAddition = true;
            edt1.setText(null);
        }
    }
});
buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mSubtract = true ;
        edt1.setText(null);
    }
});
buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mMultiplication = true ;
    }
});

```

```

        edt1.setText(null);
    }
});
buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueOne = Float.parseFloat(edt1.getText()+"");
        mDivision = true ;
        edt1.setText(null);
    }
});

buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mValueTwo = Float.parseFloat(edt1.getText() + "");

        if (mAddition == true) {

            edt1.setText(mValueOne + mValueTwo + "");
            mAddition = false;
        }

        if (mSubtract == true) {
            edt1.setText(mValueOne - mValueTwo + "");
            mSubtract = false;
        }

        if (mMultiplication == true) {
            edt1.setText(mValueOne * mValueTwo + "");
            mMultiplication = false;
        }
        if (mDivision == true){
            AlertDialog.Builder a1 = new AlertDialog.Builder(MainActivity.this);
            if(mValueTwo==0)
            {
                // Setting Dialog Title
                a1.setTitle("Alert INVALID Number");
                // Setting Dialog Message
                a1.setMessage("You are dividing by 0");
                a1.setPositiveButton("ok", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialog, int which) {
                        dialog.cancel();
                    }
                }
            }
        }
    }
});

```

```

    });
    // Showing Alert Message
    AlertDialog alertDialog = a1.create();
    a1.show();
    //Toast.makeText(getApplicationContext(),"Cannot divide by
zero",Toast.LENGTH_SHORT).show();
    }
    else {
        edt1.setText(mValueOne / mValueTwo + "");
    }
    mDivision=false;
}

}

});
buttonClear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText("");
    }
});
button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+".");
    }
});
butExit.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
        builder.setTitle("calculator Alert")
            .setMessage("Are you sure, you want to continue ?")
            .setCancelable(false)
            .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(MainActivity.this,"Selected Option:
YES",Toast.LENGTH_SHORT).show();
                }
            })
            .setNegativeButton("No", new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {

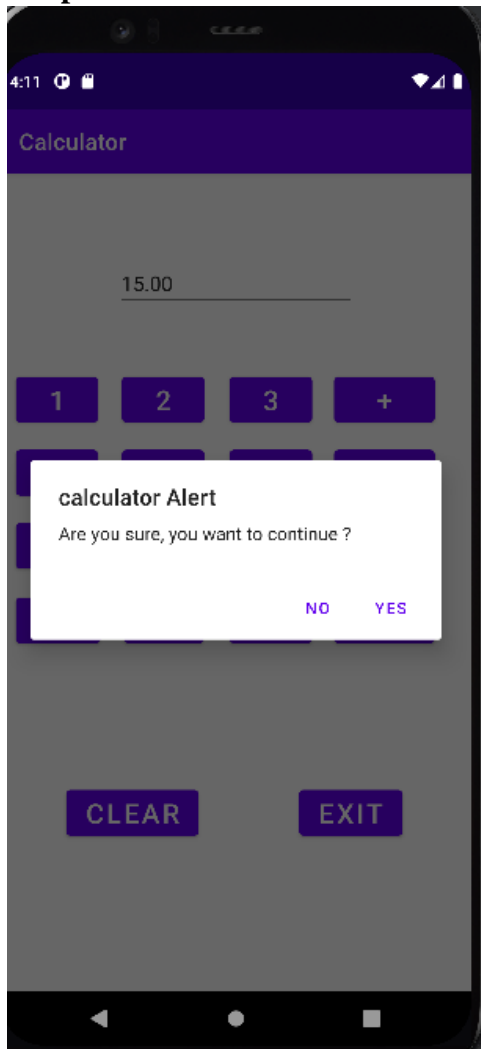
```

```

        Toast.makeText(MainActivity.this,"Selected Option:
No",Toast.LENGTH_SHORT).show();
    }
});
//Creating dialog box
AlertDialog dialog = builder.create();
dialog.show();
    }
});
}
}

```

Output-



Q7.) Create a android application for start playing music in the background when user start a service and that music will play continuously until stop the service.

Program:

activity_main.xml

```
<?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="#040304"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btnStart"
        android:layout_width="250dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="80dp"
        android:layout_marginTop="150dp"
        android:background="#600625"
        android:textColor="@color/white"
        android:onClick="startService"
        android:text="Start Service"
        android:textSize="20sp" />

    <Button
        android:id="@+id/btnstop"
        android:layout_width="250dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="80dp"
        android:layout_marginTop="20dp"
        android:background="#203A02"
        android:textColor="@color/white"
        android:onClick="stopService"
        android:text="Stop Service"
        android:textSize="20sp" />
</LinearLayout>
```

MyService.java

```
package com.example.services;
import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
```

```

import android.provider.Settings;
import android.widget.Toast;

import androidx.annotation.Nullable;
public class MyService extends Service {
    private MediaPlayer player;

    @Nullable
    @Override
    public IBinder onBind(Intent intent) {
        return null;
    }

    @Override
    public void onCreate() {
        super.onCreate();
        Toast.makeText(this, "Service was Created", Toast.LENGTH_LONG).show();
    }

    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        player = MediaPlayer.create(this, Settings.System.DEFAULT_RINGTONE_URI);
        // This will play the ringtone continuously until we stop the service.
        player.setLooping(true);
        // It will start the player
        player.start();
        Toast.makeText(this, "Service Started", Toast.LENGTH_LONG).show();
        return START_STICKY;
    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        // Stopping the player when service is destroyed
        player.stop();
        Toast.makeText(this, "Service Stopped", Toast.LENGTH_LONG).show();
    }
}

```

MainActivity.java

```

package com.example.services;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;

```

```

import android.view.View;
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    // Start the service
    public void startService(View view) {
        startService(new Intent(this, MyService.class));
    }
    // Stop the service
    public void stopService(View view) {
        stopService(new Intent(this, MyService.class));
    }
}

```

AndroidManifest.xml

```

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

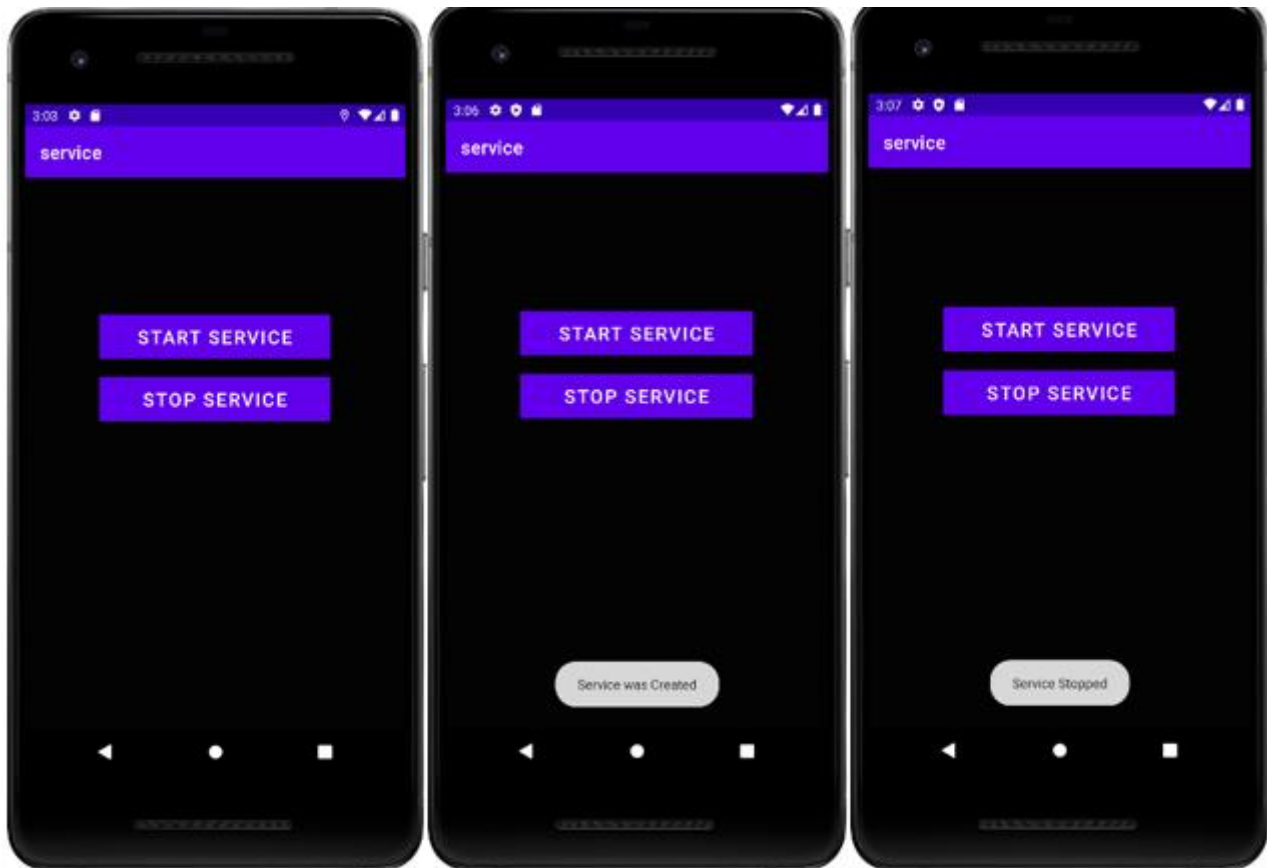
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.Services">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>

```

OUTPUT-



Q8.) Demonstration of Gallery in which display a images in ImageView.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="#8A8586"
        android:text="Animals"
        android:textSize="30dp"/>
    <Gallery
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:spacing="5dp"
        android:id="@+id/gallery1"/>
    <ImageView
        android:id="@+id/image1"
        android:layout_width="320dp"
        android:layout_height="250dp"
        android:scaleType="fitXY"/>

</LinearLayout>
```

Step 3: Open src → package → MainActivity.java

MainActivity.java

```
package com.example.imageviewgallery;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Gallery;
import android.widget.ImageView;
import android.widget.SpinnerAdapter;
```

```

public class MainActivity extends AppCompatActivity {
    // array of images
    int [] imageIDs={
        R.drawable.img1,
        R.drawable.img2,
        R.drawable.img3,
        R.drawable.img4,
        R.drawable.img5,
        R.drawable.img6,
        R.drawable.img7,
        R.drawable.img8,
        R.drawable.img9,
        R.drawable.img10,
        R.drawable.img11,
        R.drawable.img12

    };
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // get the reference of Gallery
        Gallery gallery = (Gallery) findViewById(R.id.gallery1);
        // initialize the adapter
        CustomGalleryAdapter customGalleryAdapter=new
CustomGalleryAdapter(getApplicationContext(),imageIDs);
        // set the adapter
        gallery.setAdapter((SpinnerAdapter) customGalleryAdapter);
        // get the reference of ImageView
        ImageView selectedImageView = (ImageView) findViewById(R.id.image1);
        // perform setOnItemClickListener event on the Gallery
        gallery.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                // set the selected image in the ImageView
                selectedImageView.setImageResource(imageIDs[position]);
            }
        });
    }
}

```

Step 4: Create a new class CustomGalleryAdapter.java inside package and add the following code.

CustomGalleryAdapter.java

```
package com.example.imageviewgallery;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.Gallery;
import android.widget.ImageView;

public class CustomGalleryAdapter extends BaseAdapter {
    private Context context;
    private int[] imageIDs;

    public CustomGalleryAdapter(Context c, int[] imageIDs) {
        context = c;
        this.imageIDs = imageIDs;
    }
    // returns the number of images
    @Override
    public int getCount() {
        return imageIDs.length;
    }
    // returns the ID of an item
    @Override
    public Object getItem(int position) {
        return position;
    }
    // returns the ID of an item
    @Override
    public long getItemId(int position) {
        return position;
    }
    // returns an ImageView view
    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        // create a ImageView programmatically
        ImageView imageView = new ImageView(context);
        imageView.setImageResource(imageIDs[position]); // set image in ImageView
        imageView.setLayoutParams(new Gallery.LayoutParams(400, 400)); // set ImageView
        param
        return imageView;

    }
}
```

OUTPUT-



Module 2: Basic Controls and UI Components

Q1.) Create a Registration form using following UI Components (EditText, TextView, RadioButton, CheckBox, Spinner, Button, RatingBar, DatePicker). On button click, read the above components values data programmatically and display the contents in another.

Program:

activity_main.xml

```
<?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"
    android:orientation="vertical"
    android:visibility="visible"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/nextbutton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="20dp"
        android:text="next"
        tools:layout_editor_absoluteX="148dp"
        tools:layout_editor_absoluteY="393dp" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="58dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="0dp"
        android:layout_marginTop="94dp"
        android:text="Name"
        android:textSize="18sp"
        tools:layout_editor_absoluteX="16dp"
        tools:layout_editor_absoluteY="94dp" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
android:layout_below="@id/textView5"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_centerHorizontal="true"
android:layout_marginStart="167dp"
android:layout_marginTop="-39dp"
android:layout_marginBottom="302dp"
android:entries="@array/country_arrays" />
```

```
<TextView
    android:id="@+id/textView3"
    android:layout_width="47dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="4dp"
    android:layout_marginTop="151dp"
    android:text="DOB"
    android:textSize="18sp"
    tools:layout_editor_absoluteX="16dp"
    tools:layout_editor_absoluteY="140dp" />
```

```
<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginStart="2dp"
    android:layout_marginTop="317dp"
    android:layout_marginEnd="354dp"
    android:text="Gender"
    android:textSize="18sp" />
```

```
<RadioGroup
    android:id="@+id/gender"
    android:layout_width="297dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="16dp"
    android:layout_marginTop="299dp"
    android:layout_marginEnd="17dp"
```

```
android:orientation="horizontal">
```

```
<RadioButton  
    android:id="@+id/radioButton1"  
    android:layout_width="115dp"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="30dp"  
    android:layout_marginBottom="20dp"  
    android:text="Female"  
    android:textSize="18sp"  
    tools:layout_editor_absoluteX="129dp"  
    tools:layout_editor_absoluteY="182dp" />
```

```
<RadioButton  
    android:id="@+id/radioButton2"  
    android:layout_width="95dp"  
    android:layout_height="wrap_content"  
    android:layout_alignBottom="@+id/textView4"  
    android:layout_alignParentEnd="true"  
    android:layout_marginEnd="63dp"  
    android:text="Male"  
    android:textSize="18sp"  
    tools:layout_editor_absoluteX="245dp"  
    tools:layout_editor_absoluteY="182dp" />
```

```
</RadioGroup>
```

```
<TextView  
    android:id="@+id/textView5"  
    android:layout_width="80dp"  
    android:layout_height="41dp"  
    android:layout_below="@+id/switchstatus"  
    android:layout_alignParentStart="true"  
    android:layout_centerVertical="true"  
    android:layout_marginStart="1dp"  
    android:layout_marginTop="-197dp"  
    android:text="Country"  
    android:textSize="16sp"  
    tools:layout_editor_absoluteX="16dp"  
    tools:layout_editor_absoluteY="245dp" />
```

```
<EditText  
    android:id="@+id/editText"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignBottom="@+id/textView3"
```

```
android:layout_centerHorizontal="true"
android:layout_marginStart="29dp"
android:layout_marginBottom="-14dp"
android:layout_toEndOf="@+id/textView5"
android:ems="10"
android:inputType="textPersonName"
tools:layout_editor_absoluteX="139dp"
tools:layout_editor_absoluteY="78dp" />
```

```
<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/textView2"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="29dp"
    android:layout_toEndOf="@+id/textView5"
    android:ems="10"
    android:inputType="textPersonName"
    tools:layout_editor_absoluteX="139dp"
    tools:layout_editor_absoluteY="140dp" />
```

```
<EditText
    android:id="@+id/editText4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/textView8"
    android:layout_alignStart="@+id/gender"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="15dp"
    android:layout_marginTop="212dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textSize="18sp" />
```

```
<RadioGroup
    android:id="@+id/marital"
    android:layout_width="228dp"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="159dp"
    android:layout_toEndOf="@+id/textView5">
```

```
</RadioGroup>
```



```

<TextView
    android:id="@+id/textView8"
    android:layout_width="46dp"
    android:layout_height="39dp"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="-1dp"
    android:layout_marginTop="222dp"
    android:text="Age:"
    android:textSize="18sp" />

<CheckBox
    android:id="@+id/checkBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView10"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="147dp"
    android:layout_marginTop="-14dp"
    android:layout_marginBottom="187dp"
    android:text="English"
    android:textSize="18sp" />

<TextView
    android:id="@+id/textView10"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="198dp"
    android:text="Languages:"
    android:textSize="18sp" />

<CheckBox
    android:id="@+id/checkBox2"
    android:layout_width="94dp"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/checkBox"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="43dp"
    android:layout_marginBottom="187dp"
    android:text="Hindi"
    android:textSize="18sp" />

```

```

<TextView
    android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="2dp"
    android:layout_marginBottom="136dp"
    android:text="Marital status:"
    android:textSize="18sp" />

<Switch
    android:id="@+id/switchstatus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView6"
    android:layout_centerHorizontal="true"
    android:text="Yes"
    android:textSize="18sp" />

<TextView
    android:id="@+id/textView12"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="88dp"
    android:text="Rating:"
    android:textSize="18sp" />

<SeekBar
    android:id="@+id/seekBar"
    android:layout_width="210dp"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/gender"
    android:layout_alignBottom="@+id/textView12"
    android:layout_marginBottom="1dp"
    android:max="100" />

<TextView
    android:id="@+id/textView14"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"

```

```

        android:layout_marginStart="108dp"
        android:layout_marginTop="35dp"
        android:text="Registration Form"
        android:textSize="24sp" />
</RelativeLayout>

```

MainActivity.java

```

package com.example.uicomregistration;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.CompoundButton;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.SeekBar;
import android.widget.Spinner;
import android.widget.Switch;

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText name,dob,age;
    RadioGroup genderRadioGroup;
    CheckBox eng,hindi;
    Switch s;
    String value = "YES";
    SeekBar sb;
    public int seekBarValue;
    Spinner spinner1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.editText2);
        dob = findViewById(R.id.editText);
        age=findViewById(R.id.editText4) ;
        genderRadioGroup = findViewById(R.id.gender);
    }
}

```

```

eng=findViewById(R.id.checkBox);
hindi=findViewById(R.id.checkBox2);
s= findViewById(R.id.switchstatus);
sb=findViewById(R.id.seekBar);
spinner1 = (Spinner) findViewById(R.id.spinner);

spinner1.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(AdapterView<?> parent, View view, int i, long l) {

    }

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

    }
});
sb.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {
        seekBarValue=progress;
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {

    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {

    }
});
s.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener() {
    @Override
    public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
        if (isChecked) {
            s.setText("YES");
            value ="YES";
            s.setTextColor(Color.GREEN);
        } else {
            s.setText("NO");
            value="NO";
            s.setTextColor(Color.RED);
        }
    }
}

```

```

    }
});
b1=findViewById(R.id.nextbutton);
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent intent;
        intent=new Intent(getApplicationContext(),Nextactivity.class);
//bundle used to pass data between activities
        Bundle b = new Bundle();

//Inserts a String value into the mapping of this Bundle
        b.putString("name", name.getText().toString());
        b.putString("dob", dob.getText().toString());
        b.putString("country",String.valueOf(spinner1.getSelectedItem()));
        int id = genderRadioGroup.getCheckedRadioButtonId();
        RadioButton radioButton = findViewById(id);
        b.putString("gender", radioButton.getText().toString());
        b.putString("age", age.getText().toString());
        if(eng.isChecked() && hindi.isChecked()){
            b.putString("language", "Hindi,English");
//b.putString("eng", hindi.getText().toString());
        }
        else if(hindi.isChecked()) {
            b.putString("language", hindi.getText().toString());
        }
        else if(eng.isChecked()){
            b.putString("language", eng.getText().toString());
        }
        else
        {
            b.putString("language", "NONE");
        }
        b.putString("swi",s.getText().toString());
        b.putString("svalue", String.valueOf(sb.getProgress()));

//Add the bundle to the intent.
        intent.putExtras(b);

        startActivity(intent);

    }
});
}
}

```

activity_next.xml

```
<?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=".Nextactivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="85dp"
        android:layout_height="45dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:text="Name:"
        android:textSize="24sp"
        tools:layout_editor_absoluteX="16dp"
        tools:layout_editor_absoluteY="69dp" />

    <TextView
        android:id="@+id/name"
        android:layout_width="177dp"
        android:layout_height="45dp"
        android:layout_alignStart="@+id/dob"
        android:layout_alignParentTop="true"
        android:textSize="24sp"
        tools:layout_editor_absoluteX="122dp"
        tools:layout_editor_absoluteY="69dp" />

    <TextView
        android:id="@+id/textView7"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="2dp"
        android:layout_marginTop="77dp"
        android:text="DOB:"
        android:textSize="24sp"
        tools:layout_editor_absoluteX="16dp"
        tools:layout_editor_absoluteY="146dp" />

    <TextView
        android:id="@+id/dob"
        android:layout_width="177dp"
```

```
android:layout_height="30dp"
android:layout_alignTop="@+id/textView7"
android:layout_alignParentEnd="true"
android:layout_marginEnd="76dp"
android:textSize="24sp"
tools:layout_editor_absoluteX="122dp"
tools:layout_editor_absoluteY="132dp" />
```

```
<TextView
    android:id="@+id/textView9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="2dp"
    android:layout_marginTop="239dp"
    android:text="Gender:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/gender"
    android:layout_width="166dp"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/textView9"
    android:layout_alignParentStart="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="158dp"
    android:layout_marginTop="-2dp"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="134dp"
    tools:layout_editor_absoluteY="214dp" />
```

```
<TextView
    android:id="@+id/textView11"
    android:layout_width="91dp"
    android:layout_height="39dp"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginTop="141dp"
    android:text="Age:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/age"
    android:layout_width="159dp"
    android:layout_height="31dp"
```

```
android:layout_alignTop="@+id/textView11"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="145dp"
android:layout_marginEnd="92dp"
android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/country"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="244dp"
    android:text="Country:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/coun"
    android:layout_width="170dp"
    android:layout_height="29dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="1dp"
    android:layout_marginBottom="244dp"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/lang"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"

    android:layout_alignParentStart="true"
    android:layout_centerVertical="true"
    android:layout_marginStart="3dp"
    android:layout_marginTop="-89dp"
    android:layout_marginBottom="1dp"
    android:text="Language:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/lang1"
    android:layout_width="170dp"
    android:layout_height="29dp"
    android:layout_alignParentEnd="true"
```



```
    android:layout_centerVertical="true"
    android:layout_marginEnd="82dp"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/textView13"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="3dp"
    android:layout_marginBottom="166dp"
    android:text="Marital:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/marital"
    android:layout_width="168dp"
    android:layout_height="30dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignTop="@+id/textView13"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/textView15"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="1dp"
    android:layout_marginBottom="79dp"
    android:text="Rating:"
    android:textSize="24sp" />
```

```
<TextView
    android:id="@+id/rating"
    android:layout_width="173dp"
    android:layout_height="36dp"
    android:layout_alignStart="@+id/name"
    android:layout_alignTop="@+id/textView15"
    android:textSize="24sp" />
```

```
</RelativeLayout>
```

Strings.xml

```
<resources>
    <string name="app_name">Uicomregistration</string>
    <string name="country_prompt">Choose a country</string>

    <string-array name="country_arrays">
        <item>Malaysia</item>
        <item>India</item>
        <item>United</item>
        <item>Indonesia</item>
        <item>France</item>
        <item>Italy</item>
        <item>New Zealand</item>
        <item> Singapore</item>
    </string-array>
</resources>
```

Nextactivity.java

```
package com.example.uicomregistration;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.PersistableBundle;
import android.widget.TextView;

public class Nextactivity extends AppCompatActivity {
    @Override
    protected void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_next);
        Bundle b = getIntent().getExtras();
        TextView name = findViewById(R.id.name);
        TextView dob = findViewById(R.id.dob);
        TextView gender = findViewById(R.id.gender);
        TextView age = findViewById(R.id.age);
        TextView lang= findViewById(R.id.lang1);
        TextView marital= findViewById(R.id.marital);
        TextView rating= findViewById(R.id.rating) ;
        TextView coun=findViewById(R.id.coun);

        name.setText(b.getCharSequence("name"));
        dob.setText(b.getCharSequence("dob"));
        gender.setText(b.getCharSequence("gender"));
        age.setText(b.getCharSequence("age"));
        lang.setText((b.getCharSequence("language")));
    }
}
```

```

        marital.setText(b.getCharSequence("swi"));
        rating.setText(b.getCharSequence("svalue"));
        coun.setText(b.getCharSequence("country"));

    }
}

```

OUTPUT-

The image displays three sequential screenshots of a mobile application titled "Uicomregistration".

- First Screenshot (3:11):** Shows the "Registration Form" with empty input fields for Name, DOB, Age, Gender (radio buttons for Female and Male), Country (dropdown menu showing Malaysia), Languages (checkboxes for English and Hindi), Marital status (toggle switch for Yes), and Rating (slider). A "NEXT" button is at the bottom.
- Second Screenshot (3:19):** Shows the form with data entered: Name: John Doe, DOB: 12/4/2001, Age: 21, Gender: Male (selected), Country: Singapore, Languages: English (checked), Marital status: YES (toggled), and Rating: 73. A "NEXT" button is at the bottom.
- Third Screenshot (3:20):** Shows the final confirmation screen with the data: Name: John Doe, DOB: 12/4/2001, Age: 21, Gender: Male, Language: English, Country: Singapore, Marital: YES, and Rating: 73.

Q2.) Create App to demonstrate use of DATEPICKER, TIMEPICKER, AND Analog Digital CLOCKS.

Program:

activity_main.xml

```
<?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="#050505"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <AnalogClock
        android:id="@+id/analogClock1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_marginLeft="136dp" />

    <DigitalClock
        android:id="@+id/digitalClock1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/analogClock1"
        android:layout_centerHorizontal="true"
        android:layout_marginLeft="176dp"
        android:layout_marginTop="84dp"
        android:text="DigitalClock"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textColor="#FA0155" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:orientation="horizontal">

        <Button
            android:id="@+id/date"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="20dp"
```

```
    android:background="#7E4B5C"
    android:padding="10dp"
    android:text="select date"
    android:textColor="@color/black"
    android:textSize="18sp"
    android:textStyle="bold" />
```

```
<Button
```

```
    android:id="@+id/time"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="20dp"
    android:background="#8F8E91"
    android:padding="10dp"
    android:text="select Time"
    android:textColor="#000000"
    android:textSize="18sp"
    android:textStyle="bold" />
```

```
</LinearLayout>
```

```
<TextView
```

```
    android:id="@+id/tv_date"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:gravity="center"
    android:hint="Select Date..."
    android:text="Date"
    android:textColor="#E3B11C"
    android:textSize="16sp" />
```

```
<TextView
```

```
    android:id="@+id/tv_time"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:gravity="center"
    android:hint="Select Time..."
    android:text="Time"
    android:textColor="#FFC107"
    android:textSize="16sp" />
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.datepicker;

import androidx.appcompat.app.AppCompatActivity;
import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;
import android.widget.TimePicker;
import java.util.Calendar;

public class MainActivity extends AppCompatActivity {
    private int year, month, day, hour, minute;
    TextView tv_date, tv_time;
    Button date, time;

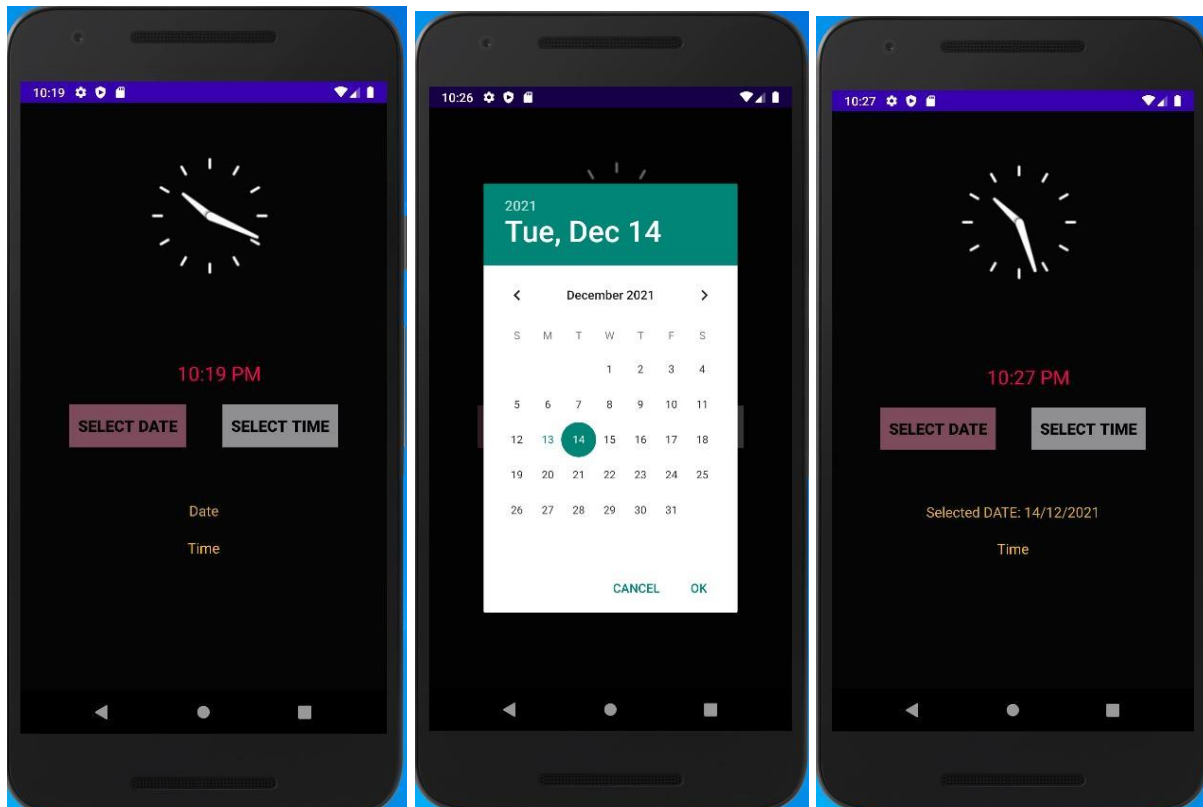
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //initiate the edit text n button
        tv_date = findViewById(R.id.tv_date);
        tv_time = findViewById(R.id.tv_time);
        date = findViewById(R.id.date);
        time = findViewById(R.id.time);
        // perform click event listener on edit text
        date.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                //calender class's instance and get current date , month and year from calender
                final Calendar c = Calendar.getInstance();
                year = c.get(Calendar.YEAR);// current year
                month = c.get(Calendar.MONTH);
                day = c.get(Calendar.DAY_OF_MONTH);
                // date picker dialog
                DatePickerDialog picker = new DatePickerDialog(MainActivity.this, new
                DatePickerDialog.OnDateSetListener() {
                    @Override
                    public void onDateSet(DatePicker datePicker, int year, int month, int day) {
                        // set day of month , month and year value in the edit text
                        tv_date.setText("Selected DATE: "+day+"/"+(month+1)+"/"+year);
                    }
                });
            }
        });
    }
}
```

```

        }, year, month, day);
        picker.show();
    }
});
// perform click event listener on edit text
time.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        final Calendar c = Calendar.getInstance();
        hour = c.get(Calendar.HOUR_OF_DAY);
        minute = c.get(Calendar.MINUTE);
        // time picker dialog
        TimePickerDialog timePickerDialog = new TimePickerDialog(MainActivity.this,
        new TimePickerDialog.OnTimeSetListener() {
            @Override
            public void onTimeSet(TimePicker timePicker, int hours, int min) {
                tv_time.setText("Selected Time: "+ hour+":"+min);
            }
        }, hour, minute, false); // No 24 hour time
        timePickerDialog.show();
    }
});
});

```

OUTPUT-



Q3.) Create an application for unit conversion (Length/Weight/Currency/Temperature).

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:padding="20sp"
    android:gravity="center"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/lengthConverterButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#050C35"
        android:text="Length Conveter"
        android:textColor="@color/white"
        android:textSize="24sp" />

    <Button
        android:id="@+id/weightConverterButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#00BCD4"
        android:text="Weigth Conveter"
        android:textColor="@color/white"
        android:textSize="24sp" />

    <Button
        android:id="@+id/currencyConverterButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#9F0438"
        android:text="Currency Conveter"
        android:textColor="@color/white"
        android:textSize="24sp" />

    <Button
        android:id="@+id/temperatureConverterButton"
        android:layout_width="match_parent"
```



```

        android:layout_height="wrap_content"
        android:background="#345013"
        android:text="Temperature Conveter"
        android:textColor="@color/white"
        android:textSize="24sp" />
    </LinearLayout>

```

activity_currency.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="20dp">

    <EditText
        android:id="@+id/indianEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Enter in Indian RS" />

    <Button
        android:id="@+id/usdButton"
        android:layout_width="160dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:background="#4A0457"
        android:text="Convert to USD"
        android:textColor="@color/white"/>

    <TextView
        android:id="@+id/resultusdTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:visibility="gone"
        android:layout_marginTop="16dp"
        android:textSize="15sp"
        android:textStyle="bold"
        android:textColor="#000" />

    <Button
        android:id="@+id/poundButton"
        android:layout_width="160dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"

```

```
    android:background="#EA9210"
    android:text="Convert to Pound"
    android:textColor="@color/white"/>
```

```
<TextView
    android:id="@+id/resultpoundTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
    android:id="@+id/yenButton"
    android:layout_width="160dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#02EF0C"
    android:text="Convert to Yen"
    android:textColor="@color/white"/>
```

```
<TextView
    android:id="@+id/resultyenTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
</LinearLayout>
```

activity_length.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
```

```
<EditText
    android:id="@+id/metersEditText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
```

```
    android:hint="Enter length in meters" />
```

```
<Button
```

```
    android:id="@+id/kilometersButton"
    android:layout_width="170dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#252205"
    android:text="Convert to KM"
    android:textColor="@color/white"/>
```

```
<TextView
```

```
    android:id="@+id/resultkmTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
```

```
    android:id="@+id/centimetersButton"
    android:layout_width="170dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#3A0417"
    android:text="Convert to CM"
    android:textColor="@color/white"/>
```

```
<TextView
```

```
    android:id="@+id/resultcmTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
```

```
    android:id="@+id/inchButton"
    android:layout_width="170dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#D3830D"
```

```
android:text="Convert to Inches"
android:textColor="@color/white"/>
```

```
<TextView
    android:id="@+id/resultinchesTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
</LinearLayout>
```

activity_temperature.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="20dp">
```

```
<EditText
    android:id="@+id/celciusEditText"
    android:layout_width="258dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter temperature in Celcius"
    android:inputType="textPersonName" />
```

```
<Button
    android:id="@+id/fahrenheitButton"
    android:layout_width="270dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#FD0257"
    android:text="Convert to Fahrenheit"
    android:textColor="@color/white"
    android:textSize="20sp" />
```

```
<TextView
    android:id="@+id/resultfahrenheitTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
```

```
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
    android:id="@+id/kelvinButton"
    android:layout_width="270dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#417307"
    android:text="Convert to Kelvin"
    android:textColor="@color/white"
    android:textSize="20sp" />
```

```
<TextView
    android:id="@+id/resultkelvinTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
</LinearLayout>
```

activity_weight.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="20dp">
```

```
    <EditText
        android:id="@+id/gramsEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter weight in grams" />
```

```
    <Button
        android:id="@+id/kgButton"
        android:layout_width="161dp"
        android:layout_height="wrap_content"
```

```
android:layout_marginTop="16dp"
android:background="#0B406A"
android:textColor="@color/white"
android:text="Convert to KG" />
```

```
<TextView
    android:id="@+id/resultkgTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
    android:id="@+id/poundButton"
    android:layout_width="161dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#AC850F"
    android:text="Convert to Pound"
    android:textColor="@color/white" />
```

```
<TextView
    android:id="@+id/resultpoundTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:visibility="gone"
    android:layout_marginTop="16dp"
    android:textSize="15sp"
    android:textStyle="bold"
    android:textColor="#000" />
```

```
<Button
    android:id="@+id/tonneButton"
    android:layout_width="161dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:background="#426E0F"
    android:textColor="@color/white"
    android:text="Convert to Ounce" />
```

```
<TextView
    android:id="@+id/resultTonneTextView"
    android:layout_width="match_parent"
```

```

        android:layout_height="wrap_content"
        android:visibility="gone"
        android:layout_marginTop="16dp"
        android:textSize="15sp"
        android:textStyle="bold"
        android:textColor="#000" />
</LinearLayout>

```

MainActivity.java

```

package com.example.unitconversion;

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 {
    private Button lengthConverterButton;
    private Button weightConverterButton;
    private Button currencyConverterButton;
    private Button temperatureConverterButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        lengthConverterButton = findViewById(R.id.lengthConverterButton);
        weightConverterButton = findViewById(R.id.weightConverterButton);
        currencyConverterButton = findViewById(R.id.currencyConverterButton);
        temperatureConverterButton = findViewById(R.id.temperatureConverterButton);
        lengthConverterButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(MainActivity.this,LengthConverter.class);
                startActivity(i);
            }
        });
        weightConverterButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(MainActivity.this,WeightConverter.class);
                startActivity(i);
            }
        });
        currencyConverterButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

```

```

        Intent i=new Intent(MainActivity.this,CurrencyConverter.class);
        startActivity(i);

    }
});

temperatureConverterButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent i=new Intent(MainActivity.this,TemperatureConverter.class);
        startActivity(i);
    }
});
}
}

```

CurrencyConverter.java

```

package com.example.unitconversion;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

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

public class CurrencyConverter extends AppCompatActivity {
    private EditText indianEditText;
    private Button usdButton;
    private Button poundButton;
    private Button yenButton;
    private TextView resultusdTextView;
    private TextView resultpoundTextView;
    private TextView resultyenTextView;

    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_currency);
        indianEditText = findViewById(R.id.indianEditText);
        usdButton = findViewById(R.id.usdButton);
        poundButton = findViewById(R.id.poundButton);
        yenButton = findViewById(R.id.yenButton);
        resultusdTextView = findViewById(R.id.resultusdTextView);
        resultpoundTextView = findViewById(R.id.resultpoundTextView);
        resultyenTextView = findViewById(R.id.resultyenTextView);
    }
}

```



```

        usdButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int rs = Integer.parseInt(indianEditText.getText().toString());
                double usd = rs * 0.014;
                resultusdTextView.setVisibility(View.VISIBLE);
                resultusdTextView.setText(rs + " RS to USD = " + usd);
            }
        });
        poundButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int rs = Integer.parseInt(indianEditText.getText().toString());
                double pound = rs * 0.0099;
                resultpoundTextView.setVisibility(View.VISIBLE);
                resultpoundTextView.setText(rs + " RS to Pound = " + pound);
            }
        });
        yenButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int rs = Integer.parseInt(indianEditText.getText().toString());
                double yen = rs * 1.49;
                resultyenTextView.setVisibility(View.VISIBLE);
                resultyenTextView.setText(rs + " RS to Yen = " + yen);
            }
        });
    }
}

```

LengthConverter.java

```

package com.example.unitconversion;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

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

public class LengthConverter extends AppCompatActivity {
    private EditText metersEditText;
    private Button kilometersButton;

```

```

private Button centimetersButton;
private Button inchButton;
private TextView resultkmTextView;
private TextView resultcmTextView;
private TextView resultinchesTextView;

@Override
public void onCreate(@Nullable Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_length);
    metersEditText = findViewById(R.id.metersEditText);
    kilometersButton = findViewById(R.id.kilometersButton);
    centimetersButton = findViewById(R.id.centimetersButton);
    inchButton = findViewById(R.id.inchButton);
    resultkmTextView = findViewById(R.id.resultkmTextView);
    resultcmTextView = findViewById(R.id.resultcmTextView);
    resultinchesTextView = findViewById(R.id.resultinchesTextView);

    kilometersButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int meters = Integer.parseInt(metersEditText.getText().toString());
            double km = meters * 0.001;
            resultkmTextView.setVisibility(View.VISIBLE);
            resultkmTextView.setText(meters + " meters to KM = " +km);
        }
    });
    centimetersButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int meters = Integer.parseInt(metersEditText.getText().toString());
            double cm = meters * 100;
            resultcmTextView.setVisibility(View.VISIBLE);
            resultcmTextView.setText(meters + " meters to CM = " +cm);
        }
    });
    inchButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int meters = Integer.parseInt(metersEditText.getText().toString());
            double inches = meters * 39.3701;
            resultinchesTextView.setVisibility(View.VISIBLE);
            resultinchesTextView.setText(meters + " meters to inches = " +inches);
        }
    });
}

```

```
}
```

TemperatureConverter.java

```
package com.example.unitconversion;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

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

public class TemperatureConverter extends AppCompatActivity {
    private EditText celciusEditText;
    private Button fahrenheitButton;
    private Button kelvinButton;
    private TextView resultfahrenheitTextView;
    private TextView resultkelvinTextView;

    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_temperature);
        celciusEditText = findViewById(R.id.celciusEditText);
        fahrenheitButton = findViewById(R.id.fahrenheitButton);
        kelvinButton = findViewById(R.id.kelvinButton);
        resultfahrenheitTextView = findViewById(R.id.resultfahrenheitTextView);
        resultkelvinTextView = findViewById(R.id.resultkelvinTextView);

        fahrenheitButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int celcius = Integer.parseInt(celciusEditText.getText().toString());
                double fah = celcius * 32;
                resultfahrenheitTextView.setVisibility(View.VISIBLE);
                resultfahrenheitTextView.setText(celcius + " celcius to fahrenheit = " + fah);
            }
        });
        kelvinButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int celcius = Integer.parseInt(celciusEditText.getText().toString());
                double kelvin = celcius * 273.15;
                resultkelvinTextView.setVisibility(View.VISIBLE);
            }
        });
    }
}
```

```

        resultkelvinTextView.setText(celcius + " celcius to kelvin = " +kelvin);
    }
});

}
}

```

WeightConverter.java

```

package com.example.unitconversion;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

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

public class WeightConverter extends AppCompatActivity {
    private EditText gramsEditText;
    private Button kgButton;
    private Button poundButton;
    private Button tonneButton;
    private TextView resultkgTextView;
    private TextView resultpoundTextView;
    private TextView resultTonneTextView;

    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_weight);
        gramsEditText = findViewById(R.id.gramsEditText);
        kgButton = findViewById(R.id.kgButton);
        poundButton = findViewById(R.id.poundButton);
        tonneButton = findViewById(R.id.tonneButton);
        resultkgTextView = findViewById(R.id.resultkgTextView);
        resultpoundTextView = findViewById(R.id.resultpoundTextView);
        resultTonneTextView = findViewById(R.id.resultTonneTextView);

        kgButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int grams = Integer.parseInt(gramsEditText.getText().toString());
                double kg = grams * 0.001;
                resultkgTextView.setVisibility(View.VISIBLE);
            }
        });
    }
}

```

```

        resultkgTextView.setText(grams + " grams to KM = " +kg);
    }
});
poundButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        int grams = Integer.parseInt(gramsEditText.getText().toString());
        double pound = grams * 0.00220462;
        resultpoundTextView.setVisibility(View.VISIBLE);
        resultpoundTextView.setText(grams + " grams to pound = " +pound);
    }
});
tonneButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        int grams = Integer.parseInt(gramsEditText.getText().toString());
        double tonne = grams * 9.9999;
        resultTonneTextView.setVisibility(View.VISIBLE);
        resultTonneTextView.setText(grams + " grams to tonnes = " +tonne);
    }
});
}
}

```

AndroidManifest.xml

```

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

    <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.UnitConversion">
        <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>

```

```

        </intent-filter>
    </activity>
    <activity
        android:name=".TemperatureConverter"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity
        android:name=".WeightConverter"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

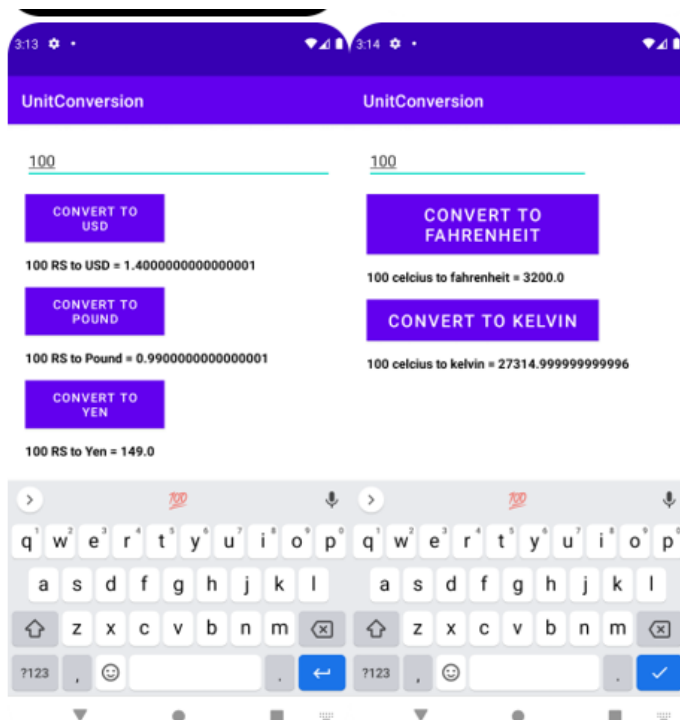
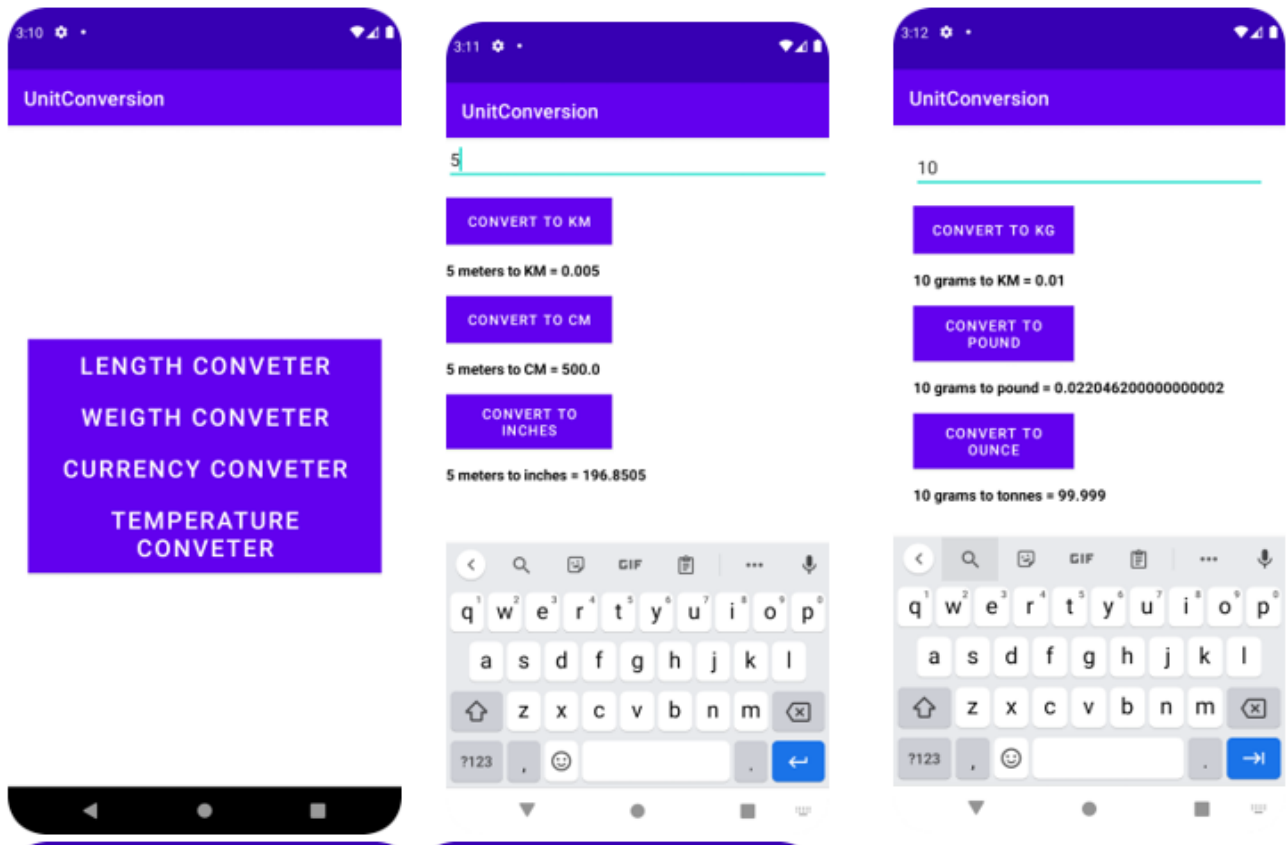
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity
        android:name=".CurrencyConverter"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity
        android:name=".LengthConverter"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

```

OUTPUT-



Q4.) create app using GridView to show the position of a particular image and when clicking on it to show the selected grid image in full.

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<GridView 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:id="@+id/gridview"
android:columnWidth="110dp"
android:numColumns="auto_fit"
android:verticalSpacing="10dp"
android:horizontalSpacing="10dp"
android:stretchMode="columnWidth"
android:gravity="center"
tools:context=".MainActivity">
</GridView>
```

ImageAdapter.java

```
package com.example.gridviewgallery;
import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;
public class ImageAdapter extends BaseAdapter {
private Context mContext;
public ImageAdapter(Context c) {
mContext = c;
}

@Override
public int getCount() {
return thumbImages.length;
}
@Override
public Object getItem(int position) {
return null;
}
@Override
public long getItemId(int position) {
return 0;
}
@Override
public View getView(int position, View convertView, ViewGroup parent) {
ImageView imageView = new ImageView(mContext);
imageView.setLayoutParams(new GridView.LayoutParams(200, 200));
imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
imageView.setPadding(8, 8, 8, 8);
imageView.setImageResource(thumbImages[position]);
return imageView;
}
public Integer[] thumbImages = {
R.drawable.n1, R.drawable.n3, //n1,n2 image names
R.drawable.n4, R.drawable.n5,
```



```
R.drawable.n6, R.drawable.n7,
```

```
};  
}
```

MainActivity.java

```
package com.example.gridviewgallery;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.AdapterView;  
import android.widget.AdapterView.OnItemClickListener;  
import android.widget.Toast;  
public class MainActivity extends AppCompatActivity {  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
        // we are binding image details to GridView using our custom adapter  
        GridView gv =(GridView) findViewById(R.id.gridview);  
        gv.setAdapter(new ImageAdapter(this));  
        gv.setOnItemClickListener(new AdapterView.OnItemClickListener() {  
            @Override  
            public void onItemClick(AdapterView<?> parent, View view, int position, long id)  
            {  
                //display position  
                Toast.makeText(MainActivity.this, "Image Position: " + position,  
                    Toast.LENGTH_SHORT).show();  
                // Sending image id to FullScreenActivity  
                Intent i = new Intent(getApplicationContext(), FullImageActivity.class);  
                // passing array index  
                i.putExtra("id", position);  
                startActivity(i);  
            }  
        });  
    }  
}
```

image_details.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:orientation="vertical">  
    <ImageView android:id="@+id/full_image_view"  
        android:layout_width="match_parent"  
        android:layout_height="match_parent" />  
</LinearLayout>
```

FullImageActivity.java

```
package com.example.gridviewgallery;  
import android.app.Activity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.os.PersistableBundle;  
import android.widget.ImageView;  
import androidx.annotation.Nullable;
```

```

public class FullImageActivity extends Activity {
    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.image_details);
        // Get intent data
        Intent i = getIntent();
        // Get Selected Image Id
        int position = i.getExtras().getInt("id");
        ImageAdapter imageAdapter = new ImageAdapter(this);
        ImageView imageView = (ImageView) findViewById(R.id.full_image_view);
        imageView.setImageResource(imageAdapter.thumbImages[position]);
    }
}

```

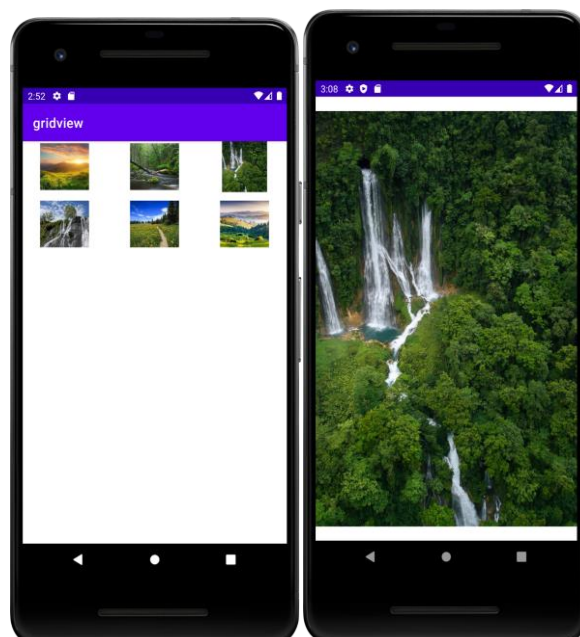
AndroidManifest.xml

```

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.Grid ViewGallery">
        <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>
        <activity android:name=".FullImageActivity"></activity>
    </application>
</manifest>

```



OUTPUT-

Module 3: Database Connectivity

Q1.) Create a login application with remember me checkbox. On successful login Store username and password if the checkbox is checked in sharedPreferences.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:padding="20dp"
    android:background="@color/black"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:paddingBottom="20dp"
        android:inputType="textPersonName"
        android:textColor="@color/white"
        android:hint="Enter the username" />

    <EditText
        android:id="@+id/passwordEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPassword"
        android:paddingBottom="20dp"
        android:textColor="@color/white"
        android:hint="Enter the password"/>

    <CheckBox
        android:id="@+id/remembermeCheckBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textColor="@color/white"
        android:text="Remember Me" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
```

```
android:orientation="horizontal">
```

```
<Button
    android:id="@+id/loginButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:background="#386307"
    android:text="Login"
    android:textSize="20sp" />
```

```
<Button
    android:id="@+id/clearButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:background="#203309"
    android:text="Clear"
    android:textSize="20sp" />
```

```
</LinearLayout>
```

```
</LinearLayout>
```

welcome.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".welcome">
```

```
<TextView
    android:id="@+id/resultView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="170dp"
    android:textColor="#EAB413"
    android:textSize="24dp" />
```

```
<Button
    android:id="@+id/btnLogOut"
    android:layout_width="145dp"
    android:layout_height="wrap_content"
```

```

        android:layout_gravity="center"
        android:layout_marginTop="20dp"
        android:background="#490B53"
        android:text="Log Out"
        android:textSize="24sp" />
</LinearLayout>

```

MainActivity.java

```

package com.example.loginapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText uname, pwd;
    Button loginBtn, clrBtn;
    CheckBox rememberMe;
    SharedPreferences pref;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        uname = findViewById(R.id.usernameEditText);
        pwd = findViewById(R.id.passwordEditText);
        loginBtn = findViewById(R.id.loginButton);
        clrBtn = findViewById(R.id.clearButton);
        rememberMe = findViewById(R.id.remembermeCheckBox);
        pref = getSharedPreferences("user_details", MODE_PRIVATE);

        Intent intent=new Intent(MainActivity.this,welcome.class);
        if(isAlreadyLoggedIn()) {
            String email_pref = pref.getString("username", "");
            String pswd_pref = pref.getString("pswd", "");
            uname.setText(email_pref);
            pwd.setText(pswd_pref);
        }
        loginBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String username = uname.getText().toString();

```

```

String password = pwd.getText().toString();
if(username.equals("Ravita") && password.equals("ravita123")){
    //To Store Data
    if(rememberMe.isChecked()) {

        pref.edit().putString("username", username).apply();
        pref.edit().putString("pswd", password).apply();
    }

    Toast.makeText(getApplicationContext(),"Login
Successful",Toast.LENGTH_SHORT).show();
    startActivity(intent);
}
else
{
    Toast.makeText(getApplicationContext(),"Credentials are not
valid",Toast.LENGTH_SHORT).show();
}
}
});
clrBtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        pref.edit().clear().apply();
        uname.setText("");
        pwd.setText("");
    }
});
}

private boolean isAlreadyLoggedIn() {
    return pref.contains("username") && pref.contains("password");
}
}

```

welcome.java

```

package com.example.loginapplication;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import java.lang.invoke.ConstantCallSite;

```

```

public class welcome extends AppCompatActivity {
    SharedPreferences prf;
    Intent intent;
    @SuppressWarnings("SetTextI18n")
    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.welcome);
        TextView result = findViewById(R.id.resultView);
        Button btnLogOut = findViewById(R.id.btnLogOut);
        prf = getSharedPreferences("user_details",MODE_PRIVATE);
        intent = new Intent(welcome.this,MainActivity.class);
        result.setText("Hello, "+prf.getString("username",null));

        btnLogOut.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                SharedPreferences.Editor editor = prf.edit();
                editor.clear();
                editor.apply();
                startActivity(intent);
            }
        });
    }
}

```

AndroidManifest.xml

```

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.LoginApplication">

        <activity
            android:name=".welcome"
            android:exported="true" android:label="SharedPreferences_Details" />

        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

```

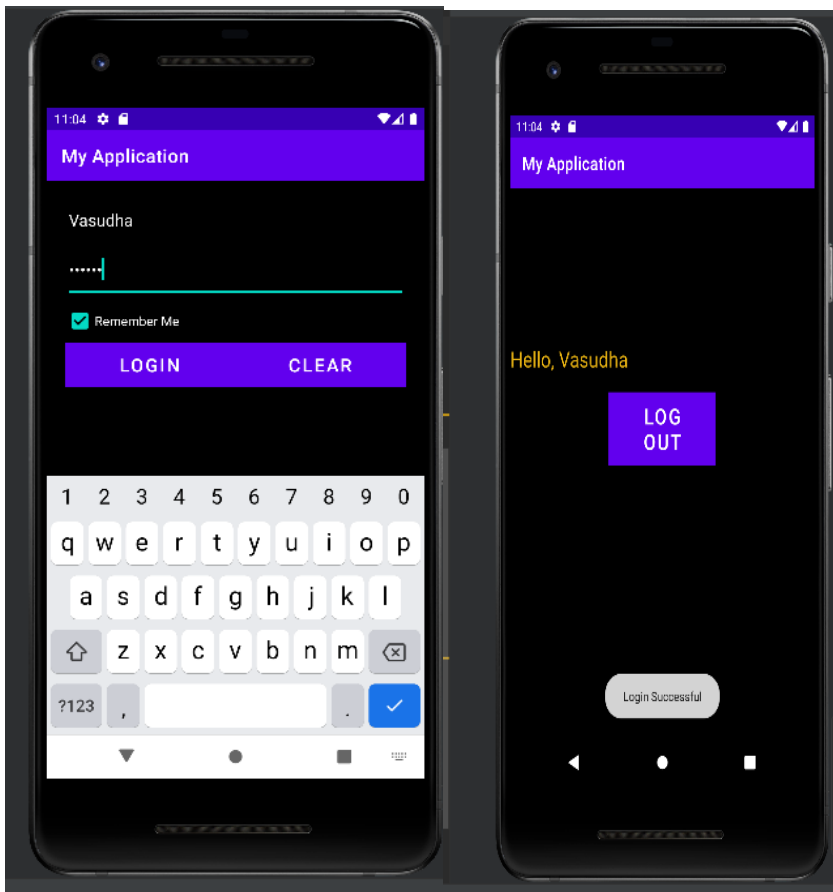
```

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

</manifest>

```

Output:



Q2.) Create android application for file handling in the internal storage. Do the following operations on Click of respective button: Write Read and delete.

- a. Write the content to the file using EditText**
- b. Read the content from generated file and display in Toast**
- c. Delete file**

Program:

activity_main.xml

```
<?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"
    android:orientation="vertical" android:background="@color/black" tools:context=".MainActivity">

    <TextView android:id="@+id/textView" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_alignParentStart="true"
        android:layout_alignParentTop="true" android:layout_alignParentEnd="true"
        android:layout_marginStart="23dp" android:layout_marginTop="133dp" android:layout_marginEnd="278dp"
        android:text="Filename :" android:textSize="22dp" android:textColor="#05E30E" />

    <EditText android:id="@+id/editText"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignParentTop="true" android:layout_alignParentEnd="true"
        android:layout_marginTop="119dp" android:layout_marginEnd="10dp" android:ems="10"
        android:inputType="textPersonName" android:textSize="22dp" android:textColor="@color/white"/>

    <TextView android:id="@+id/textView2" android:layout_width="68dp"
        android:layout_height="wrap_content" android:layout_alignParentStart="true"
        android:layout_alignParentTop="true" android:layout_alignParentEnd="true"
        android:layout_marginStart="23dp" android:layout_marginTop="195dp" android:layout_marginEnd="320dp"
        android:text="Text :" android:textSize="22dp" android:textColor="#05E30E"/>

    <EditText android:id="@+id/editText2"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignParentTop="true" android:layout_alignParentEnd="true"
        android:layout_marginTop="185dp" android:layout_marginEnd="6dp" android:ems="10"
        android:inputType="textPersonName" android:textSize="22dp" android:textColor="@color/white"/>

    <Button
        android:id="@+id/button" android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignParentStart="true" android:layout_centerVertical="true"
        android:layout_marginStart="33dp" android:background="#500331" android:textSize="22dp"
        android:text="READ" android:textColor="@color/white"/>

    <Button
        android:id="@+id/button2" android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_centerInParent="true" android:background="#033705" android:text="WRITE"

        android:textSize="22dp" android:textColor="@color/white"/>

    <Button
        android:id="@+id/button3" android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignParentEnd="true" android:layout_centerVertical="true" android:layout_marginEnd="33dp"
        android:background="#5E4702" android:text="DELETE" android:textSize="22dp"
        android:textColor="@color/white"/>
```

```

<TextView android:id="@+id/textView3" android:layout_width="wrap_content"
android:layout_height="wrap_content"
    android:layout_alignParentBottom="true" android:layout_centerHorizontal="true"
android:layout_marginBottom="186dp" android:textSize="22dp" android:textColor="#EF0D5A"/>
</RelativeLayout>

```

MainActivity.java

```
package com.example.myapplication;
```

```

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.app.AppCompatActivity; import android.content.Context;
import android.os.Bundle; import android.view.View; import android.widget.Button; import
android.widget.EditText;
import android.widget.TextView; import android.widget.Toast;
import java.io.BufferedReader; import java.io.File;
import java.io.FileNotFoundException; import java.io.FileOutputStream; import java.io.IOException;
import java.io.InputStreamReader;

```

```

import android.os.Bundle;
public class MainActivity extends AppCompatActivity { Button b1,b2,b3;
    EditText e1,e2; TextView t1;

```

```

    @Override
    protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main); e1=(EditText) findViewById(R.id.editText); e2=(EditText)
findViewById(R.id.editText2); b1=(Button)findViewById(R.id.button) ; b2=(Button)
findViewById(R.id.button2); b3=(Button)findViewById(R.id.button3); t1=(TextView)
findViewById(R.id.textView3) ;

```

```

    b1.setOnClickListener(new View.OnClickListener() { @Override
    public void onClick(View view) {
        String filename = e1.getText().toString()+".txt"; try {
            BufferedReader bufferedReader = new BufferedReader(new
InputStreamReader(openFileInput(filename)));
            String line;
            StringBuffer text = new StringBuffer();
            while ((line = bufferedReader.readLine()) != null) { t1.setText(text.append(line + "\n"));
            }
        } catch (IOException e){ e.printStackTrace();
        }
    }
});
    b2.setOnClickListener(new View.OnClickListener() { @Override
    public void onClick(View view) {
        String filename = e1.getText().toString()+".txt"; String str = e2.getText().toString();
        try {
            FileOutputStream fileOutputStream = openFileOutput(filename, Context.MODE_PRIVATE);
            fileOutputStream.write(str.getBytes()); e2.setText(""); fileOutputStream.close();
            Toast.makeText(getApplicationContext(),"Successful", Toast.LENGTH_SHORT).show();

        } catch (Exception e){ e.printStackTrace();
        }
    }
});
    b3.setOnClickListener(new View.OnClickListener() { @Override
    public void onClick(View view) {
        String filename = e1.getText().toString()+".txt";

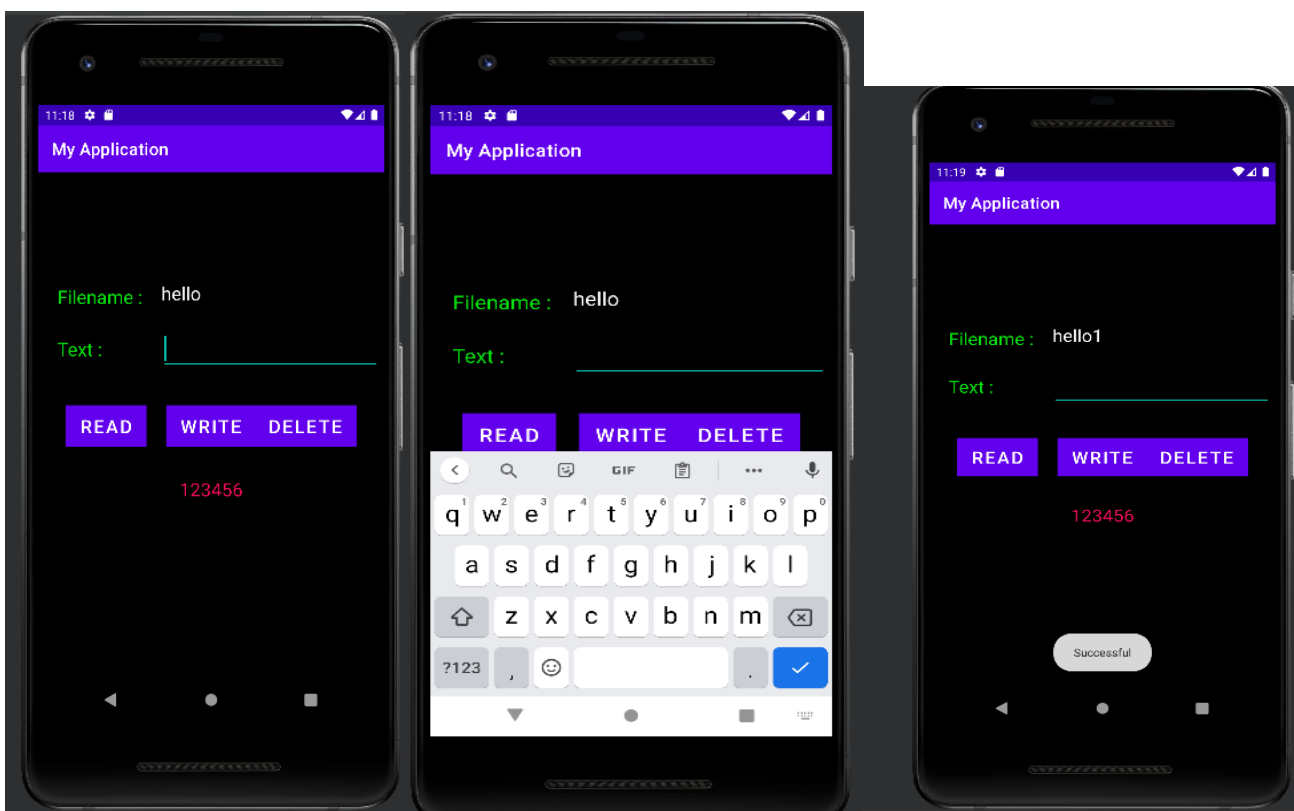
```

```

try {
    File dir = getFilesDir();
    File file = new File(dir, filename);
    boolean deleted = file.delete();
    Toast.makeText(getApplicationContext(),"Successful", Toast.LENGTH_SHORT).show();
}
catch (Exception e){ e.printStackTrace();
}
}
});
}
}

```

Output:



Q3.) Create android application for file handling in the external storage. Do the following operations on Click of respective button: Write and Read.

a. Write the content to the file using EditText

b. Read the content from generated file

Program:

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.externalstorage">
    <uses-permission
        android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
    <uses-permission
        android:name="android.permission.READ_EXTERNAL_STORAGE"/>

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.ExternalStorage">
        <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>
```

Step 3: Working with the activity_main.xml file

```
<?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"
    android:orientation="vertical"
    tools:context=".MainActivity">
```

```
android:background="@color/black">
```

```
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="51dp"
    android:layout_marginTop="22dp"
    android:text="Reading and Writing to External Storage"
    android:textColor="#6AB513"
    android:textSize="18dp"
    tools:layout_editor_absoluteX="161dp"
    tools:layout_editor_absoluteY="42dp" />
```

```
<EditText
    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="101dp"
    android:layout_marginTop="102dp"
    android:ems="10"
    android:inputType="textMultiLine"
    android:minLines="2"
    android:textColor="@color/white"/>
```

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="70dp"
    android:layout_marginTop="234dp"
    android:background="#063245"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:text="READ" />
```

```
<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
```

```

        android:layout_marginTop="234dp"
        android:layout_marginEnd="70dp"
        android:background="#2D0433"
        android:textColor="@color/white"
        android:textSize="20dp"
        android:text="WRITE" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_centerInParent="true"
    android:layout_marginBottom="180dp"
    android:textColor="#0DE8D4"
    android:textSize="20dp"
    android:layout_marginEnd="80dp"
    android:layout_marginStart="80dp"/>
</RelativeLayout>

```

Step 4: Working with the MainActivity.java file

```

package com.example.externalstorage;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.io.BufferedReader;
import java.io.DataInputStream;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity {
    Button b1,b2;
    EditText e1;
    TextView t1;
    private String filename = "SampleFile.txt";
    private String filepath = "MyFileStorage";

```

```
File myExternalFile;  
String myData = "";
```

```
@Override
```

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

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_main);
```

```
    e1 = findViewById(R.id.editText);
```

```
    b1 = findViewById(R.id.button);
```

```
    b2 = findViewById(R.id.button2);
```

```
    t1 = findViewById(R.id.textView2);
```

```
    //on click of Read button
```

```
    b1.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
```

```
        public void onClick(View view) {
```

```
            try {
```

```
                // Read the data that is saved in byte format in the file
```

```
                FileInputStream fis = new FileInputStream(myExternalFile);
```

```
                DataInputStream in = new DataInputStream(fis);
```

```
                BufferedReader br = new BufferedReader(new InputStreamReader(in));
```

```
                String strLine;
```

```
                while ((strLine = br.readLine()) != null) {
```

```
                    myData = myData + strLine;
```

```
                }
```

```
                in.close();
```

```
            } catch (IOException e) {
```

```
                e.printStackTrace();
```

```
            }
```

```
            e1.setText(myData);
```

```
            t1.setText(" Hello SampleFile.txt data retrieved from Storage...");
```

```
        }
```

```
    });
```

```
    //to check whether the media is available or not
```

```
    if (!isExternalStorageAvailable() || isExternalStorageReadOnly()) {
```

```
        b2.setEnabled(false);
```

```
    } else {
```

```
        // Creating folder with name MyFileStorage
```

```
        // Creating file with name "SampleFile.txt"
```

```
        myExternalFile = new File(getExternalFilesDir(filepath), filename);
```

```
    }
```

```
    //Write the data in file on click of write button
```

```
    b2.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
```

```
        public void onClick(View view) {
```

```
            //save the data into the file in byte format
```

```

    try {
        FileOutputStream fos = new FileOutputStream(myExternalFile);
        //write data in byte format in file
        fos.write(e1.getText().toString().getBytes());
        fos.close();
    } catch (IOException e) {
        e.printStackTrace();
    }
    //display message and filepath_where_the_file_is_saved"
    e1.setText("");
    t1.setText("SampleFile.txt saved to External
Storage..." + myExternalFile.getAbsolutePath());
}
});
}

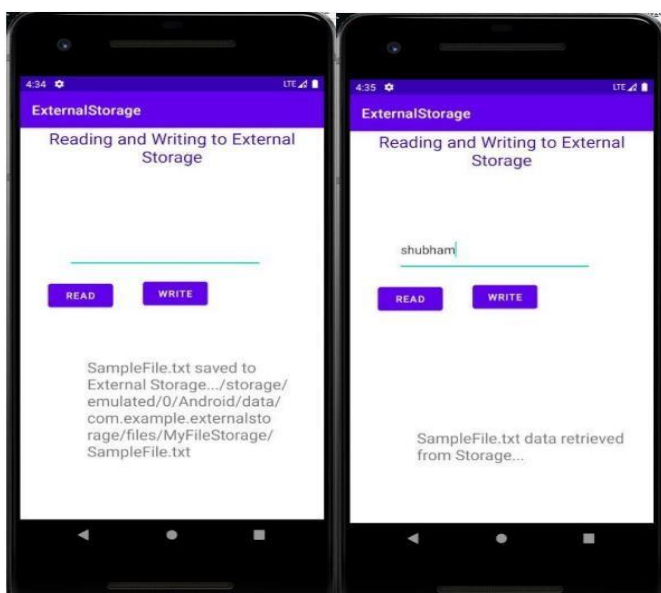
private static boolean isExternalStorageReadOnly() {
    String externalStorage = Environment.getExternalStorageState();
    if (Environment.MEDIA_MOUNTED_READ_ONLY.equals(externalStorage)){
        return true;
    }
    return false;
}

private static boolean isExternalStorageAvailable(){
    String extStorageState = Environment.getExternalStorageState();
    if (Environment.MEDIA_MOUNTED.equals(extStorageState)) {
        return true;
    }
    return false;
}

}
}

```

Output:



Q4.) Create an android application to perform CRUD operations. (Insert, Update, Delete & Search) (AlertDialog).

Program:

activity_main.xml

```
<?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"
    android:background="@color/black"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="80dp"
        android:layout_marginTop="80dp"
        android:layout_marginEnd="80dp"
        android:ems="10"
        android:hint="Enter your Name"
        android:inputType="text"
        android:textColor="@color/white"
        android:textSize="20dp" />

    <EditText
        android:id="@+id/marks"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="80dp"
        android:layout_marginTop="160dp"
        android:layout_marginEnd="80dp"
        android:ems="10"
        android:hint="Enter your Marks"
        android:inputType="text"
        android:textColor="@color/white"
```

```
android:textSize="20dp" />
```

```
<Button
```

```
    android:id="@+id/display"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentTop="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="250dp"
    android:background="#704403"
    android:text="Display"
    android:textColor="@color/white"
    android:textSize="24dp" />
```

```
<Button
```

```
    android:id="@+id/delete"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="252dp"
    android:layout_marginEnd="153dp"
    android:background="#980A3A"
    android:text="Delete"
    android:textColor="@color/white"
    android:textSize="24dp" />
```

```
<Button
```

```
    android:id="@+id/insert"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_alignParentEnd="true"
    android:layout_marginTop="250dp"
    android:layout_marginEnd="20dp"
    android:background="#5E5505"
    android:text="Insert"
    android:textColor="@color/white"
    android:textSize="24dp"/>
```

```
<Button
```

```
    android:id="@+id/search"
    android:layout_width="130dp"
    android:layout_height="wrap_content"
```

```

        android:layout_alignParentStart="true"
        android:layout_alignParentBottom="true"
        android:layout_centerVertical="true"
        android:layout_marginStart="50dp"
        android:layout_marginBottom="200dp"
        android:background="#0C497A"
        android:text="Search"
        android:textColor="@color/white"
        android:textSize="24dp"/>

<Button
    android:id="@+id/update"
    android:layout_width="130dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_centerVertical="true"
    android:layout_marginEnd="50dp"
    android:layout_marginBottom="200dp"
    android:background="#4CAF50"
    android:text="Update"
    android:textColor="@color/white"
    android:textSize="24dp"/>
</RelativeLayout>

```

MainActivity.java

```

package com.example.curdoperationusingalertdialog;

import androidx.appcompat.app.AppCompatActivity;

import android.app.AlertDialog;
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText name,marks;
    Button insertbtn,displaybtn,searchbtn,deletebtn,updatebtn;
    DatabaseHelper mydb; //object of the class
    String sname;
    int smarks;

    @Override

```

```

protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    DatabaseHelper mydb= new DatabaseHelper(this);
    mydb.getWritableDatabase();//database created and table created

    name = findViewById(R.id.name);
    marks =findViewById(R.id.marks);
    insertbtn= findViewById(R.id.insert);
    displaybtn= findViewById(R.id.display);
    searchbtn= findViewById(R.id.search);
    deletebtn= findViewById(R.id.delete);
    updatebtn= findViewById(R.id.update);
    //insert data
    insertbtn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            sname= name.getText().toString();
            smarks= Integer.parseInt(marks.getText().toString());
            boolean b = mydb.InsertData(sname,smarks);
            if(b)
                Toast.makeText(getApplicationContext(),"Data Inserted
Successfully",Toast.LENGTH_SHORT).show();
        }
    });
    //display on alert dialog box
    displaybtn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            //contain result set of query,
            Cursor ds= mydb.ShowData();
            if(ds.getCount()==0)
                Toast.makeText(getApplicationContext(),"Table is
Empty",Toast.LENGTH_SHORT).show();
            else{
                StringBuffer buffer= new StringBuffer();
                //move the cursor next row
                while (ds.moveToNext()) {
                    int sid = ds.getInt(ds.getColumnIndex(DatabaseHelper.Col_1));
                    String username = ds.getString(1);
                    String marks = ds.getString(2);
                    buffer.append("Id==="+sid+ " " +"Name==" +username+ " " +
"Marks==" +marks + " \n");
                }
                //display dialog mesg
                AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);

```

```

        builder.setTitle("Student Data");
        builder.setMessage(buffer.toString());
        builder.show();
    }
}
});
//search by name
searchbtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        sname= name.getText().toString();
        //search according to name
        Cursor searchresult = mydb.SearchData(sname);
        if(searchresult.getCount()==0)
            Toast.makeText(getApplicationContext(),"No Data
found!",Toast.LENGTH_SHORT).show();
        else{
            while (searchresult.moveToNext()){
                String username = searchresult.getString(1);
                String marks = searchresult.getString(2);
                AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
                builder.setMessage("Data="+username + " " + marks);
                builder.setTitle("Student Data");
                builder.show();
            }
        }
    }
});
//Delete Data
deletebtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        sname= name.getText().toString();
        boolean b = mydb.DeleteData(sname);
        if(b)
            Toast.makeText(getApplicationContext(),"Data Deleted",
Toast.LENGTH_SHORT).show();

    }
});
//Update data
updatebtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

```

```

        sname= name.getText().toString();
        smarks=Integer.parseInt(marks.getText().toString());
        boolean b = mydb.UpdateData(sname,smarks);
        if(b)
            Toast.makeText(getApplicationContext(),"Data Updated",
Toast.LENGTH_SHORT).show();

    }
    });
}
}

```

DatabaseHelper.java

```

package com.example.curdoperationusingalertdialog;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

import java.util.jar.Attributes;

public class DatabaseHelper extends SQLiteOpenHelper {

    public static final String DATABASE_NAME = "Stud.db";
    public static final String TABLE_NAME = "student";
    public static final String Col_1 = "ID";
    public static final String Col_2 = "NAME";
    public static final String Col_3 = "MARKS";
    String query;

    public DatabaseHelper(@Nullable Context context) {
        super(context, DATABASE_NAME, null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) { //used for db and table creation
        query="CREATE TABLE "+TABLE_NAME+"(ID INTEGER PRIMARY KEY
AUTOINCREMENT,NAME TEXT,MARKS INTEGER)";
        db.execSQL(query);
    }
}

```

```

@Override
public void onUpgrade(SQLiteDatabase db, int i, int i1) {
    db.execSQL("DROP TABLE IF EXISTS "+ TABLE_NAME);
}

public boolean InsertData(String n, int m){//Creating any method to insert the data
    SQLiteDatabase db = this.getWritableDatabase();
    ContentValues cv = new ContentValues();
    cv.put("NAME",n);    //Field name of the table.column - Name
    cv.put("MARKS",m);    //Field name of the table.column - Marks
    long result = db.insert(TABLE_NAME,null,cv);
    if(result == -1)
        return false;
    else
        return true;
}

public boolean DeleteData(String n){
    SQLiteDatabase db = this.getWritableDatabase();
    long res = db.delete(TABLE_NAME,"NAME=?", new String[]{n});
    if (res==-1)
        return false;
    else
        return true;
}

public boolean UpdateData(String n, int m){
    SQLiteDatabase db = this.getWritableDatabase();
    ContentValues cv = new ContentValues();
    cv.put(Col_2,n);
    cv.put(Col_3,m);
    long res = db.update(TABLE_NAME,cv,"NAME=?",new String[]{n});
    if (res==-1)
        return false;
    else
        return true;
}

public Cursor ShowData(){
    query = "Select * from student";
    SQLiteDatabase db = this.getWritableDatabase();
    Cursor res = db.rawQuery(query,null);
    return res;
}

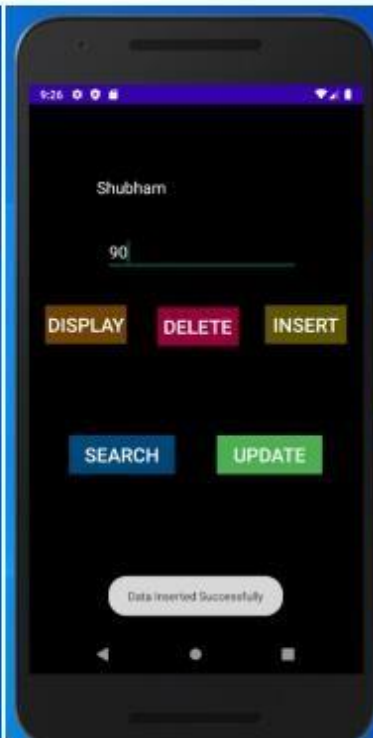
public Cursor SearchData(String n){
    query = "Select * from student where NAME = '"+n+"'";
    SQLiteDatabase db = this.getWritableDatabase();
    Cursor res = db.rawQuery(query,null);
    return res;
}

```

```
}  
}
```

OUTPUT-

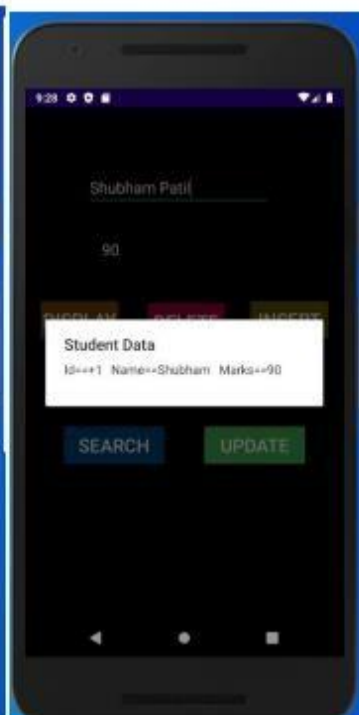
InSert:



Display :



Update:



delete:



Q5.) student registration from using sqlite with CRUD operation. View all students info in another activity.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    android:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/edit_id"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:textColorHint="#686464"
        android:hint="Id"
        android:textColor="@color/white"
        android:layout_margin="10dp"
        android:inputType="number"/>

    <EditText
        android:id="@+id/edit_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Name"
        android:textColor="@color/white"
        android:textColorHint="#686464"
        android:layout_margin="5dp"
        android:inputType="text" />

    <EditText
        android:id="@+id/edit_email"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Email"
```

```
    android:textColor="@color/white"
    android:textColorHint="#686464"
    android:layout_margin="5dp"
    android:inputType="textEmailAddress" />
```

```
<EditText
    android:id="@+id/edit_mobile"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:textColor="@color/white"
    android:hint="Mobile"
    android:textColorHint="#686464"
    android:layout_margin="5dp"
    android:inputType="phone" />
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
    <Button
        android:id="@+id/button_insert"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Save"
        android:textSize="20dp"
        android:background="#220B4A"
        android:textColor="@android:color/white"
        android:layout_weight="1"
        android:layout_marginTop="20dp" />
```

```
    <Button
        android:id="@+id/button_view"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_weight="1"
        android:background="#0B6159"
        android:text="view"
        android:textColor="@android:color/white"
        android:textSize="20dp" />
```

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
<Button
    android:id="@+id/button_delete"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="delete"
    android:textSize="20dp"
    android:background="#BC0C48"
    android:textColor="@android:color/white"
    android:layout_weight="1"
    android:layout_marginTop="20dp"/>
```

```
<Button
    android:id="@+id/button_update"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="update"
    android:textSize="20dp"
    android:background="#80740F"
    android:textColor="@android:color/white"
    android:layout_weight="1"
    android:layout_marginTop="20dp" />
```

```
</LinearLayout>
```

```
<Button
    android:id="@+id/button_search"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="search"
    android:textSize="20dp"
    android:background="#244004"
    android:textColor="@android:color/white"
    android:layout_marginTop="20dp"/>
```

```
</LinearLayout>
```

second_activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/view_data"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:text="Text"
        android:padding="10dp"
        android:textColor="@android:color/black"
        android:scrollbars="vertical" />
</ScrollView>
```

MainActivity.java

```
package com.example.studentregistrationusingsqlitedatabase;

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

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

public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    Dbhelper db;//create object
    EditText editTextId, editTextName, editTextEmail, editTextMobile;
    Button buttonInsert, buttonView, buttonDelete, buttonUpdate, buttonSearch;

    String id;
    String name;
    String email;
    String mobile;

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

```

editTextId = findViewById(R.id.edit_id);
editTextName = findViewById(R.id.edit_name);
editTextEmail = findViewById(R.id.edit_email);
editTextMobile = findViewById(R.id.edit_mobile);

buttonInsert = findViewById(R.id.button_insert);
buttonView = findViewById(R.id.button_view);
buttonDelete = findViewById(R.id.button_delete);
buttonUpdate = findViewById(R.id.button_update);
buttonSearch = findViewById(R.id.button_search);

buttonInsert.setOnClickListener(this);
buttonView.setOnClickListener(this);
buttonDelete.setOnClickListener(this);
buttonUpdate.setOnClickListener(this);
buttonSearch.setOnClickListener(this);

db = new com.example.studentregistrationusingsqlitedatabase.Dbhelper(this);
}

@Override
public void onClick(View view) {
    switch (view.getId()) {

        case R.id.button_insert://insert
            name = editTextName.getText().toString();
            email = editTextEmail.getText().toString();
            mobile = editTextMobile.getText().toString();
            if (name.equals("") | email.equals("") | mobile.equals("")) {
                Toast.makeText(this, "Please fill the Fields", Toast.LENGTH_SHORT).show();
            } else {
                db.insertStudent(name, email, mobile);
                editTextId.setText("");
                editTextName.setText("");
                editTextEmail.setText("");
                editTextMobile.setText("");
                Toast.makeText(this, "saved successfully", Toast.LENGTH_SHORT).show();
            }
            break;

        case R.id.button_view://Display
            Intent intent = new Intent(getApplicationContext(),
com.example.studentregistrationusingsqlitedatabase.SecondActivity.class);
            startActivity(intent);
            break;
    }
}

```

```

case R.id.button_delete://delete
    id = editTextId.getText().toString();
    if (id.equals("")) {
        Toast.makeText(this, "Please fill the Id", Toast.LENGTH_SHORT).show();
    } else {
        long l = Long.parseLong(id);
        db.deleteStudent(l);
        editTextId.setText("");
        editTextName.setText("");
        editTextEmail.setText("");
        editTextMobile.setText("");
        Toast.makeText(this, "deleted successfully", Toast.LENGTH_SHORT).show();
    }
    break;

case R.id.button_update://update
    id = editTextId.getText().toString().trim();
    name = editTextName.getText().toString();
    email = editTextEmail.getText().toString();
    mobile = editTextMobile.getText().toString();
    if (id.equals("") | name.equals("") | email.equals("") | mobile.equals("")) {
        Toast.makeText(this, "Please fill all the fields",
Toast.LENGTH_SHORT).show();
    } else {
        long l = Long.parseLong(id);
        db.updateStudent(l, name, email, mobile);
        editTextId.setText("");
        editTextName.setText("");
        editTextEmail.setText("");
        editTextMobile.setText("");
        Toast.makeText(this, "updated successfully", Toast.LENGTH_SHORT).show();
    }
    break;
case R.id.button_search://search
    id = editTextId.getText().toString().trim();
    if (id.equals("")) {
        Toast.makeText(this, "Please Fill the Id", Toast.LENGTH_SHORT).show();
    } else {
        try {
            long l1 = Long.parseLong(id);
            name = db.getName(l1);
            email = db.getEmail(l1);
            mobile = db.getMobile(l1);

            editTextName.setText(name);

```

```

        editTextEmail.setText(email);
        editTextMobile.setText(mobile);
        Toast.makeText(this, "searched successfully",
Toast.LENGTH_SHORT).show();

        } catch (Exception e) {
            Toast.makeText(this, "Id is not Available", Toast.LENGTH_SHORT).show();
        }
    }
    break;
}
}
}

```

SecondActivity.java

```

package com.example.studentregistrationusingsqlitedatabase;
import android.os.Bundle;
import android.widget.TextView;

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

public class SecondActivity extends AppCompatActivity {
    @Override
    protected void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.second_activity);
        TextView textView = findViewById(R.id.view_data);
        Dbhelper db = new Dbhelper(this);
        String data = db.getData();
        textView.setText(data);
    }
}

```

Dbhelper.java

```

package com.example.studentregistrationusingsqlitedatabase;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

```

```

public class Dbhelper extends SQLiteOpenHelper {
    SQLiteDatabase db;

    private static final String DATABASE_NAME = "database.db";
    private static final int DATABASE_VERSION = 1;

    private static final String TABLE_STUDENT = "_student";

    private static final String KEY_ID = "id";
    private static final String KEY_NAME = "name";
    private static final String KEY_EMAIL = "email";
    private static final String KEY_MOBILE = "mobile";

    public Dbhelper(@Nullable Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    //Create database and table
    @Override
    public void onCreate(SQLiteDatabase db) {
        String Query_Table = " CREATE TABLE " + TABLE_STUDENT + "(" + KEY_ID + "
INTEGER PRIMARY KEY AUTOINCREMENT, "
        + KEY_NAME + " TEXT, " + KEY_EMAIL + " TEXT, " + KEY_MOBILE + "
TEXT);";
        db.execSQL(Query_Table);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_STUDENT);
        onCreate(db);
    }

    //insert record
    public long insertStudent(String name, String email, String mobile) {
        db = this.getWritableDatabase();
        ContentValues values = new ContentValues();
        values.put(KEY_NAME, name);
        values.put(KEY_EMAIL, email);
        values.put(KEY_MOBILE, mobile);
        return db.insert(TABLE_STUDENT, null, values);
    }

    //Display or view data
    public String getData() {
        db = this.getReadableDatabase();
    }

```



```

String[] columns = new String[]{KEY_ID, KEY_NAME, KEY_EMAIL,
KEY_MOBILE};
Cursor cursor = db.query(TABLE_STUDENT, columns, null, null, null, null, null);

int iId = cursor.getColumnIndex(KEY_ID);
int iName = cursor.getColumnIndex(KEY_NAME);
int iEmail = cursor.getColumnIndex(KEY_EMAIL);
int iMobile = cursor.getColumnIndex(KEY_MOBILE);
String result = "";
for (cursor.moveToFirst();
    !cursor.isAfterLast();
    cursor.moveToNext()) {
    result = result +
        "Id: " + cursor.getString(iId) + "\n" +
        "Name: " + cursor.getString(iName) + "\n" +
        "Email: " + cursor.getString(iEmail) + "\n" +
        "Mobile: " + cursor.getString(iMobile) + "\n\n";
}
db.close();
return result;
}

//Delete record
public void deleteStudent(long l) {
    db = this.getWritableDatabase();
    db.delete(TABLE_STUDENT, KEY_ID + "=" + l, null);
}

//update record
public void updateStudent(long l, String name, String email, String mobile) {
    db = this.getWritableDatabase();
    ContentValues values = new ContentValues();
    values.put(KEY_NAME, name);
    values.put(KEY_EMAIL, email);
    values.put(KEY_MOBILE, mobile);
    db.update(TABLE_STUDENT, values, KEY_ID + "=" + l, null);
    db.close();
}

public String getName(long l1) {
    db = this.getReadableDatabase();
    String[] columns = new String[]{KEY_ID, KEY_NAME, KEY_EMAIL,
KEY_MOBILE};
    Cursor cursor = db.query(TABLE_STUDENT, columns, KEY_ID + "=" + l1, null, null,
null, null);
    if (cursor != null) {

```

```

        cursor.moveToFirst();
        String name = cursor.getString(1);
        return name;
    }
    return null;
}

public String getEmail(long l1) {
    db = this.getReadableDatabase();
    String[] columns = new String[]{KEY_ID, KEY_NAME, KEY_EMAIL,
KEY_MOBILE};
    Cursor cursor = db.query(TABLE_STUDENT, columns, KEY_ID + "=" + l1, null, null,
null, null);
    if (cursor != null) {
        cursor.moveToFirst();
        String name = cursor.getString(2);
        return name;
    }
    return null;
}

public String getMobile(long l1) {
    db=this.getReadableDatabase();
    String[] columns=new String[]{KEY_ID,KEY_NAME,KEY_EMAIL,KEY_MOBILE};
    Cursor
cursor=db.query(TABLE_STUDENT,columns,KEY_ID+"="+l1,null,null,null,null);
    if(cursor!=null){
        cursor.moveToFirst();
        String name=cursor.getString(3);
        return name;
    }
    return null;
}
}
}

```

AndroidManifest.xml

```

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

    <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.StudentRegistrationUsingSQLiteDatabase">
        <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>
        <activity android:name=".SecondActivity"/>
    </application>

</manifest>

```

OUTPUT-

Save:

View:

Module 4: Graphics and animation,Multimedia

1)Application to display different Shapes and color using graphics.

Program:

activity_main.xml

```
<?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"
    android:background="@color/black"
    tools:context=".MainActivity">

    <ImageView android:layout_width="match_parent" android:layout_height="match_parent"
    android:id="@+id/imageView" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.drawable.BitmapDrawable; import android.os.Bundle;
import android.view.Menu;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {

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

        //Creating a Bitmap
        Bitmap bg = Bitmap.createBitmap(720, 1280, Bitmap.Config.ARGB_8888);

        //Setting the Bitmap as background for the ImageView
        ImageView i = (ImageView) findViewById(R.id.imageView);
        i.setBackgroundDrawable(new BitmapDrawable(bg));

        //Creating the Canvas Object
        Canvas canvas = new Canvas(bg);
```

```

//Creating the Paint Object and set its color & TextSize
Paint paint = new Paint();
paint.setColor(Color.BLUE);

    paint.setTextSize(50);
//To draw a Rectangle
canvas.drawText("Rectangle", 420, 150, paint);
    canvas.drawRect(400, 200, 650, 700, paint);
    paint.setColor(Color.GREEN);
//canvas.rotate(7);

//To draw a Circle
canvas.drawText("Circle", 120, 150, paint);
    canvas.drawCircle(200, 350, 150, paint);
    paint.setColor(Color.YELLOW);

//To draw a Square
canvas.drawText("Square", 120, 800, paint);
canvas.drawRect(50, 850, 350, 1150, paint);
    paint.setColor(Color.RED);

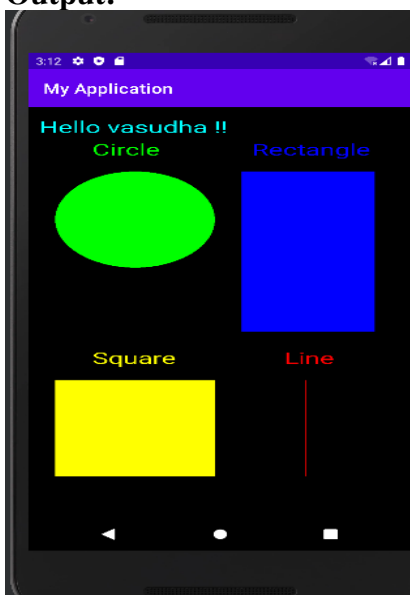
//To draw a Line
canvas.drawText("Line", 480, 800, paint);
    canvas.drawLine(520, 850, 520, 1150, paint);
    paint.setColor(Color.CYAN);

    canvas.drawText("Hello kunal !!", 20, 80, paint);
    paint.setColor(Color.BLUE);

}
}

```

Output:



Q2.) Create an android application to implement

- 1) Animation that moves the image from x direction to y direction.**
- 2) Scale Animation that expands and shrink image with respective button click.**
- 3) Rotate Animation that rotates image (clockwise and anticlockwise).**
- 4) Animation fades (In/Out) image .**
- 5) Animation slide (Up/Down) image .**
- 6) To change the brightness of the image using Seek Bar.**

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/image1"
        android:layout_width="150dp"
        android:layout_height="150dp"
        android:layout_gravity="center"
        android:src="@drawable/img1">
    </ImageView>
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <Button
            android:id="@+id/fadein"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:textColor="@color/white"
            android:background="#0E7987"
            android:textSize="20dp"
            android:text="fade In"/>

        <Button
            android:id="@+id/fadeout"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
```

```
    android:textSize="20dp"
    android:background="#052843"
    android:textColor="@color/white"
    android:text="fade Out"/>
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
    <Button
        android:id="@+id/clockwise"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:textColor="@color/white"
        android:background="#453504"
        android:textSize="20dp"
        android:text="Rotation ClockWise" />
```

```
    <Button
        android:id="@+id/anticlockwise"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:background="#A67E03"
        android:textColor="@color/white"
        android:text="Rotation Anticlockwise" />
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
    <Button
        android:id="@+id/slideup"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:textColor="@color/white"
        android:background="#B52858"
        android:textSize="20dp"
        android:text="SlideUP" />
```

```
<Button
    android:id="@+id/slidedown"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:textSize="20dp"
    android:textColor="@color/white"
    android:background="#4C021B"
    android:text="SlideDown" />
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
<Button
    android:id="@+id/horizontal"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:background="#03332F"
    android:text="X-Axis" />
```

```
<Button
    android:id="@+id/vertical"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:background="#16988C"
    android:textSize="20dp"
    android:textColor="@color/white"
    android:text="Y-Axis" />
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
```

```
<Button
    android:id="@+id/shrinkin"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:textColor="@color/white"
    android:textSize="20dp"
```



```
        android:background="#EA8D04"
        android:text="Shrink In" />
```

```
<Button
    android:id="@+id/shrinkout"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:textSize="20dp"
    android:textColor="@color/white"
    android:background="#452A03"
    android:text="Shrink Out" />
```

```
</LinearLayout>
```

```
<SeekBar
    android:id="@+id/seekbar1"
    android:layout_width="match_parent"
    android:background="#656363"
    android:layout_height="64dp" />
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.animation;
```

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

```
import android.annotation.SuppressLint;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.graphics.Canvas;
import android.graphics.ColorMatrix;
import android.graphics.ColorMatrixColorFilter;
import android.graphics.Paint;
import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.SeekBar;
```

```
import java.io.InputStream;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener,
SeekBar.OnSeekBarChangeListener {
    public ImageView natural;
    public Button fadein, fadeout, clockwise, anticlock, hori, ver, slideup, slidedown, shrinkin,
shrinkout;
```

SeekBar bright;

@Override

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

```
  
    natural = findViewById(R.id.image1);  
    fadein = findViewById(R.id.fadein);  
    fadeout = findViewById(R.id.fadeout);  
    clockwise = findViewById(R.id.clockwise);  
    anticlock = findViewById(R.id.anticlockwise);  
    hori = findViewById(R.id.horizontal);  
    ver = findViewById(R.id.vertical);  
    slideup = findViewById(R.id.slideup);  
    slidedown = findViewById(R.id.slidedown);  
    bright = findViewById(R.id.seekbar1);  
    shrinkin = findViewById(R.id.shrinkin);  
    shrinkout = findViewById(R.id.shrinkout);
```

```
  
    fadein.setOnClickListener(this);  
    fadeout.setOnClickListener(this);  
    clockwise.setOnClickListener(this);  
    anticlock.setOnClickListener(this);  
    hori.setOnClickListener(this);  
    ver.setOnClickListener(this);  
    slideup.setOnClickListener(this);  
    slidedown.setOnClickListener(this);  
    bright.setOnSeekBarChangeListener(this);  
    shrinkin.setOnClickListener(this);  
    shrinkout.setOnClickListener(this);  
}
```

@SuppressWarnings("NonConstantResourceId")

@Override

```
public void onClick(View v) {  
    switch (v.getId()) {  
        case R.id.fadein:  
            Animation animation1 = AnimationUtils.loadAnimation(getApplicationContext(),  
R.anim.fadein);  
            natural.startAnimation(animation1);  
            break;  
        case R.id.fadeout:  
            Animation animation2 = AnimationUtils.loadAnimation(getApplicationContext(),  
R.anim.fadeout);  
            natural.startAnimation(animation2);
```

```

        break;

        case R.id.clockwise:
            Animation animation3 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.clockwise);
            natural.startAnimation(animation3);
            break;

        case R.id.anticlockwise:
            Animation animation4 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.anticlock);
            natural.startAnimation(animation4);
            break;

        case R.id.horizontal:
            Animation animation5 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.hori);
            natural.startAnimation(animation5);
            break;

        case R.id.vertical:
            Animation animation6 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.ver);
            natural.startAnimation(animation6);
            break;

        case R.id.slideup:
            Animation animation7 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.slideup);
            natural.startAnimation(animation7);
            break;

        case R.id.slidedown:
            Animation animation8 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.slidedown);
            natural.startAnimation(animation8);
            break;

        case R.id.shrinkin:
            Animation animation9 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_in);
            natural.startAnimation(animation9);
            break;

        case R.id.shrinkout:

```

```

        Animation animation10 = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_out);
        natural.startAnimation(animation10);
        break;
    }
}

```

```

@Override
public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
    @SuppressWarnings("ResourceType") InputStream is =
this.getResources().openRawResource(R.drawable.img1);
    Bitmap bitmap = BitmapFactory.decodeStream(is);
    natural.setImageBitmap(increaseBrightness(bitmap, (float) i / 100f, 1));
}

```

```

private Bitmap increaseBrightness(Bitmap bmp, float contrast, float brightness) {
    ColorMatrix cm = new ColorMatrix(new float[]
    {
        contrast, 0, 0, 0, brightness,
        0, contrast, 0, 0, brightness,
        0, 0, contrast, 0, brightness,
        0, 0, 0, 1, 0
    });
    Bitmap bitmap = Bitmap.createBitmap(bmp.getWidth(), bmp.getHeight(),
bmp.getConfig());
    Canvas canvas = new Canvas(bitmap);
    Paint paint = new Paint();
    paint.setColorFilter(new ColorMatrixColorFilter(cm));
    canvas.drawBitmap(bmp, 0, 0, paint);
    return bitmap;
}

```

```

@Override
public void onStartTrackingTouch(SeekBar seekBar) {

}

```

```

@Override
public void onStopTrackingTouch(SeekBar seekBar) {

}
}

```

fadein.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <alpha
    android:duration="2000"
    android:fromAlpha="0.1"
    android:toAlpha="1.0"/>
  <alpha
    android:startOffset="3000"
    android:fromAlpha="1"
    android:toAlpha="0"
    android:duration="1000" >
</alpha>

</set>
```

fadeout.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <alpha
    android:duration="3000"
    android:fromAlpha="1.0"
    android:toAlpha="0.1"/>

</set>
```

clockwise.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <rotate
    android:fromDegrees="360"
    android:toDegrees="0"
    android:pivotX="50%"
    android:pivotY="50%"
    android:duration="3000"/>

</set>
```

anticlock.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <rotate
    android:fromDegrees="360"
    android:toDegrees="0"
    android:pivotX="50%"
    android:pivotY="50%"
    android:duration="3000"/>
```

</set>

slideup.xml

<?xml version="1.0" encoding="utf-8"?>

<set xmlns:android="http://schemas.android.com/apk/res/android">

 <scale android:fromXScale="1.0"
 android:fromYScale="1.0"
 android:toXScale="1.0"
 android:toYScale="0.0"
 android:duration="3000"/>

</set>

slidedown.xml

<?xml version="1.0" encoding="utf-8"?>

<set xmlns:android="http://schemas.android.com/apk/res/android">

 <scale android:fromXScale="1.0"
 android:fromYScale="0.0"
 android:toXScale="1.0"
 android:toYScale="1.0"
 android:duration="3000"/>

</set>

hori.xml

<?xml version="1.0" encoding="utf-8"?>

<set xmlns:android="http://schemas.android.com/apk/res/android">

 <translate android:fromXDelta="0% "
 android:toXDelta="75% "
 android:duration="3000"/>

</set>

ver.xml

<?xml version="1.0" encoding="utf-8"?>

<set xmlns:android="http://schemas.android.com/apk/res/android">

 <translate android:fromXDelta="0% "
 android:toXDelta="75% "
 android:duration="3000"/>

</set>

zoom_in.xml

<?xml version="1.0" encoding="utf-8"?>

<set xmlns:android="http://schemas.android.com/apk/res/android">

 <scale

```

    android:duration="2500"
    android:fromXScale="1.0"
    android:fromYScale="1.0"
    android:pivotX="50%"
    android:pivotY="50%"
    android:toXScale=".2"
    android:toYScale=".2" />

```

```
</set>
```

zoom_out.xml

```

<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale
        xmlns:android="http://schemas.android.com/apk/res/android"
        android:duration="1000"
        android:fromXScale="2"
        android:fromYScale="2"
        android:pivotX="50%"
        android:pivotY="50%"
        android:toXScale="4"
        android:toYScale="4" >
    </scale>

</set>

```

OUTPUT-



Q4.) Create an android application to invert image and changes the image into grayscale image.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/image1"
        android:layout_width="300dp"
        android:layout_height="300dp"
        android:layout_gravity="center"
        android:src="@drawable/img">

    </ImageView>

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <Button
            android:id="@+id/invertbtn"
            android:layout_width="200dp"
            android:background="#378DB5"
            android:textSize="20dp"
            android:textColor="@color/white"
            android:layout_height="wrap_content"
            android:text="Invert" />

        <Button
            android:id="@+id/grayscalebtn"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:textSize="20dp"
            android:background="#020D4A"
            android:textColor="@color/white">
```



```
        android:text="Gray Scale" />
```

```
</LinearLayout>
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.invertimage;
```

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

```
import android.graphics.Bitmap;
```

```
import android.graphics.Color;
```

```
import android.graphics.drawable.BitmapDrawable;
```

```
import android.graphics.drawable.Drawable;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.ImageView;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    ImageView iv ;
```

```
    Button invertbtn , grayscalebtn;
```

```
    Drawable d1;
```

```
    Bitmap bitimg;
```

```
    @Override
```

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

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        iv = (ImageView)findViewById(R.id.image1);
```

```
        invertbtn = (Button)findViewById(R.id.invertbtn);
```

```
        grayscalebtn = (Button)findViewById(R.id.grayscalebtn);
```

```
        //invert image
```

```
        invertbtn.setOnClickListener(new View.OnClickListener() {
```

```
            @Override
```

```
            public void onClick(View view) {
```

```
                //get image
```

```
                d1=getResources().getDrawable(R.drawable.img);
```

```
                bitimg=((BitmapDrawable)d1).getBitmap();
```

```
                //calling method
```

```
                Bitmap newimg= invertImage(bitimg);
```

```
                iv.setImageBitmap(newimg);
```

```
            }
```

```

});
grayscalebtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        d1 = getResources().getDrawable(R.drawable.img);
        bitimg = ((BitmapDrawable)d1).getBitmap();
        //calling method
        Bitmap newimg = grayScaleImage(bitimg);
        iv.setImageBitmap(newimg);
    }
});
}
public static Bitmap invertImage(Bitmap org)
{
    //create new bitmap with same attributes like H,W
    Bitmap final_img =
Bitmap.createBitmap(org.getWidth(),org.getHeight(),org.getConfig());

    int R,G,B,A;
    int pixelcolor;
    //image size
    int h = org.getHeight();
    int w= org.getWidth();
    //scan through every pixel
    for(int y=0 ; y<h; y++)
    {
        for(int x=0; x<w; x++)
        {
            //get one pixel
            pixelcolor = org.getPixel(x,y);
            //saving the alpha channel
            A = Color.alpha(pixelcolor);
            //inverting byte for each R,G,B channel
            R = 255 - Color.red(pixelcolor);
            G = 255 - Color.green(pixelcolor);
            B = 255 - Color.blue(pixelcolor);
            //set newly inverted pixel to final output img
            final_img.setPixel(x,y,Color.argb(A,R,G,B));
        }
    }
    //return final bitmap
    return final_img;
}
//
public static Bitmap grayScaleImage(Bitmap org)
{

```

```

        Bitmap final_img =
Bitmap.createBitmap(org.getWidth(),org.getHeight(),org.getConfig());
        //pixel information
        int R,G,B,A;
        int pixelcolor;
        ///get image size
        int h = org.getHeight();
        int w= org.getWidth();
        //scan through every singal pixel
        for(int y=0 ; y<h; y++)
        {
            for(int x=0; x<w; x++)
            {
                //get onr pixel
                pixelcolor = org.getPixel(x,y);
                //retrieve color of all channels
                A = Color.alpha(pixelcolor);
                R = Color.red(pixelcolor);
                G = Color.green(pixelcolor);
                B = Color.blue(pixelcolor);
                //take conversion up to one single value
                R = (R+G+B)/3;
                G = R;
                B = R;
                //set new pixel color to o/p bitmap
                final_img.setPixel(x,y,Color.argb(A,R,G,B));
            }
        }
        return final_img;
    }
}

```

Output:



Q5.) Create an android application to play audio and video.

Program:

activity_main.xml

```
<?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:orientation="vertical"
    android:background="@color/black"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:text="Audio"
        android:textColor="#ED9006"
        android:textSize="24dp"
        android:textStyle="bold"
        android:padding="10dp"/>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <Button
            android:id="@+id/button1"
            style="?android:attr/buttonStyleSmall"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/textView1"
            android:layout_alignLeft="@+id/textView1"
            android:textColor="@color/white"
            android:textSize="20dp"
            android:background="#6C75A8"
            android:layout_weight="0.3"
            android:padding="10dp"
            android:text="start" />
```

```

<Button
    android:id="@+id/button2"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button1"
    android:layout_toRightOf="@+id/button1"
    android:text="Pause"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:background="#5599CF"
    android:layout_weight="0.3"
    android:padding="10dp"/>

<Button
    android:id="@+id/button3"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button2"
    android:layout_toRightOf="@+id/button2"
    android:text="Stop"
    android:textSize="20dp"
    android:textColor="@color/white"
    android:background="#0B3B61"
    android:layout_weight="0.3"
    android:padding="10dp"/>
</LinearLayout>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="Video"
    android:layout_below="@+id/btnStopAud"
    android:layout_centerHorizontal="true"
    android:textStyle="bold"
    android:textColor="#E30953"
    android:textSize="20dp"
    android:id="@+id/tvvideo"/>

<VideoView
    android:id="@+id/videoView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/tvvideo"

```

```
    android:layout_gravity="center"
    android:layout_marginTop="20dp"
    android:layout_marginBottom="100dp" />
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.playaudioandvideo;

import androidx.appcompat.app.AppCompatActivity;

import android.media.AudioManager;
import android.media.MediaPlayer;
import android.media.MediaRecorder;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import android.widget.Button;
import android.widget.MediaController;
import android.widget.Toast;
import android.widget.VideoView;

import java.io.IOException;

public class MainActivity extends AppCompatActivity {
    Button play, pause, stop;
    MediaPlayer mp;
    VideoView myVideoView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        play= findViewById(R.id.button1);
        pause=(Button)findViewById(R.id.button2);
        stop=(Button)findViewById(R.id.button3);
        MediaPlayer mPlayer = new MediaPlayer();
        try {
            Uri myUri =Uri.parse("android.resource://" + getPackageName() + "/" + R.raw.song);
            mPlayer.setAudioStreamType(AudioManager.STREAM_MUSIC);
            mPlayer.setDataSource(getApplicationContext(), myUri);
```

```

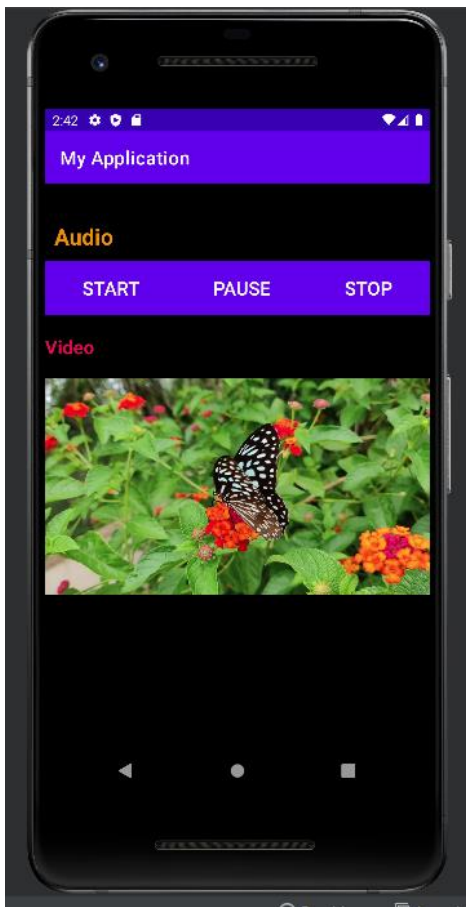
        mPlayer.prepare();

    } catch (IOException e) {
        e.printStackTrace();
    }
}
play.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mPlayer.start();
    }
});
pause.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mPlayer.pause();
    }
});
//video view
//Set MediaController to enable play, pause, forward, etc options.
MediaController mediaController= new MediaController(this);
myVideoView= findViewById(R.id.videoView);
//Location of Media File
Uri uri = Uri.parse("android.resource://" + getPackageName() + "/" + R.raw.namo);
//Starting VideView By Setting MediaController and URI
myVideoView.setMediaController(mediaController);
myVideoView.setVideoURI(uri);
myVideoView.requestFocus();
myVideoView.start();

}
}

```


Output:



Module 5: Location based Services

Q1.) Display Google map.

Program:

MapsActivity.java

```
package com.example.gmaps;
```

```
import androidx.fragment.app.FragmentActivity;
```

```
import android.os.Bundle;
```

```
import com.google.android.gms.maps.CameraUpdateFactory;
```

```
import com.google.android.gms.maps.GoogleMap;
```

```
import com.google.android.gms.maps.OnMapReadyCallback;
```

```
import com.google.android.gms.maps.SupportMapFragment;
```

```
import com.google.android.gms.maps.model.LatLng;
```

```
import com.google.android.gms.maps.model.MarkerOptions;
```

```
import com.example.gmaps.databinding.ActivityMapsBinding;
```

```
public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {
```

```
    private GoogleMap mMap;
```

```
    private ActivityMapsBinding binding;
```

```
    @Override
```

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

```
        super.onCreate(savedInstanceState);
```

```
        binding = ActivityMapsBinding.inflate(getLayoutInflater());
```

```
        setContentView(binding.getRoot());
```

```
        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
```

```
        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
```

```
            .findFragmentById(R.id.map);
```

```
        mapFragment.getMapAsync(this);
```

```
    }
```

```
    /**
```

```
     * Manipulates the map once available.
```

```
     * This callback is triggered when the map is ready to be used.
```

```
     * This is where we can add markers or lines, add listeners or move the camera. In this case,
```

```
     * we just add a marker near Sydney, Australia.
```

```
     * If Google Play services is not installed on the device, the user will be prompted to install
```

```
     * it inside the SupportMapFragment. This method will only be triggered once the user has
```

```
     * installed Google Play services and returned to the app.
```

```
     */
```

```
    @Override
```

```
    public void onMapReady(GoogleMap googleMap) {
```

```
        mMap = googleMap;
```

```
        // Add a marker in Sydney and move the camera
```

```
        LatLng sydney = new LatLng(-34, 151);
```

```
        mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in Sydney"));
```

```
        mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));
```

```
    }
```

```
}
```

AndroidMainFest.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"
  package="com.example.gmaps">
```

```
<!--
```

The ACCESS_COARSE/FINE_LOCATION permissions are not required to use Google Maps Android API v2, but you must specify either coarse or fine location permissions for the "MyLocation" functionality.

```
-->
```

```
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"
tools:ignore="CoarseFineLocation" />
```

```
<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.GMaps">
```

```
<!--
```

The API key for Google Maps-based APIs is defined as a string resource. (See the file "res/values/google_maps_api.xml").

Note that the API key is linked to the encryption key used to sign the APK.

You need a different API key for each encryption key, including the release key that is used to sign the APK for publishing.

You can define the keys for the debug and release targets in src/debug/ and src/release/.

```
-->
```

```
<meta-data
```

```
  android:name="com.google.android.geo.API_KEY"
```

```
  android:value="AIzaSyCVfnb8pz6snvqqhgoq140CZfVbyPu_kaI_" />
```

```
<activity
```

```
  android:name=".MapsActivity"
```

```
  android:exported="true"
```

```
  android:label="@string/title_activity_maps">
```

```
  <intent-filter>
```

```
    <action android:name="android.intent.action.MAIN" />
```

```
    <category android:name="android.intent.category.LAUNCHER" />
```

```
  </intent-filter>
```

```
</activity>
```

```
</application>
```

```
</manifest>
```

Google_map_api.xml

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<resources>
```

```
<!--
```

TODO: Before you run your application, you need a Google Maps API key. To get one, follow this link, follow the directions and press "Create" at the end:

https://console.developers.google.com/flows/enableapi?apiid=maps_android_backend&keyType=CLIENT_SIDE_ANDROID&r=E8:1A:C8:8C:BB:B4:06:F1:A7:C6:34:E5:93:1A:B9:1F:1A:79:84:EB%3Bcom.example.googlemapapi

You can also add your credentials to an existing key, using these values: Package name: com.example.googlemapapi

SHA-1 certificate fingerprint: E8:1A:C8:8C:BB:B4:06:F1:A7:C6:34:E5:93:1A:B9:1F:1A:79:84:EB

Alternatively, follow the directions here:
<https://developers.google.com/maps/documentation/android/start#get-key>

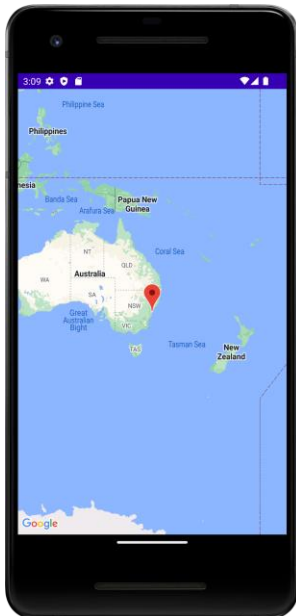
Once you have your key (it starts with "AIza"), replace the "google_maps_key" string in this file.

```
-->
<string name="google_maps_key" templateMergeStrategy="preserve"
translatable="false">AIzaSyCVfnb8pz6snvqqhgoq140CZfVbyPu_kaI_</string>
</resources>
```

Themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">
<!-- Base application theme. -->
<style name="Theme.GMaps" parent="Theme.MaterialComponents.DayNight.DarkActionBar">
<!-- Primary brand color. -->
<item name="colorPrimary">@color/purple_500</item>
<item name="colorPrimaryVariant">@color/purple_700</item>
<item name="colorOnPrimary">@color/white</item>
<!-- Secondary brand color. -->
<item name="colorSecondary">@color/teal_200</item>
<item name="colorSecondaryVariant">@color/teal_700</item>
<item name="colorOnSecondary">@color/black</item>
<!-- Status bar color. -->
<item name="android:statusBarColor" tools:targetApi="1">?attr/colorPrimaryVariant</item>
<!-- Customize your theme here. -->
</style>
</resources>
```

OUTPUT-



Q2.) Create an android application to display current location of device (latitude longitude& address).

Program

AndroidManifest.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"
    package="app.bvimit.getmylocation">

    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.GetMyLocation"
        tools:targetApi="31">

        <!--
        TODO: Before you run your application, you need a Google Maps API key.

        To get one, follow the directions here:

        https://developers.google.com/maps/documentation/android-sdk/get-api-key

        Once you have your API key (it starts with "AIza"), define a new property in your
        project's local.properties file (e.g. MAPS_API_KEY=Aiza...), and replace the
        "YOUR_API_KEY" string in this file with "${MAPS_API_KEY}".
        -->
        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="AIzaSyCKekPg0GiLe0QYTeOIh4RODO455TqWWsI" />

        <activity
            android:name=".MapsActivity"
            android:exported="true"
            android:label="@string/title_activity_maps">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

Activity_maps.xml

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

```

        android:name="com.google.android.gms.maps.SupportMapFragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:layout_gravity="center"
        tools:context=".MapsActivity">

<TextView
    android:layout_width="match_parent"
    android:layout_height="71dp"
    android:layout_marginTop="30sp"
    android:fontFamily="sans-serif-black"
    android:text="Current Location Longitude and Latitude."
    android:textAppearance="@style/TextAppearance.AppCompat.Large"
    android:textSize="24sp"
    android:textStyle="bold" />

<Button
    android:id="@+id/locationbtn"
    android:layout_width="243dp"
    android:layout_height="wrap_content"
    android:layout_margin="20dp"
    android:text="Get Location"
    android:textColor="@android:color/white" />
<TextView
    android:id="@+id/locationinfotv"
    android:layout_width="317dp"
    android:layout_height="200dp"
    android:textAppearance="@style/TextAppearance.AppCompat.Large"
    android:textColor="@color/purple_700"
    android:textSize="20sp" />
<fragment
    android:id="@+id/map"
    android:name="com.google.android.gms.maps.SupportMapFragment"
    android:layout_width="match_parent"
    android:layout_height="300sp"
    map:layout_constraintBottom_toBottomOf="parent"
    map:layout_constraintTop_toTopOf="parent"
    tools:context=".MapsActivity" />
</LinearLayout>

```

MapsActivity.java

```

package app.bvimit.getmylocation;

import androidx.annotation.NonNull;
import androidx.core.content.ContextCompat;
import androidx.fragment.app.FragmentActivity;

import android.annotation.SuppressLint;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Build;
import android.os.Bundle;
import android.os.Looper;

```

```

import android.util.Log;
import android.widget.Button;
import android.widget.TextView;

import com.google.android.gms.location.LocationCallback;
import com.google.android.gms.location.LocationRequest;
import com.google.android.gms.location.LocationResult;
import com.google.android.gms.maps.CameraUpdate;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

import java.util.List;
import java.util.Locale;

import app.bvimit.getmylocation.databinding.ActivityMapsBinding;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback, LocationListener {

    private GoogleMap mMap;
    private ActivityMapsBinding binding;
    TextView locationinfotv;
    protected LocationManager locationManager;
    Button locationbtn;
    private LocationCallback locationCallback;

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

        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());

        locationCallback = new LocationCallback() {
            @Override
            public void onLocationResult(LocationResult locationResult) {
                if (locationResult == null) {
                    return;
                }
                for (Location location : locationResult.getLocations()) {
                    //
                    mMap = googleMap;

                    // Add a marker in Sydney and move the camera
                    LatLng position = new LatLng(location.getLatitude(),location.getLongitude());
                    mMap.addMarker(new MarkerOptions().position(position).title("Current Location"));
                    mMap.moveCamera(CameraUpdateFactory.newLatLng(position));

                }
            }
        };

        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
            .findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }

```

```

//     getSupportActionBar().hide();
//     setContentView(R.layout.activity_maps);
locationinfotv = findViewById(R.id.locationinfotv);
locationbtn = findViewById(R.id.locationbtn);

locationbtn.setOnClickListener(v-> {
    getLocation(this.getApplicationContext());
});

}

void getLocation(Context context) {
    if ( Build.VERSION.SDK_INT >= 23 &&
        ContextCompat.checkSelfPermission( context,
android.Manifest.permission.ACCESS_FINE_LOCATION ) != PackageManager.PERMISSION_GRANTED
&&
        ContextCompat.checkSelfPermission( context,
android.Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
        return ;
    }
    Log.i("location", String.valueOf(ContextCompat.checkSelfPermission( context,
android.Manifest.permission.ACCESS_FINE_LOCATION)));
    try {
        locationManager = (LocationManager)
            getSystemService(Context.LOCATION_SERVICE);
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER, 0, 0, this);
    }
    catch(SecurityException e) {
        e.printStackTrace();
    }
}

/**
 * Manipulates the map once available.
 * This callback is triggered when the map is ready to be used.
 * This is where we can add markers or lines, add listeners or move the camera. In this case,
 * we just add a marker near Sydney, Australia.
 * If Google Play services is not installed on the device, the user will be prompted to install
 * it inside the SupportMapFragment. This method will only be triggered once the user has
 * installed Google Play services and returned to the app.
 */
@Override
public void onMapReady(GoogleMap googleMap) {
    mMap = googleMap;

    // Add a marker in Sydney and move the camera
    //     LatLng location = new LatLng(-34, 151);
    //     mMap.addMarker(new MarkerOptions().position(location).title("Current Location"));
    //     mMap.moveCamera(CameraUpdateFactory.newLatLng(location));
}

/**
 * Manipulates the map once available.
 * This callback is triggered when the map is ready to be used.
 * This is where we can add markers or lines, add listeners or move the camera. In this
 * case,
 * we just add a marker near Sydney, Australia.

```


- * If Google Play services is not installed on the device, the user will be prompted to install
- * it inside the SupportMapFragment. This method will only be triggered once the user has
- * installed Google Play services and returned to the app.

```

*/
@SuppressLint("SetTextI18n")
@Override
public void onLocationChanged( Location location) {
    locationinfotv.setText("Latitude:" + location.getLatitude() + ", Longitude:" +
        location.getLongitude());

    LatLng position = new LatLng(location.getLatitude(),location.getLongitude());
    mMap.addMarker(new MarkerOptions().position(position).title("Current Location"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(position));
    try {
        Geocoder geocoder = new Geocoder(this, Locale.getDefault());
        List<Address> addresses = geocoder.getFromLocation(location.getLatitude(),
            location.getLongitude(), 4);
        locationinfotv.setText(locationinfotv.getText() +
            "\n"+addresses.get(0).getAddressLine(0)+", "+
            addresses.get(0).getAddressLine(1)+", "+addresses.get(0).getAddressLine(2));
    } catch (Exception e)
    { }
}
@Override
public void onProviderEnabled(@NonNull String provider) {
    Log.d("Latitude","enable");
}
@Override
public void onProviderDisabled(@NonNull String provider) {
    Log.d("Latitude","disable");
}
@Override
public void onStatusChanged(String provider, int status, Bundle extras) {
    Log.d("Latitude","status");
}
}

```

Output:



Module 6: REST API Generation

Create an application to parse a JSON Object

Demo of Stateful Widget

Program:

```
import 'package:flutter/material.dart';
void main() {
  runApp(const MyApp());
  TextInput:Text("Default Text");
}
class MyApp extends StatelessWidget {
  const MyApp({ Key? key }) : super(key: key);
// This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: const MyHomePage(title: 'Demo5-StateFul-Example'),
    );
  }
}
class MyHomePage extends StatefulWidget {
  const MyHomePage({ Key? key, required
    this.title }) : super(key: key);
  final String title;
  @override
  State<MyHomePage> createState() => _MyHomePageState();
}
class _MyHomePageState extends
State<MyHomePage> {
  int _counter = 0;
  void _incrementCounter() {
    setState() {
      _counter++;
    });
  }
  void _decrementCounter() {
    setState() {
      _counter--;
    });
  }
  @override
```

```

Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text(widget.title),
    ),
    body: Center(
      child: Column(
        mainAxisAlignment:
        MainAxisAlignment.center,
        children: <Widget>[
          Text(
            '$_counter',
            style:
            Theme.of(context).textTheme.headline1,
          ),
          Row(
            mainAxisAlignment:MainAxisAlignment.center,
            children: [
              Padding(
                padding: const
                EdgeInsets.all(8),
                child:
                FlatButton
                (

                  onPressed:_incrementCounter ,
                  child: Text('Add',
                    style:
                    TextStyle(fontSize: 30)),
                  padding:
                  EdgeInsets.all(20),
                  textColor:
                  Colors.white,
                  color: Colors.red,
                ),
            ),
              Padding(
                padding: const
                EdgeInsets.all(8),
                child:FlatButton
                (onPressed:_decrementCounter ,
                  child: Text('Sub',
                    style:
                    TextStyle(fontSize: 30)),
                  padding:
                  EdgeInsets.all(20),

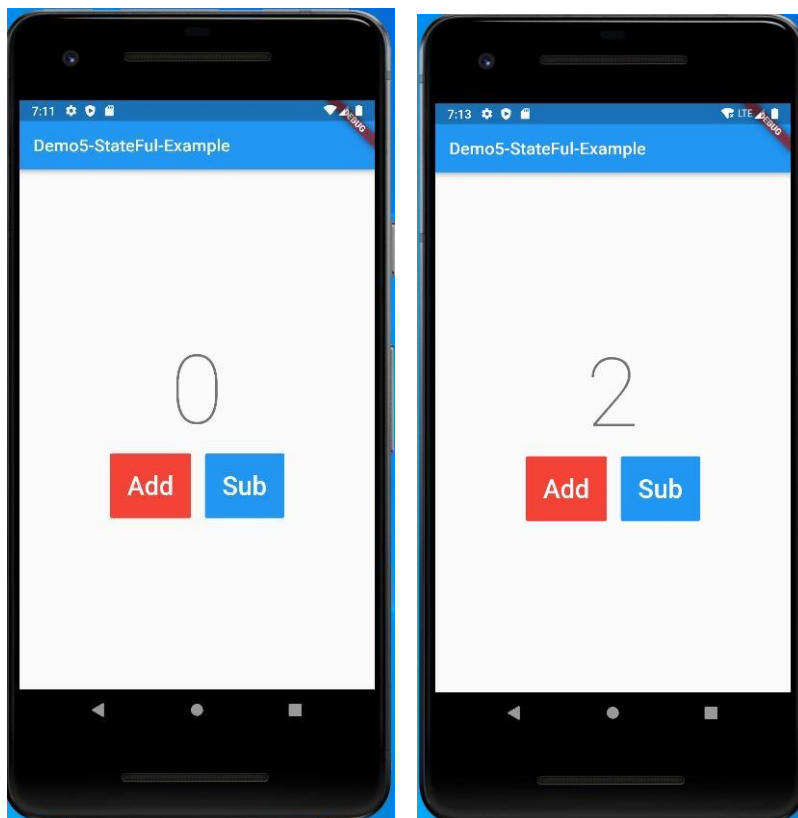
```

```

        textColor: Colors.white,
        color: Colors.blue,
      ),
    ),
  ],
),
],
),
),
);
}
}

```

OUTPUT-



Demo Of Navigation Bar

Program:

```
import 'package:flutter/material.dart';

void main() => runApp(MyApp());

/// This Widget is the main application widget.
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: MyNavigationBar (),
    );
  }
}

class MyNavigationBar extends StatefulWidget {
  //MyNavigationBar ({Key key}) : super(key: key);

  @override
  _MyNavigationBarState createState() => _MyNavigationBarState();
}

class _MyNavigationBarState extends State<MyNavigationBar > {
  int _selectedIndex = 0;
  static const List<Widget> _widgetOptions = <Widget>[
    Text('Home Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
    Text('Search Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
    Text('Profile Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
  ];

  void _onItemTapped(int index) {
    setState() {
      _selectedIndex = index;
    });
  }

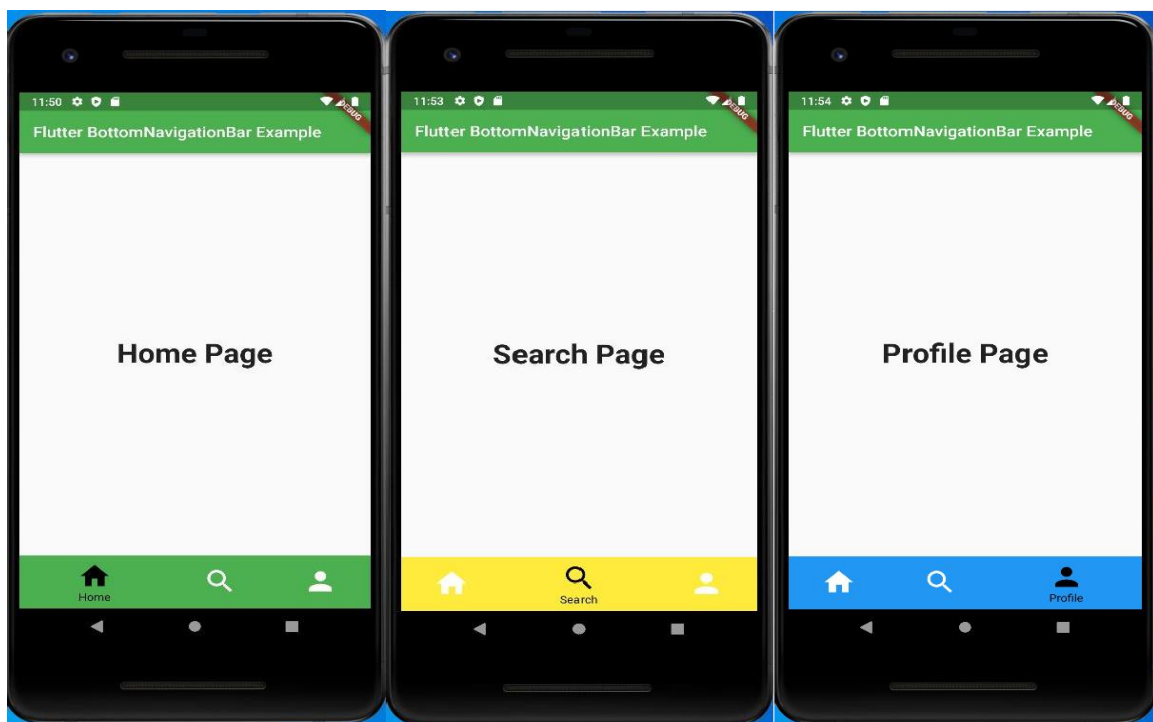
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Flutter BottomNavigationBar Example'),
        backgroundColor: Colors.green
      ),
      body: Center(
        child: _widgetOptions.elementAt(_selectedIndex),
      ),
      bottomNavigationBar: BottomNavigationBar(
```

```

items: const <BottomNavigationBarItem>[
  BottomNavigationBarItem(
    icon: Icon(Icons.home),
    title: Text('Home'),
    backgroundColor: Colors.green
  ),
  BottomNavigationBarItem(
    icon: Icon(Icons.search),
    title: Text('Search'),
    backgroundColor: Colors.yellow
  ),
  BottomNavigationBarItem(
    icon: Icon(Icons.person),
    title: Text('Profile'),
    backgroundColor: Colors.blue,
  ),
],
type: BottomNavigationBarType.shifting,
currentIndex: _selectedIndex,
selectedItemColor: Colors.black,
iconSize: 40,
onTap: _onItemTapped,
elevation: 5
),
);
}
}

```

OUTPUT-



Demo of Layout Contact List

Program:

```
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';

void main()=>runApp(ClistRun());

class ClistRun extends StatelessWidget{
  @override
  Widget build(BuildContext context) {
    // TODO: implement build
    return MaterialApp(
      title: "Contact List",
      debugShowCheckedModeBanner: false,
      theme: ThemeData.light(),
      home: TestPage(),
    );
  }
}
//show A contact list
class TestPage extends StatelessWidget{
  @override
  Widget build(BuildContext context) {
    // TODO: implement build
    return Scaffold(
      appBar:
        AppBar(
          title:Text ('Contact List') ,
        ),
      body:
        Container(
          child:new ListView( //taking column alignment vertically from start
            scrollDirection: Axis.vertical,
            children: <Widget>[
              Row(//taking 2 column 1:child icon 2:taking 2 child type text
                mainAxisAlignment: MainAxisAlignment.start,
                children: <Widget>[
                  Column(
                    mainAxisAlignment: MainAxisAlignment.start,
                    children:<Widget> [
                      new Icon(Icons.account_circle,size: 90,)
                    ],
                  ),
                  Column(
                    crossAxisAlignment: CrossAxisAlignment.start,
                    children:<Widget> [
```

```

        Text('Ravita Patil',textDirection: TextDirection.ltr,
          style: TextStyle(
            fontSize: 25,
          ),
        ),
        Text(
          '9321675056',
          textDirection: TextDirection.ltr,
          style: TextStyle(
            fontSize: 16,
            color: Colors.indigo,
          ),
        ),
      ],
    ),
  ],
),

Row(
  mainAxisAlignment: MainAxisAlignment.start,
  children: <Widget>[
    Column(
      mainAxisAlignment: MainAxisAlignment.start,
      children:<Widget> [
        new Icon(Icons.account_circle,size: 90,)
      ],
    ),
    Column(
      crossAxisAlignment: CrossAxisAlignment.start,
      children:<Widget> [
        Text('Ruchita Patil',textDirection: TextDirection.ltr,
          style: TextStyle(
            fontSize: 25,
          ),
        ),
        Text('9021955872',
          textDirection: TextDirection.ltr,
          style: TextStyle(
            fontSize:16,
            color: Colors.indigo,
          ),
        ),
      ],
    ),
  ],
),
],
),
),

```



```
    ),  
    );  
  
    }  
    }  
    }
```

OUTPUT-



Module 7: Introduction to Dart and Flutter

Q1.) Container Demo

Program:

```
import 'package:flutter/material.dart';

void main() => runApp(MyApp());

/// This Widget is the main application widget.
class MyApp extends StatelessWidget {

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Scaffold(
        appBar: AppBar(
          title: Text("Flutter Container Example"),
        ),
        body: Container(
          padding: EdgeInsets.all(35),
          margin: EdgeInsets.all(20),
          decoration: BoxDecoration(
            border: Border.all(color: Colors.black, width: 4),
            borderRadius: BorderRadius.circular(8),
            boxShadow: [
              new BoxShadow(color: Colors.green, offset: new Offset(6.0, 6.0)),
            ],
          ),
          child: Text("Hello! I am in the container widget decoration box!!",
            style: TextStyle(fontSize: 30)),
        ),
      ),
    );
  }
}
```



Output:

Q2.) List view demo

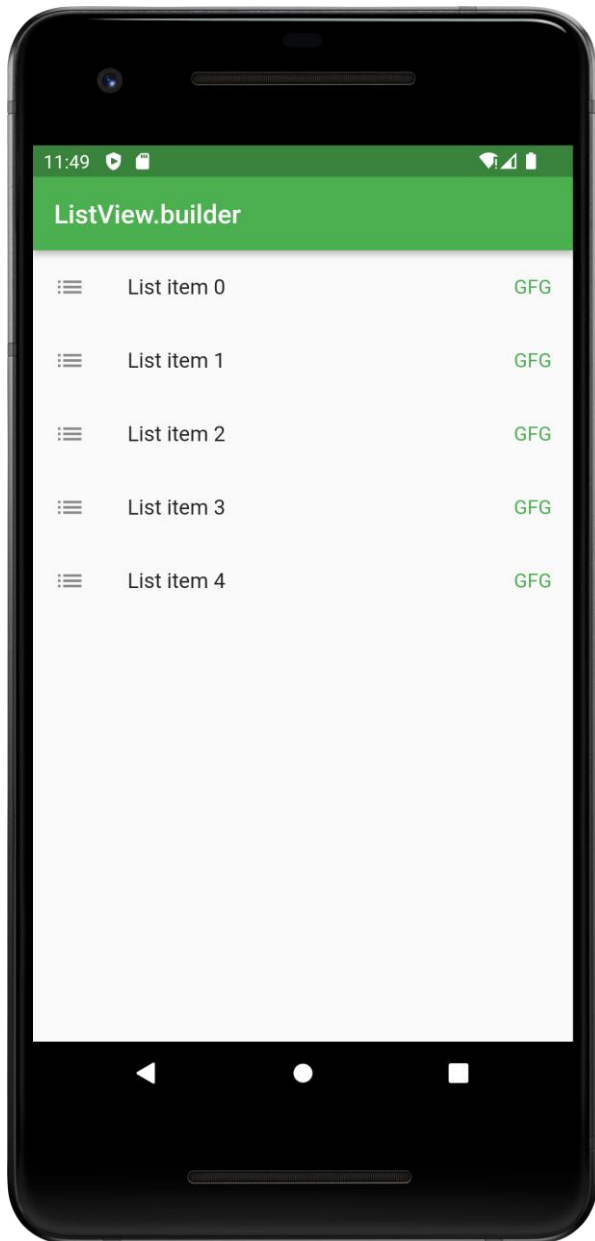
Program:

```
import 'package:flutter/material.dart';
void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
  // This widget is the root
  // of your application.
  @override
  Widget build(BuildContext context) {
    return new MaterialApp(
      title: "ListView.builder",
      theme: new ThemeData(
        primarySwatch: Colors.green
      ),
      debugShowCheckedModeBanner: false,
      home: new ListViewBuilder()
    );
  }
}

class ListViewBuilder extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title:Text("ListView.builder")
      ),
      body: ListView.builder(
        itemCount: 5,
        itemBuilder: (BuildContext context,int index){
          return ListTile(
            leading: Icon(Icons.list),
            trailing: Text("GFG",
              style: TextStyle(
                color: Colors.green,fontSize: 15),),
            title:Text("List item $index")
          );
        }
      ),
    );
  }
}
```

Output:



Q3.) CheckBox demo

Program:

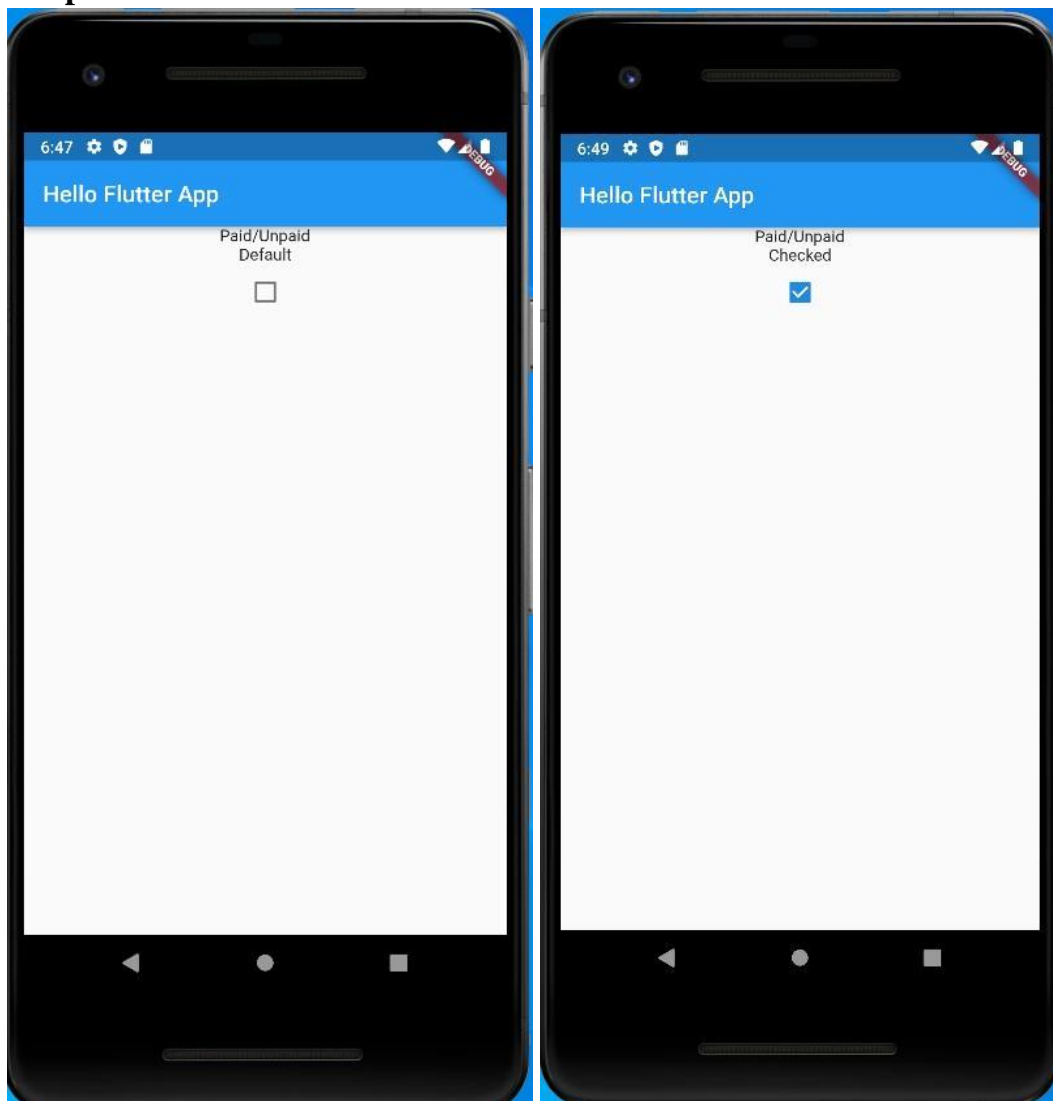
```
import 'package:flutter/material.dart';
void main() {
  runApp(MyApp(
    TextInput:Text("Paid/Unpaid"),));
}
class MyApp extends
StatefulWidget {
  MyApp({required
this.TextInput});
  final Widget TextInput;
  MyAppState createState() => new
  MyAppState();
}
class MyAppState extends
State<MyApp> {
  bool checkBoxValue = false;
  String actionText="Default";
  @override
  Widget build(BuildContext ctxt)
  {
    return MaterialApp(
      title:
        "MySampleApplication",
      home: Scaffold(
        appBar: AppBar(
          title: Text("Hello Flutter App"),),
        body: Center(
          child:Column(
            children: <Widget>[
              widget.TextInput,
              Text(actionText),
              Checkbox(value:
                checkBoxValue, onChanged: (bool ?
                newValue)
                {
                  setState() {
                    checkBoxValue=newValue!;
                    if(newValue==true) {
                      actionText = "Checked";
                    }
                    else
                    {
                      actionText="unChecked";
```

```

    }
  });
}
)
],
),
)
),
);
}
}

```

Output:



Q4.) LayoutDemo Create contact list

Program:

```
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';

void main()=>runApp(ClistRun());

class ClistRun extends StatelessWidget{
  @override
  Widget build(BuildContext context) {
    // TODO: implement build
    return MaterialApp(
      title: "Contact List",
      debugShowCheckedModeBanner: false,
      theme: ThemeData.light(),
      home: TestPage(),
    );
  }
}
//show A contact list
class TestPage extends StatelessWidget{
  @override
  Widget build(BuildContext context) {
    // TODO: implement build
    return Scaffold(
      appBar:
        AppBar(
          title:Text ('Contact List') ,
        ),
      body:
        Container(
          child:new ListView( //taking column alignment vertically from start
            scrollDirection: Axis.vertical,
            children: <Widget>[
              Row(//taking 2 column 1:child icon 2:taking 2 child type text
                mainAxisAlignment: MainAxisAlignment.start,
                children: <Widget>[
                  Column(
                    mainAxisAlignment: MainAxisAlignment.start,
                    children:<Widget> [
                      new Icon(Icons.account_circle,size: 90,)
                    ],
                  ),
                  Column(
                    crossAxisAlignment: CrossAxisAlignment.start,
                    children:<Widget> [
                      Text('Ravita Patil',textDirection: TextDirection.ltr,
                        style: TextStyle(
```



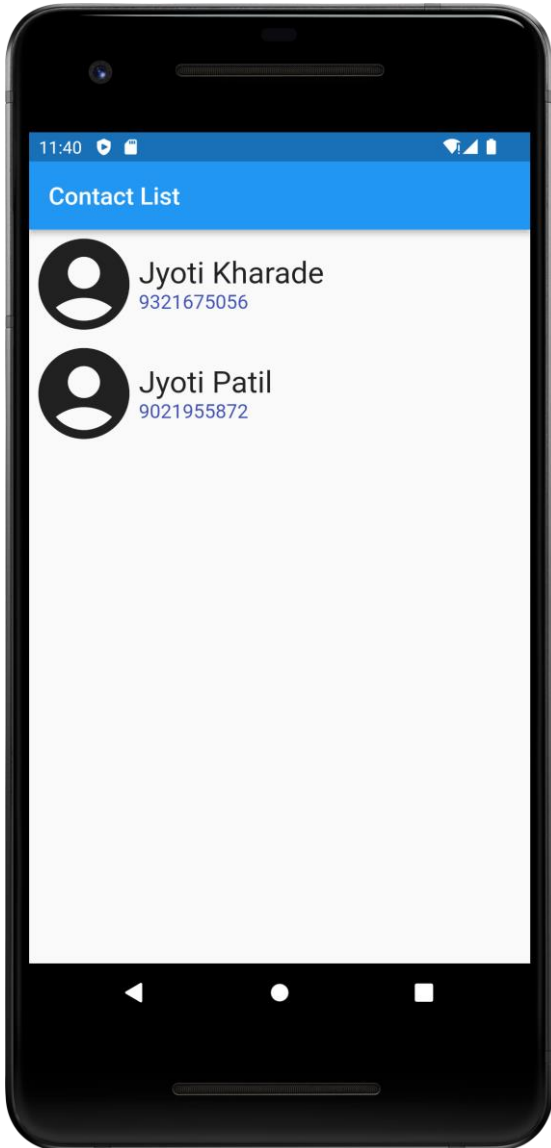
```
);
```

```
}
```

```
}
```

```
}
```

Output:



Q5.) Flutter Bottom Navigation Example

Program:

```
import 'package:flutter/material.dart';

void main() => runApp(MyApp());

/// This Widget is the main application widget.
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: MyNavigationBar (),
    );
  }
}

class MyNavigationBar extends StatefulWidget {
  //MyNavigationBar ({Key key}) : super(key: key);

  @override
  _MyNavigationBarState createState() => _MyNavigationBarState();
}

class _MyNavigationBarState extends State<MyNavigationBar > {
  int _selectedIndex = 0;
  static const List<Widget> _widgetOptions = <Widget>[
    Text('Home Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
    Text('Search Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
    Text('Profile Page', style: TextStyle(fontSize: 35, fontWeight: FontWeight.bold)),
  ];

  void _onItemTapped(int index) {
    setState() {
      _selectedIndex = index;
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Flutter BottomNavigationBar Example'),
        backgroundColor: Colors.green
      ),
      body: Center(
        child: _widgetOptions.elementAt(_selectedIndex),
      ),
      bottomNavigationBar: BottomNavigationBar(
        items: const <BottomNavigationBarItem>[
```

```

        BottomNavigationBarItem(
          icon: Icon(Icons.home),
          title: Text('Home'),
          backgroundColor: Colors.green
        ),
        BottomNavigationBarItem(
          icon: Icon(Icons.search),
          title: Text('Search'),
          backgroundColor: Colors.yellow
        ),
        BottomNavigationBarItem(
          icon: Icon(Icons.person),
          title: Text('Profile'),
          backgroundColor: Colors.blue,
        ),
      ],
      type: BottomNavigationBarType.shifting,
      currentIndex: _selectedIndex,
      selectedItemColor: Colors.black,
      iconSize: 40,
      onTap: _onItemTapped,
      elevation: 5
    ),
  );
}
}

```

Output:

