### **Practical No: 2.1**

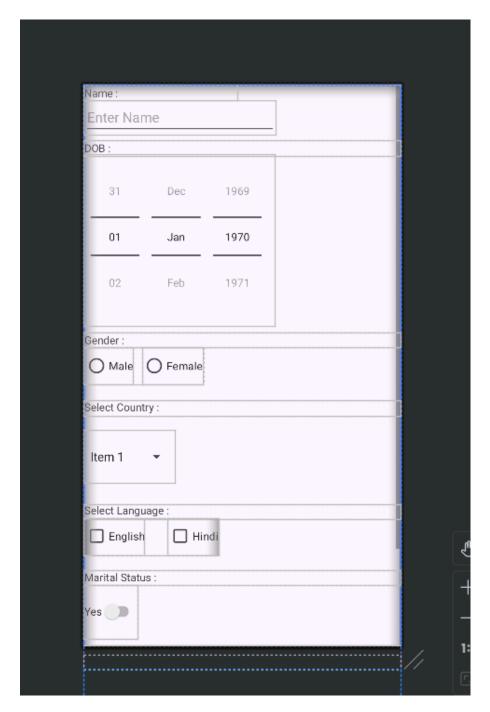
Create a Registration form using the following UI Components (EditText,TextView,RadioButton, CheckBox, Spinner, Button, RatingBar, DatePicker). On button click, read the above components values data programmatically and display the contents in another

### Activity\_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout width="match parent"
  android:layout height="match parent"
  tools:context=".MainActivity">
  <ScrollView
    android:layout width="match parent"
    android:layout height="match parent">
    <LinearLayout
      android:layout width="match parent"
      android:layout height="match parent"
      android:orientation="vertical">
      <TextView
         android:id="@+id/name1"
         android:layout width="200dp"
         android:layout height="wrap content"
         android:text="Name:"
         app:layout constraintBottom toBottomOf="parent"
         app:layout constraintEnd toEndOf="parent"
         app:layout constraintStart toStartOf="parent"
         app:layout constraintTop toTopOf="parent" />
      <EditText
         android:id="@+id/name"
         android:layout width="250sp"
         android:layout height="wrap content"
         android:hint="Enter Name"
         />
      <TextView
         android:layout width="match parent"
         android:layout height="wrap content"
         android:layout marginTop="20px"
         android:text="DOB:"
         />
      <DatePicker
```

```
android:id="@+id/dp1"
  android:layout width="wrap content"
  android:layout height="224dp"
  android:calendarViewShown="false"
  android:datePickerMode="spinner" />
<TextView
  android:layout width="match parent"
  android:layout_height="wrap_content"
  android:text="Gender:"
  android:layout marginTop="20px"
  />
< Radio Group
  android:id="@+id/rd1"
  android:layout width="wrap content"
  android:layout height="wrap content"
  android:orientation="horizontal">
  < Radio Button
    android:id="@+id/rb1"
    android:layout height="wrap content"
    android:layout width="wrap content"
    android:text="Male"
    />
  < Radio Button
    android:id="@+id/rb2"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:layout marginLeft="30px"
    android:text="Female"
    />
</RadioGroup>
<TextView
  android:layout width="match parent"
  android:layout height="wrap content"
  android:text="Select Country:"
  android:layout marginTop="20sp"
  />
<Spinner
  android:id="@+id/spinner"
  android:layout_width="wrap_content"
  android:layout height="70dp"
  android:entries="@array/country arrays"
  android:layout marginTop="20dp"
  />
<TextView
```

```
android:layout width="match parent"
  android:layout height="wrap content"
  android:text="Select Language:"
  android:layout marginTop="25sp"
  />
<LinearLayout
  android:layout width="wrap content"
  android:layout_height="wrap_content">
  <CheckBox
    android:id="@+id/cb1"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="English"
    />
  <CheckBox
    android:id="@+id/cb2"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Hindi"
    android:layout marginLeft="30sp"
    />
</LinearLayout>
<TextView
  android:layout width="match parent"
  android:layout height="wrap content"
  android:text="Marital Status: "
  android:layout marginTop="20sp"
  />
<Switch
  android:id="@+id/switch1"
  android:layout width="wrap content"
  android:layout height="70dp"
  android:text="Yes"
  />
<TextView
  android:layout width="match parent"
  android:layout height="wrap content"
  android:layout marginTop="20dp"
  android:text="Ratings: "
  />
<SeekBar
  android:id="@+id/seekBar"
  android:layout width="match parent"
  android:layout height="73dp"
```



### MainActivity.java:

```
package com.example.registration;
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.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.RatingBar;
import android.widget.SeekBar;
import android.widget.Spinner;
import android.widget.Switch;
public class MainActivity extends AppCompatActivity {
  Button button;
  EditText name:
  EditText dob;
  EditText age;
  DatePicker picker;
  RadioGroup rd1;
  CheckBox cb1,cb2;
  Switch switch1;
  String value = "YES";
  SeekBar seekBar;
  public int seekBarValue;
  Spinner spinner;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity main);
    name = findViewById(R.id.name);
    picker = findViewById(R.id.dp1);
    rd1 = findViewById(R.id.rd1);
    cb1=findViewById(R.id.cb1);
    cb2=findViewById(R.id.cb2);
    switch1= findViewById(R.id.switch1);
    seekBar=findViewById(R.id.seekBar);
    spinner = findViewById(R.id.spinner);
```

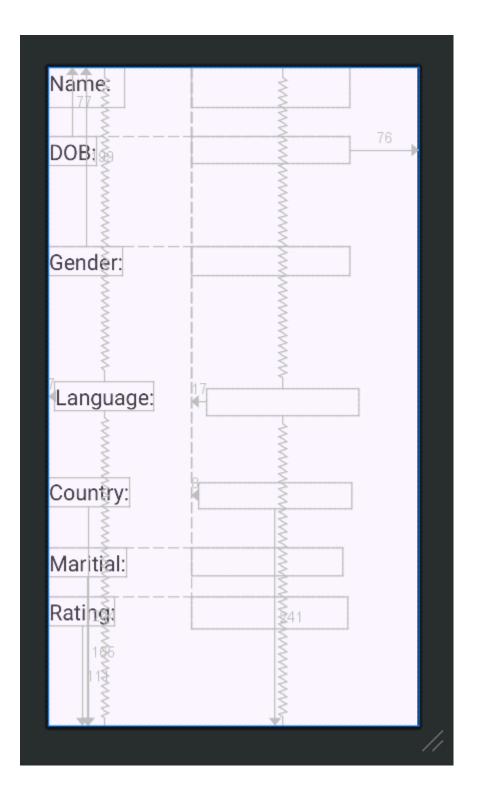
```
spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
       @Override
       public void onItemSelected(AdapterView<?> parent, View view, int position, long id)
{
       }
       @Override
       public void onNothingSelected(AdapterView<?> parent) {
    });
    seekBar.setOnSeekBarChangeListener(new 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) {
       }
    });
    switch1.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
       @Override
       public void on Checked Changed (Compound Button button View, boolean is Checked) {
         if (isChecked) {
           switch1.setText("YES");
           value ="YES";
           switch1.setTextColor(Color.GREEN);
         } else {
           switch1.setText("NO");
           value="NO";
           switch1.setTextColor(Color.RED);
         }
       }
    });
    button=findViewById(R.id.button);
    button.setOnClickListener(new View.OnClickListener() {
       @Override
       public void onClick(View v) {
         Intent intent;
         intent = new Intent(MainActivity.this, stud.class);
         Bundle b = new Bundle();
         b.putString("name", name.getText().toString());
```

```
b.putString("dob",picker.getDayOfMonth()+"/"+ (picker.getMonth() +
1)+"/"+picker.getYear());
         b.putString("country",String.valueOf(spinner.getSelectedItem()));
         int id = rd1.getCheckedRadioButtonId();
         RadioButton radioButton = findViewById(id);
         b.putString("gender", radioButton.getText().toString());
         if(cb1.isChecked() && cb2.isChecked()){
            b.putString("language","Hindi,English");
         else if(cb2.isChecked()) {
            b.putString("language", cb2.getText().toString());
         }
         else if(cb1.isChecked()){
            b.putString("language", cb1.getText().toString());
         }
         else
            b.putString("language", "NONE");
         b.putString("swi",switch1.getText().toString());
         b.putString("value", String.valueOf(seekBar.getProgress()));
         intent.putExtras(b);
         startActivity(intent);
    });
Activity stud.xml:
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"</pre>
  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=".stud">
  <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 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 alignParentEnd="true"
  android:layout alignTop="@+id/textView7"
  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 marginTop="199dp"
  android:text="Gender:"
  android:textSize="24sp"
  tools:layout editor absoluteX="16dp"
  tools:layout editor absoluteY="214dp"/>
```

```
<TextView
  android:id="@+id/gender"
  android:layout width="177dp"
  android:layout height="wrap content"
  android:layout alignStart="@+id/name"
  android:layout alignTop="@+id/textView9"
  android:textSize="24sp"
  tools:layout_editor_absoluteX="134dp"
  tools:layout editor absoluteY="214dp" />
<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="8dp"
  android:layout marginBottom="241dp"
  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="7dp"
  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 alignStart="@+id/name"
  android:layout alignParentBottom="true"
  android:layout centerVertical="true"
```

```
android:layout marginStart="17dp"
    android:layout marginBottom="346dp"
    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 marginBottom="165dp"
    android:text="Maritial:"
    android:textSize="24sp" />
  <TextView
    android:id="@+id/maritial"
    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 marginBottom="111dp"
    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>
```



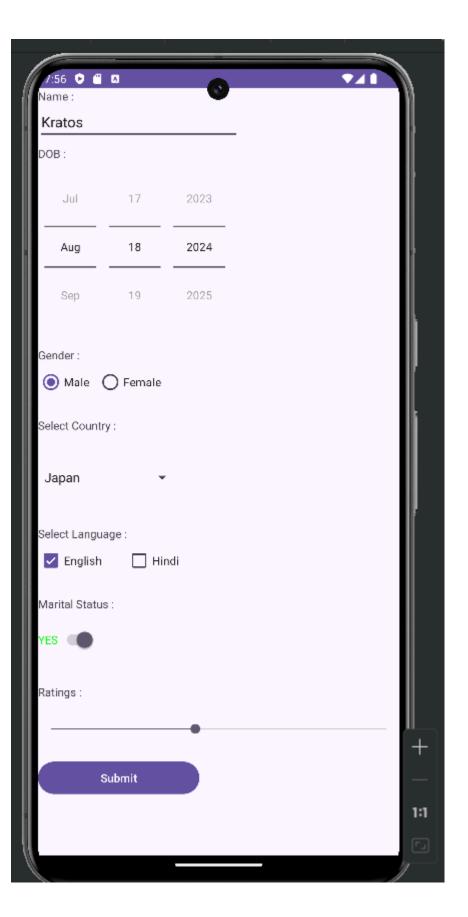
## Stud.java:

```
package com.example.registration;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;
public class stud extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
super.onCreate(savedInstanceState);
    setContentView(R.layout.activity stud);
    Bundle b = getIntent().getExtras();
    TextView name = findViewById(R.id.name);
    TextView dob = findViewById(R.id.dob);
    TextView gender = findViewById(R.id.gender);
    TextView lang= findViewById(R.id.lang1);
    TextView marital= findViewById(R.id.maritial);
    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"));
    lang.setText((b.getCharSequence("language")));
    marital.setText(b.getCharSequence("swi"));
    rating.setText(b.getCharSequence("value"));
    coun.setText(b.getCharSequence("country"));
  }
}
Arrays.xml:
<?xml version="1.0" encoding="utf-8"?>
<resources>
  <string-array name="country arrays">
    <item>India</item>
    <item>USA</item>
    <item>United Kingdom</item>
    <item>Germany</item>
    <item>France</item>
    <item>Japan</item>
    <item>Russia</item>
    <item>Australia</item>
  </string-array>
</resources>
```

## **Output:**





### **Practical No: 2.2**

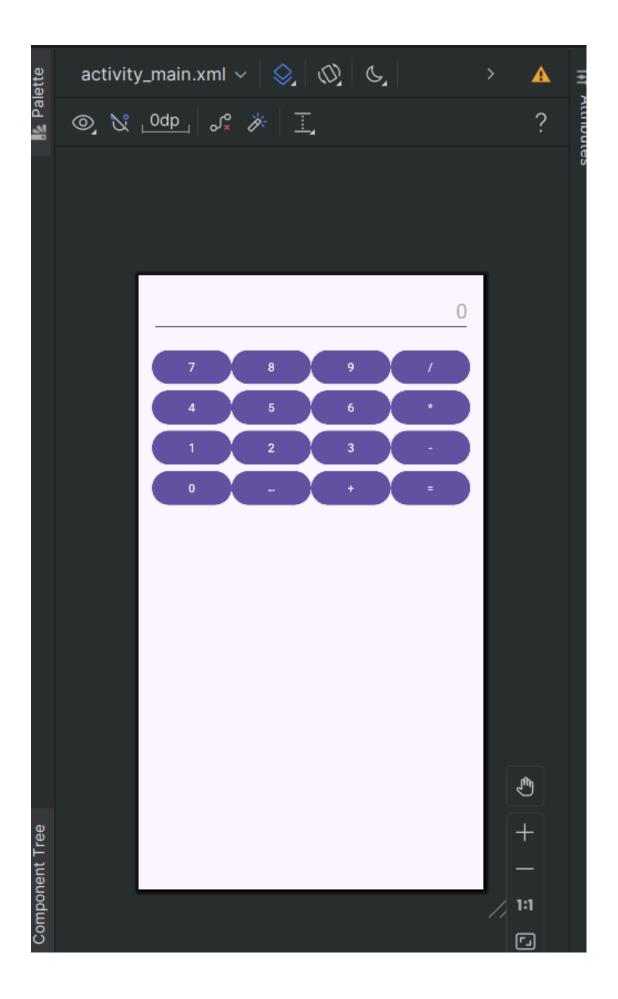
## Create a basic calculator to perform arithmetic operations with divide by zero validation.(using Alert box)

Activity\_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout width="match parent"
  android:layout height="match parent"
  android:padding="16dp">
  <EditText
    android:id="@+id/display"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:hint="0"
    android:inputType="none"
    android:textSize="24sp"
    android:gravity="right"/>
  <GridLayout
    android:layout width="match parent"
    android:layout height="wrap content"
    android:layout below="@id/display"
    android:layout marginTop="16dp"
    android:columnCount="4"
    android:rowCount="4"
    android:layout gravity="center">
    <!-- Row 1 -->
    <Button
       android:id="@+id/btn7"
       android:text="7"
       android:layout width="0dp"
       android:layout height="wrap content"
       android:layout columnWeight="1"/>
    <Button
       android:id="@+id/btn8"
       android:text="8"
       android:layout width="0dp"
       android:layout height="wrap content"
       android:layout columnWeight="1"/>
    <Button
       android:id="@+id/btn9"
       android:text="9"
       android:layout width="0dp"
       android:layout_height="wrap content"
```

```
android:layout columnWeight="1"/>
<Button
  android:id="@+id/btnDivide"
  android:text="/"
  android:layout width="0dp"
  android:layout height="wrap content"
  android:layout_columnWeight="1"/>
<!-- Row 2 -->
<Button
  android:id="@+id/btn4"
  android:text="4"
  android:layout width="0dp"
  android:layout height="wrap_content"
  android:layout columnWeight="1"/>
<Button
  android:id="@+id/btn5"
  android:text="5"
  android:layout width="0dp"
  android:layout height="wrap content"
  android:layout columnWeight="1"/>
<Button
  android:id="@+id/btn6"
  android:text="6"
  android:layout width="0dp"
  android:layout height="wrap content"
  android:layout columnWeight="1"/>
<Button
  android:id="@+id/btnMultiply"
  android:text="*"
  android:layout width="0dp"
  android:layout height="wrap content"
  android:layout columnWeight="1"/>
<!-- Row 3 -->
<Button
  android:id="@+id/btn1"
  android:text="1"
  android:layout width="0dp"
  android:layout height="wrap content"
  android:layout_columnWeight="1"/>
<Button
  android:id="@+id/btn2"
  android:text="2"
  android:layout width="0dp"
  android:layout height="wrap content"
```

```
android:layout columnWeight="1"/>
    <Button
      android:id="@+id/btn3"
      android:text="3"
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
    <Button
      android:id="@+id/btnSubtract"
      android:text="-"
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
    <!-- Row 4 -->
    <Button
      android:id="@+id/btn0"
      android:text="0"
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
    <Button
      android:id="@+id/btnBackspace"
      android:text="←"
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
    <Button
      android:id="@+id/btnAdd"
      android:text="+"
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
    <Button
      android:id="@+id/btnEquals"
      android:text="="
      android:layout width="0dp"
      android:layout height="wrap content"
      android:layout columnWeight="1"/>
  </GridLayout>
</RelativeLayout>
```



### MainActivity.java:

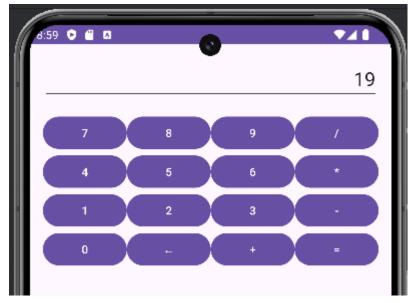
```
package com.example.cal;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  EditText display;
  Button btn0, btn1, btn2, btn3, btn4, btn5, btn6, btn7, btn8, btn9;
  Button btnAdd, btnSubtract, btnMultiply, btnDivide, btnEquals, btnBackspace;
  double value1, value2;
  boolean add, subtract, multiply, divide;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity main);
    display = findViewById(R.id.display);
    btn0 = findViewById(R.id.btn0);
    btn1 = findViewById(R.id.btn1);
    btn2 = findViewById(R.id.btn2);
    btn3 = findViewById(R.id.btn3);
    btn4 = findViewById(R.id.btn4);
    btn5 = findViewById(R.id.btn5);
    btn6 = findViewById(R.id.btn6);
    btn7 = findViewById(R.id.btn7);
    btn8 = findViewById(R.id.btn8);
    btn9 = findViewById(R.id.btn9);
    btnAdd = findViewById(R.id.btnAdd);
    btnSubtract = findViewById(R.id.btnSubtract);
    btnMultiply = findViewById(R.id.btnMultiply);
    btnDivide = findViewById(R.id.btnDivide);
    btnEquals = findViewById(R.id.btnEquals);
    btnBackspace = findViewById(R.id.btnBackspace);
    btn0.setOnClickListener(v -> display.append("0"));
    btn1.setOnClickListener(v -> display.append("1"));
    btn2.setOnClickListener(v -> display.append("2"));
    btn3.setOnClickListener(v -> display.append("3"));
    btn4.setOnClickListener(v -> display.append("4"));
    btn5.setOnClickListener(v -> display.append("5"));
    btn6.setOnClickListener(v -> display.append("6"));
```

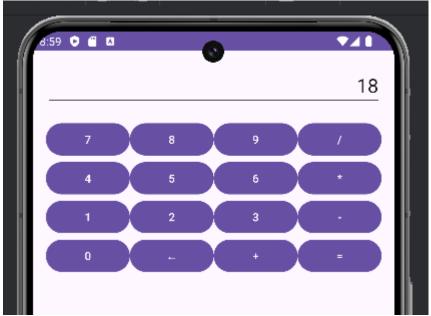
btn7.setOnClickListener(v -> display.append("7"));

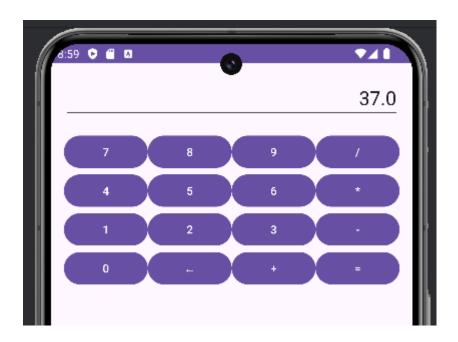
```
btn8.setOnClickListener(v -> display.append("8"));
btn9.setOnClickListener(v -> display.append("9"));
btnAdd.setOnClickListener(v -> {
  if (display.getText().length() != 0) {
     value1 = Double.parseDouble(display.getText().toString());
     add = true;
     display.setText(null);
  }
});
btnSubtract.setOnClickListener(v -> {
  if (display.getText().length() != 0) {
     value1 = Double.parseDouble(display.getText().toString());
     subtract = true;
     display.setText(null);
  }
});
btnMultiply.setOnClickListener(v -> {
  if (display.getText().length() != 0) {
     value1 = Double.parseDouble(display.getText().toString());
     multiply = true;
     display.setText(null);
  }
});
btnDivide.setOnClickListener(v -> {
  if (display.getText().length() != 0) {
     value1 = Double.parseDouble(display.getText().toString());
     divide = true;
     display.setText(null);
});
btnEquals.setOnClickListener(v -> {
  if (display.getText().length() != 0) {
     value2 = Double.parseDouble(display.getText().toString());
     if (add) {
       display.setText(String.valueOf(value1 + value2));
       add = false;
     if (subtract) {
       display.setText(String.valueOf(value1 - value2));
       subtract = false;
     if (multiply) {
       display.setText(String.valueOf(value1 * value2));
```

```
multiply = false;
       if (divide) {
          if (value2 == 0) {
            showAlertDialog("Error", "Cannot divide by zero.");
          } else {
            display.setText(String.valueOf(value1 / value2));
          divide = false;
       }
     }
  });
  btnBackspace.setOnClickListener(v -> {
     String currentText = display.getText().toString();
     if (currentText.length() > 0) {
       display.setText(currentText.substring(0, currentText.length() - 1));
     }
  });
private void showAlertDialog(String title, String message) {
  new AlertDialog.Builder(this)
       .setTitle(title)
       .setMessage(message)
       .setPositiveButton("OK", null)
       .show();
```

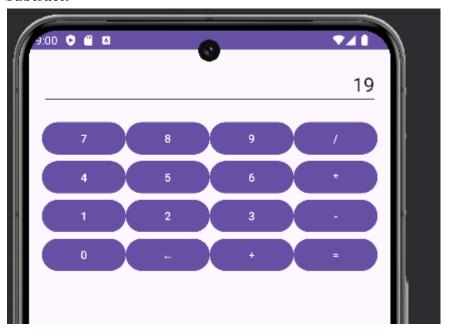
# Output: Add:

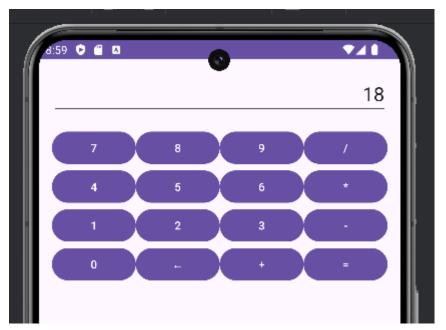


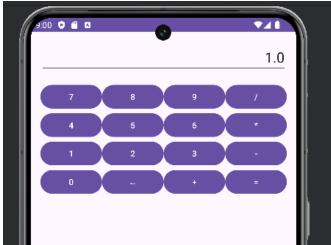




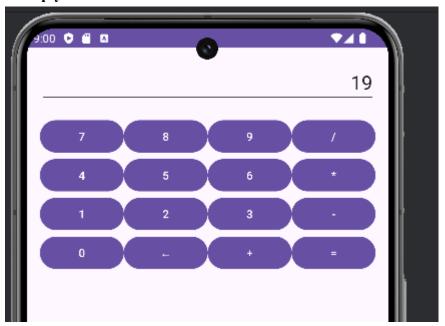
## **Subtract:**

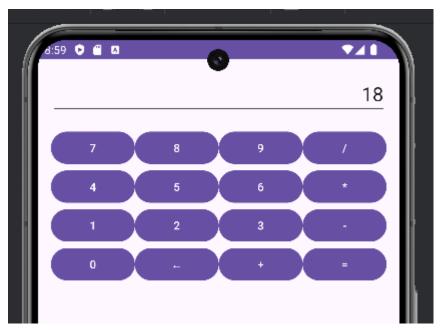


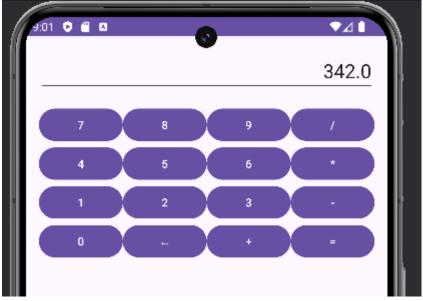




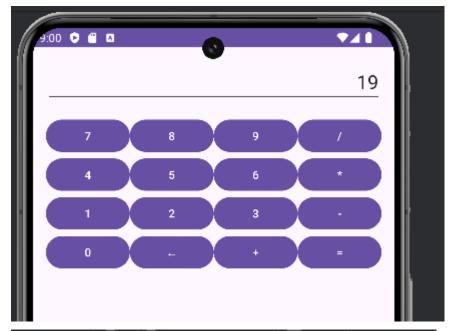
## **Multiply:**

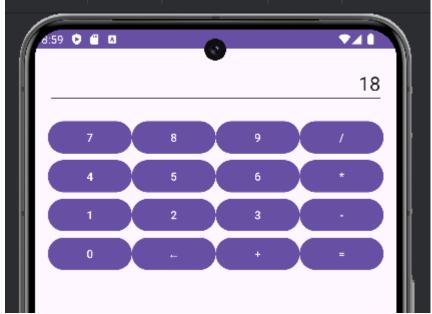


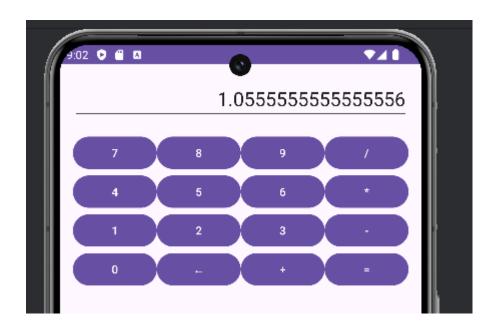




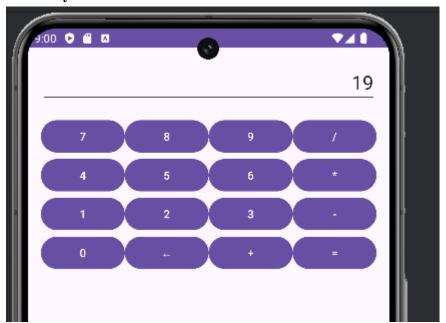
## Divide:

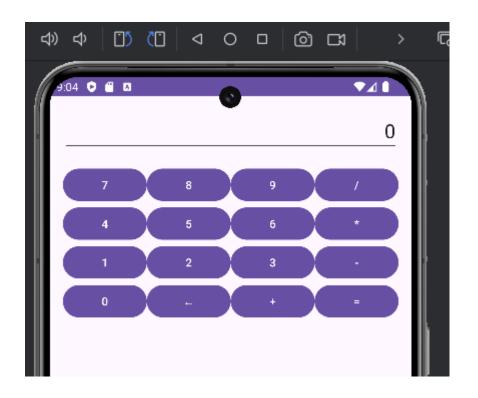


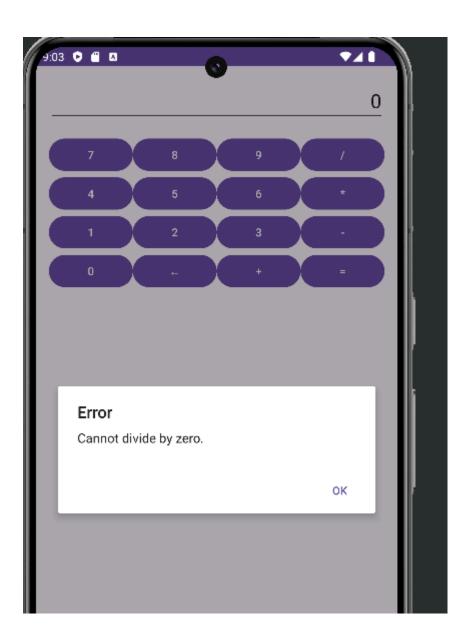




## Divide By Zero:



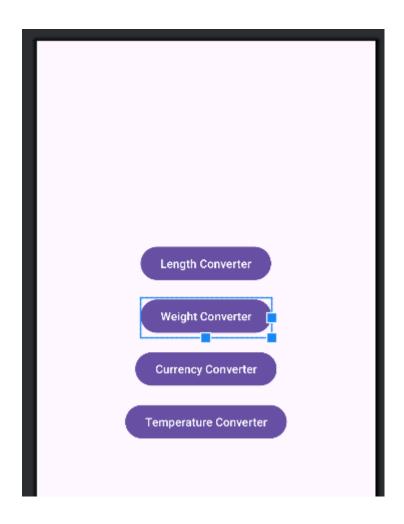




### **Practical No: 2.3**

Create an application for unit conversion (Length/Weight/Currency/Temperature). Activity main.xml:

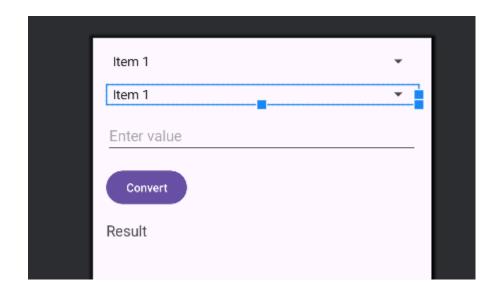
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout width="match parent"
  android:layout height="match parent"
  android:orientation="vertical"
  android:gravity="center"
  android:padding="16dp">
  <Button
    android:id="@+id/lengthButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Length Converter" />
  <Button
    android:id="@+id/weightButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Weight Converter"
    android:layout marginTop="16dp"/>
  <Button
    android:id="@+id/currencyButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Currency Converter"
    android:layout marginTop="16dp"/>
  <Button
    android:id="@+id/temperatureButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Temperature Converter"
    android:layout marginTop="16dp"/>
</LinearLayout>
```



## MainActivity.java:

```
package com.example.unitconverter;
import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity main);
    Button lengthButton = findViewById(R.id.lengthButton);
    Button weightButton = findViewById(R.id.weightButton);
    Button currencyButton = findViewById(R.id.currencyButton);
    Button temperatureButton = findViewById(R.id.temperatureButton);
    lengthButton.setOnClickListener(view -> startActivity(new Intent(MainActivity.this,
LengthActivity.class)));
    weightButton.setOnClickListener(view -> startActivity(new Intent(MainActivity.this,
WeightActivity.class)));
```

```
currencyButton.setOnClickListener(view -> startActivity(new Intent(MainActivity.this,
CurrencyActivity.class)));
    temperatureButton.setOnClickListener(view -> startActivity(new
Intent(MainActivity.this, TemperatureActivity.class)));
  }
}
Activity length.xml:
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout width="match parent"
  android:layout height="match parent"
  android:orientation="vertical"
  android:padding="16dp">
  <Spinner
    android:id="@+id/fromSpinner"
    android:layout width="match parent"
    android:layout height="wrap content" />
  <Spinner
    android:id="@+id/toSpinner"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:layout marginTop="16dp"/>
  <EditText
    android:id="@+id/inputValue"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:hint="Enter value"
    android:layout marginTop="16dp"/>
  <Button
    android:id="@+id/convertButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Convert"
    android:layout marginTop="16dp"/>
  <TextView
    android:id="@+id/resultView"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Result"
    android:textSize="18sp"
    android:layout marginTop="16dp"/>
</LinearLayout>
```



### LengthActivity.java:

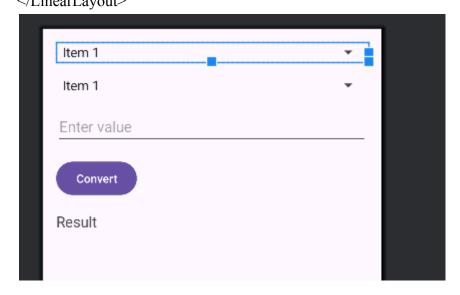
```
package com.example.unitconverter;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class LengthActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity length);
    Spinner fromSpinner = findViewById(R.id.fromSpinner);
    Spinner toSpinner = findViewById(R.id.toSpinner);
    EditText inputValue = findViewById(R.id.inputValue);
    TextView resultView = findViewById(R.id.resultView);
    Button convertButton = findViewById(R.id.convertButton);
    String[] units = {"Meters", "Kilometers", "Miles", "Feet"};
    ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple spinner item, units);
    fromSpinner.setAdapter(adapter);
    toSpinner.setAdapter(adapter);
    convertButton.setOnClickListener(view -> {
       String fromUnit = fromSpinner.getSelectedItem().toString();
       String toUnit = toSpinner.getSelectedItem().toString();
       double input = Double.parseDouble(inputValue.getText().toString());
       double result = convertLength(input, fromUnit, toUnit);
```

```
resultView.setText(String.valueOf(result));
    });
  private double convertLength(double input, String fromUnit, String toUnit) {
    if (fromUnit.equals("Meters") && toUnit.equals("Kilometers")) {
       return input / 1000;
    } else if (fromUnit.equals("Kilometers") && toUnit.equals("Meters")) {
       return input * 1000;
    } else if (fromUnit.equals("Miles") && toUnit.equals("Kilometers")) {
       return input * 1.60934;
    } else if (fromUnit.equals("Kilometers") && toUnit.equals("Miles")) {
       return input / 1.60934;
    } else if (fromUnit.equals("Feet") && toUnit.equals("Meters")) {
       return input * 0.3048;
    } else if (fromUnit.equals("Meters") && toUnit.equals("Feet")) {
       return input / 0.3048;
    return input; // Default return (no conversion)
}
Activity weight.xml:
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout width="match parent"
  android:layout height="match parent"
  android:orientation="vertical"
  android:padding="16dp">
  <Spinner
    android:id="@+id/fromSpinner"
    android:layout width="match parent"
    android:layout height="wrap content" />
  <Spinner
    android:id="@+id/toSpinner"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:layout marginTop="16dp"/>
  <EditText
    android:id="@+id/inputValue"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:hint="Enter value"
    android:layout marginTop="16dp"/>
```

```
<Button
    android:id="@+id/convertButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Convert"
    android:layout marginTop="16dp"/>
  <TextView
    android:id="@+id/resultView"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Result"
    android:textSize="18sp"
    android:layout marginTop="16dp"/>
</LinearLayout>
WeightActivity.java:
package com.example.unitconverter;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class WeightActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity weight);
    Spinner fromSpinner = findViewById(R.id.fromSpinner);
    Spinner toSpinner = findViewById(R.id.toSpinner);
    EditText inputValue = findViewById(R.id.inputValue);
    TextView resultView = findViewById(R.id.resultView);
    Button convertButton = findViewById(R.id.convertButton);
    String[] units = {"Kilograms", "Grams", "Pounds", "Ounces"};
    ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple spinner item, units);
    fromSpinner.setAdapter(adapter);
    toSpinner.setAdapter(adapter);
    convertButton.setOnClickListener(view -> {
       String fromUnit = fromSpinner.getSelectedItem().toString();
       String toUnit = toSpinner.getSelectedItem().toString();
       double input = Double.parseDouble(inputValue.getText().toString());
       double result = convertWeight(input, fromUnit, toUnit);
```

```
resultView.setText(String.valueOf(result));
    });
  }
  private double convertWeight(double input, String fromUnit, String toUnit) {
    if (fromUnit.equals("Kilograms") && toUnit.equals("Grams")) {
       return input * 1000;
    } else if (fromUnit.equals("Grams") && toUnit.equals("Kilograms")) {
       return input / 1000;
    } else if (fromUnit.equals("Pounds") && toUnit.equals("Kilograms")) {
       return input * 0.453592;
    } else if (fromUnit.equals("Kilograms") && toUnit.equals("Pounds")) {
       return input / 0.453592;
    } else if (fromUnit.equals("Ounces") && toUnit.equals("Grams")) {
       return input * 28.3495;
    } else if (fromUnit.equals("Grams") && toUnit.equals("Ounces")) {
       return input / 28.3495;
    return input; // Default return (no conversion)
}
Activity currency.xml:
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout width="match parent"
  android:layout height="match parent"
  android:orientation="vertical"
  android:padding="16dp">
  <Spinner
    android:id="@+id/fromSpinner"
    android:layout width="match parent"
    android:layout height="wrap content" />
  <Spinner
    android:id="@+id/toSpinner"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:layout marginTop="16dp"/>
  <EditText
    android:id="@+id/inputValue"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:hint="Enter value"
    android:layout marginTop="16dp"/>
  <Button
```

```
android:id="@+id/convertButton"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Convert"
android:layout_marginTop="16dp" />
<TextView
android:id="@+id/resultView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Result"
android:textSize="18sp"
android:layout_marginTop="16dp" />
</LinearLayout>
```



#### CurrencyActivity.java:

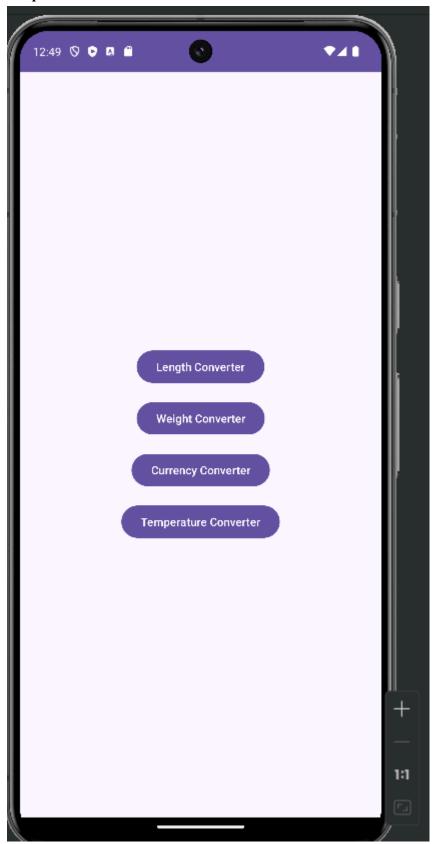
```
package com.example.unitconverter;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class CurrencyActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity currency);
    Spinner fromSpinner = findViewById(R.id.fromSpinner);
    Spinner toSpinner = findViewById(R.id.toSpinner);
    EditText inputValue = findViewById(R.id.inputValue);
```

```
TextView resultView = findViewById(R.id.resultView);
    Button convertButton = findViewById(R.id.convertButton);
    String[] units = {"USD", "EUR", "INR", "GBP"};
    ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple spinner item, units);
    fromSpinner.setAdapter(adapter);
    toSpinner.setAdapter(adapter);
    convertButton.setOnClickListener(view -> {
       String fromUnit = fromSpinner.getSelectedItem().toString();
       String toUnit = toSpinner.getSelectedItem().toString();
       double input = Double.parseDouble(inputValue.getText().toString());
       double result = convertCurrency(input, fromUnit, toUnit);
       resultView.setText(String.valueOf(result));
    });
  }
  private double convertCurrency(double input, String fromUnit, String toUnit) {
    // Static conversion rates
    double rate = 1.0;
    if (fromUnit.equals("USD") && toUnit.equals("EUR")) {
       rate = 0.85;
     } else if (fromUnit.equals("EUR") && toUnit.equals("USD")) {
       rate = 1.18;
     } else if (fromUnit.equals("USD") && toUnit.equals("INR")) {
       rate = 74.0:
     } else if (fromUnit.equals("INR") && toUnit.equals("USD")) {
       rate = 0.0135;
     } else if (fromUnit.equals("GBP") && toUnit.equals("INR")) {
       rate = 101.0;
     } else if (fromUnit.equals("INR") && toUnit.equals("GBP")) {
       rate = 0.0099;
    return input * rate;
}
Activity temperature.xml:
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  android:layout_width="match_parent"
  android:layout height="match parent"
  android:orientation="vertical"
  android:padding="16dp">
  <Spinner
    android:id="@+id/fromSpinner"
```

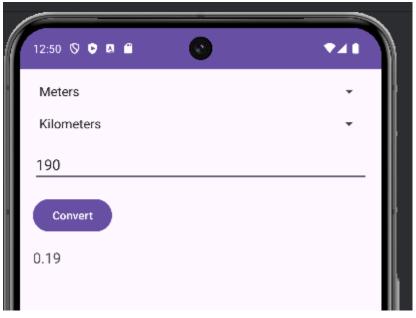
```
android:layout width="match parent"
    android:layout height="wrap content" />
  <Spinner
    android:id="@+id/toSpinner"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:layout marginTop="16dp" />
  <EditText
    android:id="@+id/inputValue"
    android:layout width="match parent"
    android:layout height="wrap content"
    android:hint="Enter value"
    android:layout marginTop="16dp"/>
  <Button
    android:id="@+id/convertButton"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Convert"
    android:layout marginTop="16dp"/>
  <TextView
    android:id="@+id/resultView"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Result"
    android:textSize="18sp"
    android:layout marginTop="16dp"/>
</LinearLayout>
TemperatureActivity.java:
package com.example.unitconverter;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class TemperatureActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity temperature);
    Spinner fromSpinner = findViewById(R.id.fromSpinner);
```

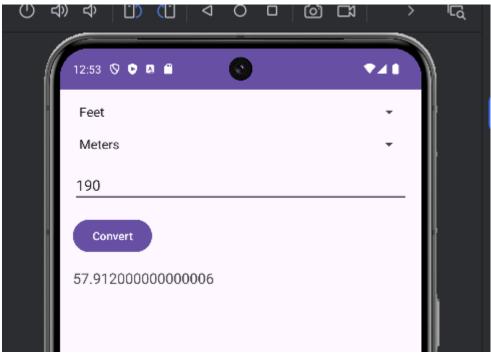
```
Spinner toSpinner = findViewById(R.id.toSpinner);
    EditText inputValue = findViewById(R.id.inputValue);
    TextView resultView = findViewById(R.id.resultView);
    Button convertButton = findViewById(R.id.convertButton);
    String[] units = {"Celsius", "Fahrenheit", "Kelvin"};
    ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple spinner item, units);
    fromSpinner.setAdapter(adapter);
    toSpinner.setAdapter(adapter);
    convertButton.setOnClickListener(view -> {
       String fromUnit = fromSpinner.getSelectedItem().toString();
       String toUnit = toSpinner.getSelectedItem().toString();
       double input = Double.parseDouble(inputValue.getText().toString());
       double result = convertTemperature(input, fromUnit, toUnit);
       resultView.setText(String.valueOf(result));
    });
  private double convertTemperature(double input, String fromUnit, String toUnit) {
    if (fromUnit.equals("Celsius") && toUnit.equals("Fahrenheit")) {
       return (input *9/5) + 32;
    } else if (fromUnit.equals("Fahrenheit") && toUnit.equals("Celsius")) {
       return (input - 32) * 5/9;
     } else if (fromUnit.equals("Celsius") && toUnit.equals("Kelvin")) {
       return input +273.15;
     } else if (fromUnit.equals("Kelvin") && toUnit.equals("Celsius")) {
       return input - 273.15;
     } else if (fromUnit.equals("Fahrenheit") && toUnit.equals("Kelvin")) {
       return (input - 32) * 5/9 + 273.15;
     } else if (fromUnit.equals("Kelvin") && toUnit.equals("Fahrenheit")) {
       return (input - 273.15) * 9/5 + 32;
    return input; // Default return (no conversion)
}
```

## **Output:**

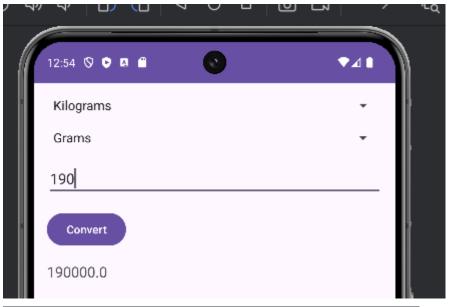


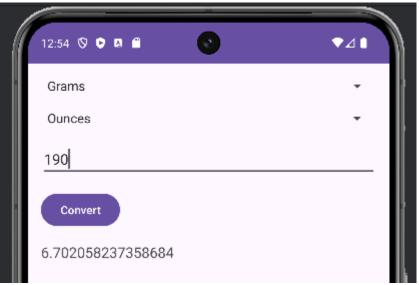
## For Length:



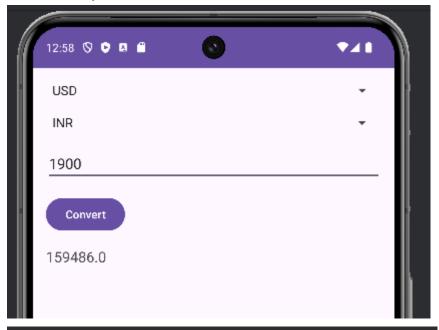


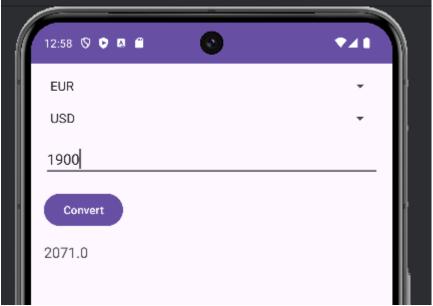
## For weight:



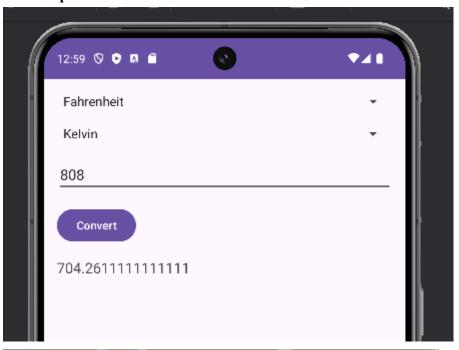


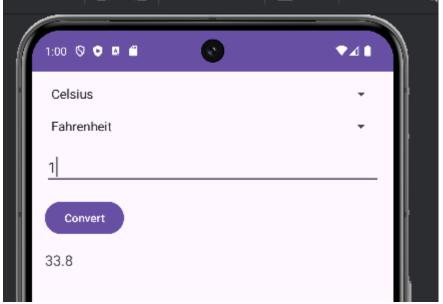
## For Currency:





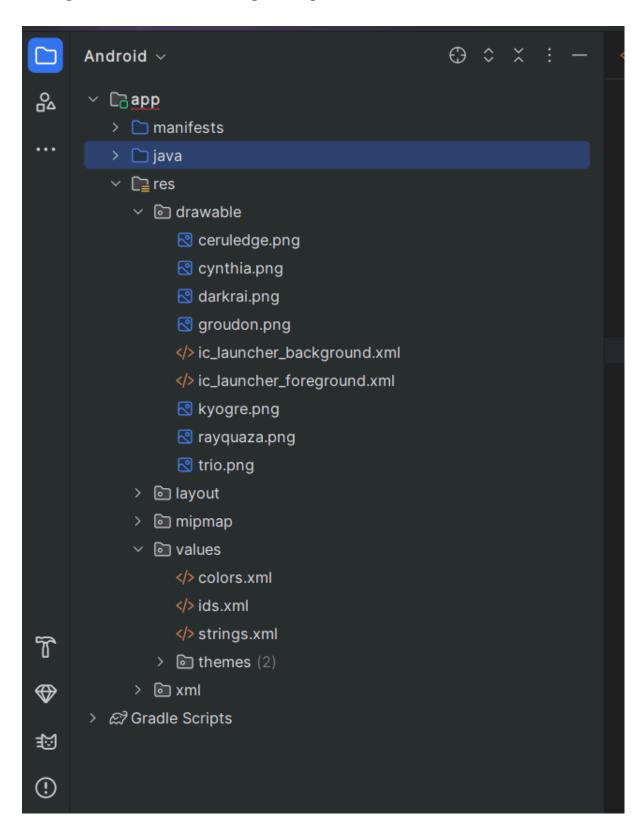
## For Temperature:





#### **Practical No: 2.4**

Create an 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"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"</pre>
  android:layout width="match parent"
  android:layout height="match parent">
  <GridView
    android:id="@+id/gridView"
    android:layout_width="match_parent"
    android:layout height="wrap content"
    android:numColumns="3"
    android:verticalSpacing="10dp"
    android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"
    android:gravity="center" />
  <ImageView
    android:id="@+id/selectedImageView"
    android:layout width="match parent"
    android:layout height="300dp"
    android:layout_below="@id/gridView"
    android:layout_marginTop="20dp"
    android:scaleType="fitCenter"
    android:visibility="gone" />
```

# </RelativeLayout>

Item 1	Item 2	Item 3	
Sub Item 1	Sub Item 2	Sub Item 3	
Item 4 Sub Item 4	Item 5 Sub Item 5	Item 6 Sub Item 6	
Sub Item 4	Sub item 5	Sub item 6	
Item 7	Item 8	Item 9	
Sub Item 7	Sub Item 8	Sub Item 9	
Item 10	Item 11	Item 12	
Sub Item 10	Sub Item 11	Sub Item 12	
20			
Item 13	Item 14	Item 15	
Sub Item 13	Sub Item 14	Sub Item 15	
Item 16	Item 17	Item 18	
Sub Item 16	Sub Item 17	Sub Item 18	
Item 19	Item 20	Item 21	
Sub Item 19	Sub Item 20	Sub Item 21	
Item 22	Item 23	Item 24	
Sub Item 22	Sub Item 23	Sub Item 24	
<u> </u>			
			//

```
MainActivity.java:
package com.example.gallery;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.GridView;
import android.widget.ImageView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  private ImageView selectedImageView;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity main);
    GridView gridView = findViewById(R.id.gridView);
    selectedImageView = findViewById(R.id.selectedImageView);
    gridView.setAdapter(new ImageAdapter(this));
    gridView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
       @Override
       public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
         // Show the selected image in the ImageView below the grid
         selectedImageView.setImageResource((Integer)
parent.getItemAtPosition(position));
         selectedImageView.setVisibility(View.VISIBLE);
      }
    });
ImageAdapter.java:
package com.example.gallery;
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 context;
  private Integer[] images = {
       R.drawable.ceruledge, R.drawable.cynthia, R.drawable.darkrai,
       R.drawable.groudon, R.drawable.kyogre, R.drawable.rayquaza, R.drawable.trio
       // Add more images as needed
  };
```

```
public ImageAdapter(Context context) {
    this.context = context;
  @Override
  public int getCount() {
    return images.length;
  @Override
  public Object getItem(int position) {
    return images[position];
  @Override
  public long getItemId(int position) {
    return position;
  @Override
  public View getView(int position, View convertView, ViewGroup parent) {
    ImageView imageView;
    if (convertView == null) {
       imageView = new ImageView(context);
       imageView.setLayoutParams(new GridView.LayoutParams(250, 250));
       imageView.setScaleType(ImageView.ScaleType.CENTER CROP);
       imageView.setPadding(8, 8, 8, 8);
    } else {
       imageView = (ImageView) convertView;
    imageView.setImageResource(images[position]);
    return imageView;
}
```

# Output:

