

## 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"
    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"
/>
<RadioGroup
    android:id="@+id/rd1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    <RadioButton
        android:id="@+id/rb1"
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Male"
    />
    <RadioButton
        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"

```

```

        android:max="100" />
<Button
    android:id="@+id/button"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:text="Submit"
    />
</LinearLayout>
</ScrollView>
</LinearLayout>

```

Name :

Enter Name

DOB :

31	Dec	1969
01	Jan	1970
02	Feb	1971

Gender :

☐ Male ☐ Female

Select Country :

Item 1 ▼

Select Language :

☐ English ☐ Hindi

Marital Status :

Yes ☒

**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.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(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 onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
        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"
    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" />

```



```

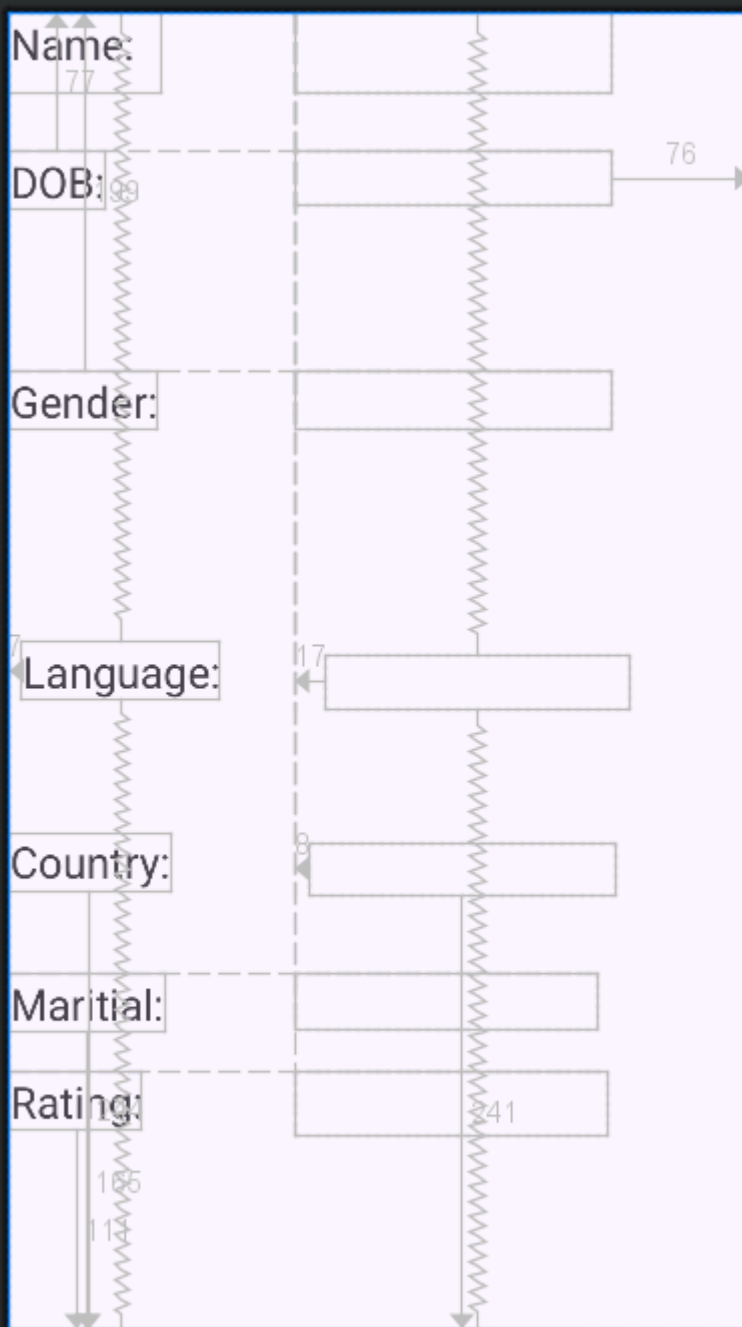
<TextView
    android:id="@+id/gender"
    android:layout_width="177dp"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/name"
    android:layout_alignTop="@+id/textView9"
    android:textSize="24sp"
    tools:layout_editor_absoluteX="134dp"
    tools:layout_editor_absoluteY="214dp" />
<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="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_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.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"));
lang.setText((b.getCharSequence("language")));
marital.setText(b.getCharSequence("swi"));
rating.setText(b.getCharSequence("value"));
coun.setText(b.getCharSequence("country"));
    }
}

```

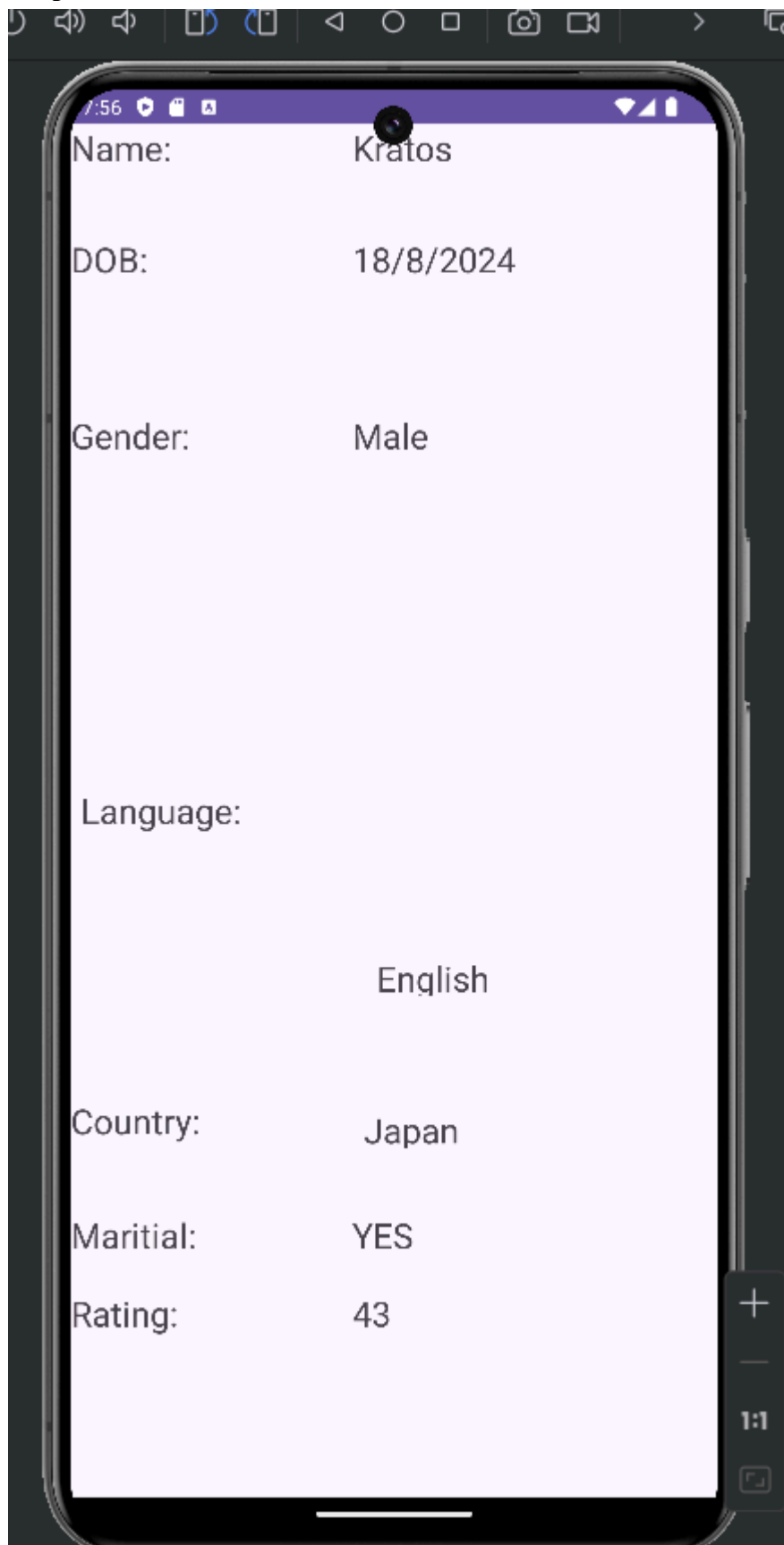
### **Arrays.xml:**

```

<?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:**



7:56

Name :

Kratos

DOB :

Jul 17 2023

Aug 18 2024

Sep 19 2025

Gender :

☒ Male ☐ Female

Select Country :

Japan

Select Language :

☒ English ☐ Hindi

Marital Status :

YES

Ratings :

Submit

+

1:1

## 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"
    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>

```

Palette

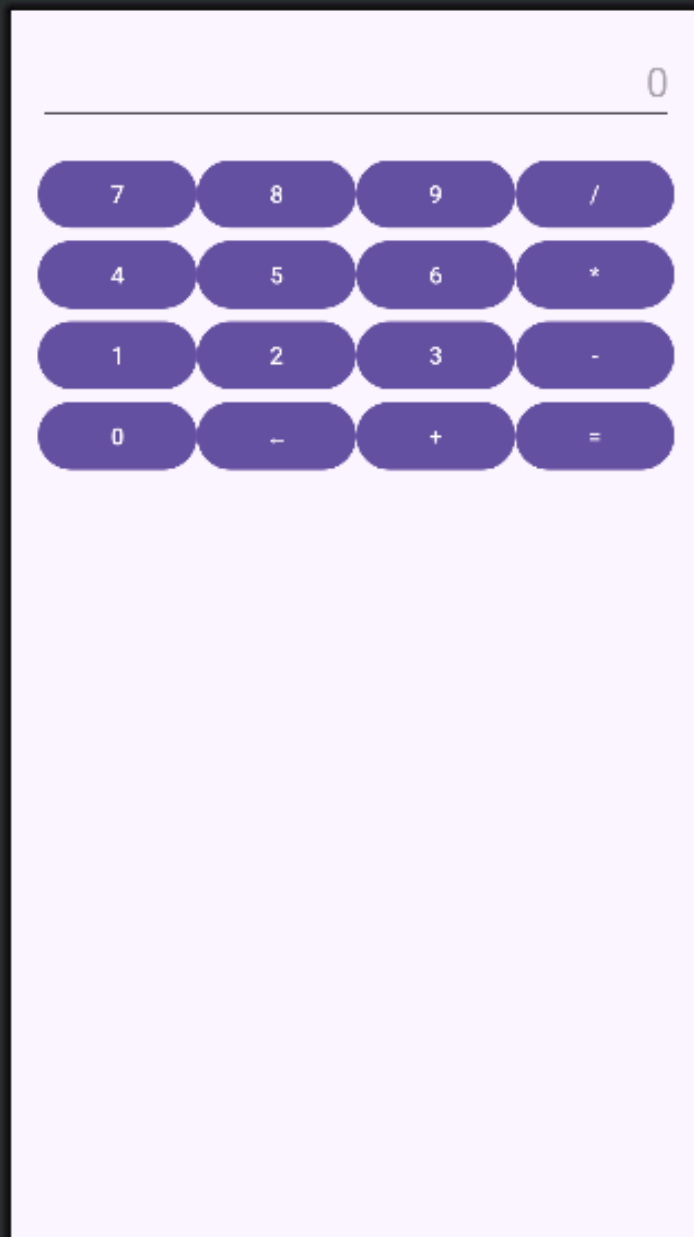
activity\_main.xml



0dp



Component Tree



1:1



**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));
        }
    }
});

```

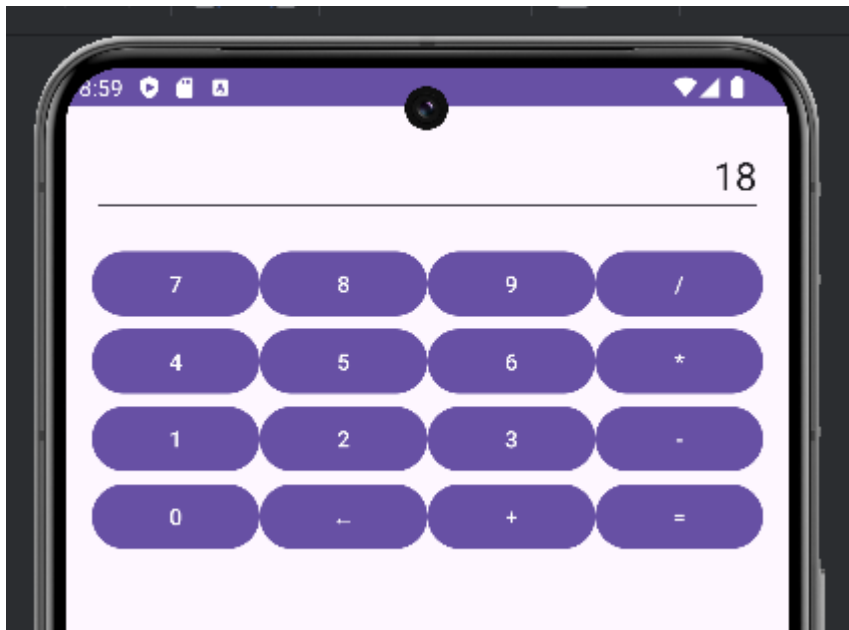
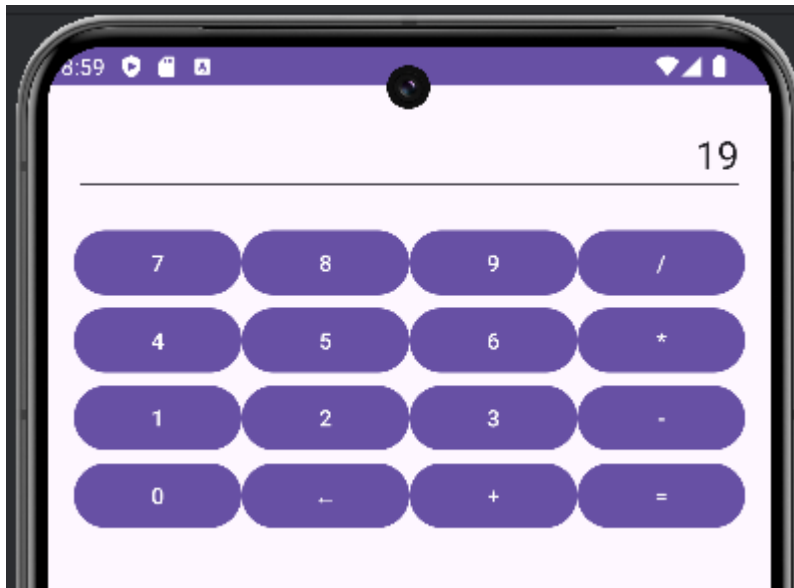
```

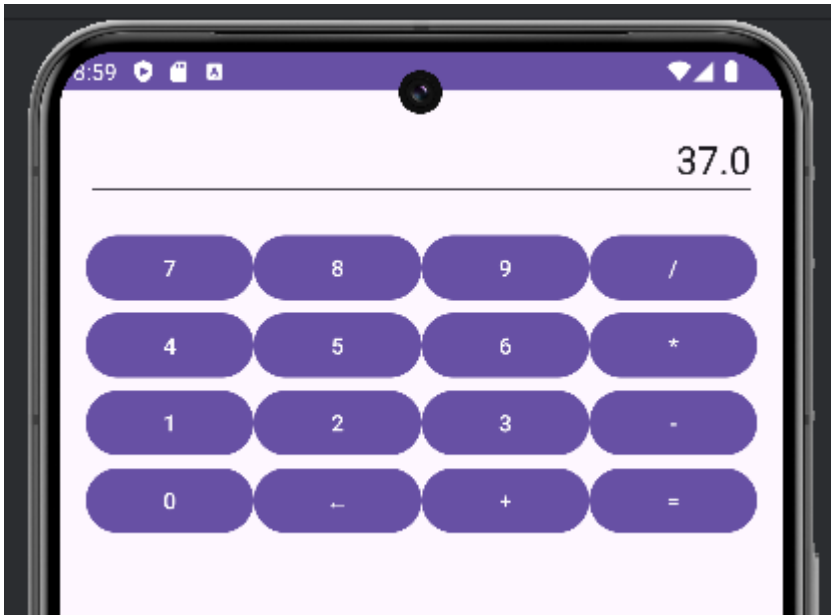
        multiply = false;
    }
    if (divide) {
        if (value2 == 0) {
            showAlertDialog("Error", "Cannot divide by zero.");
        } else {
            display.setText(String.valueOf(value1 / value2));
        }
        divide = false;
    }
}
});
btnBackspace.setOnClickListener(v -> {
    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();
}
}

```

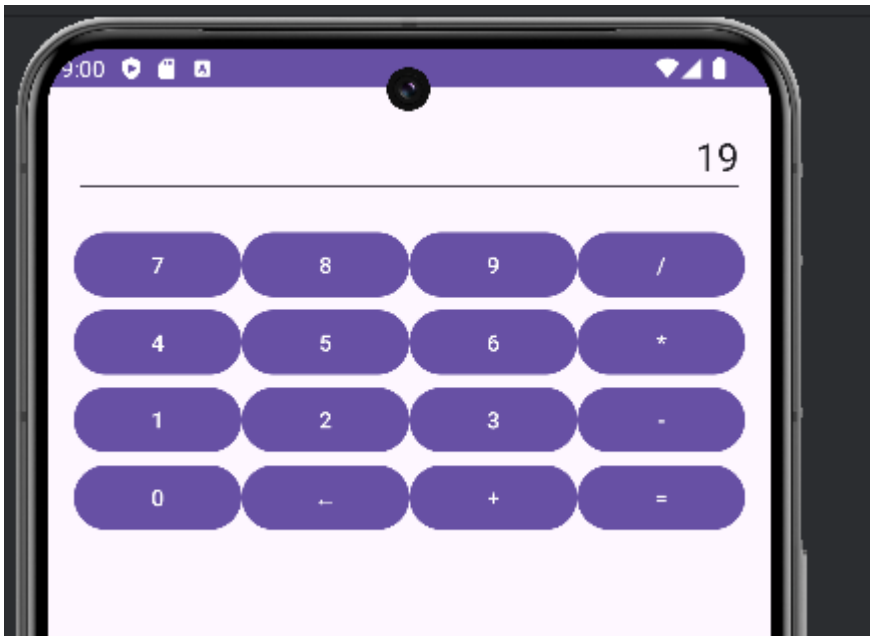
**Output:**

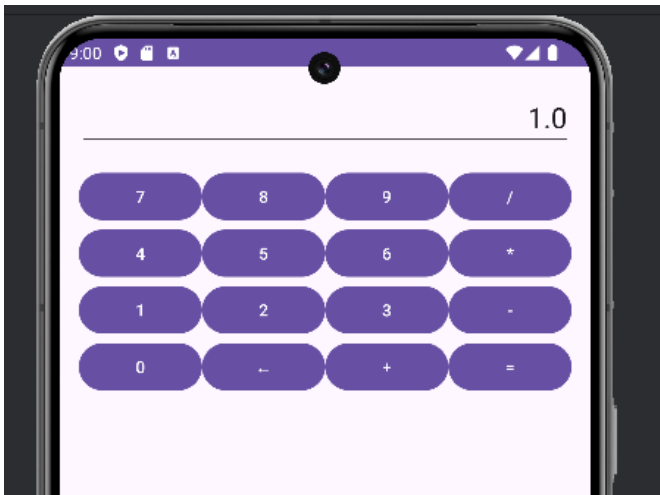
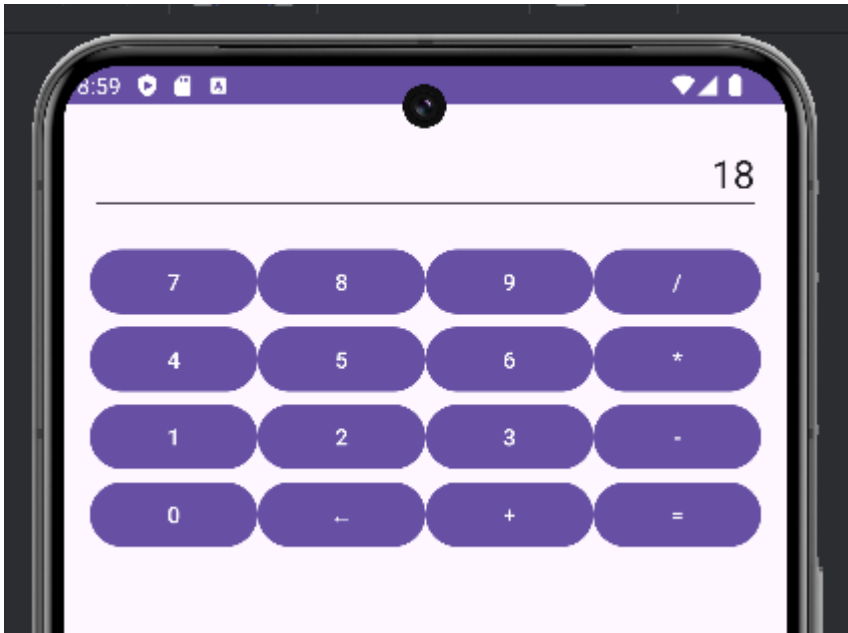
**Add:**



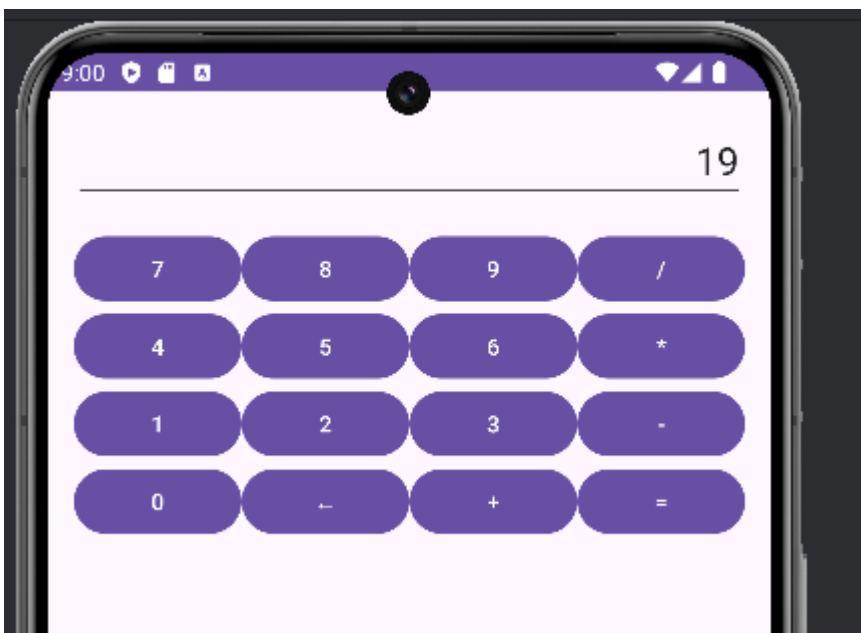


**Subtract:**

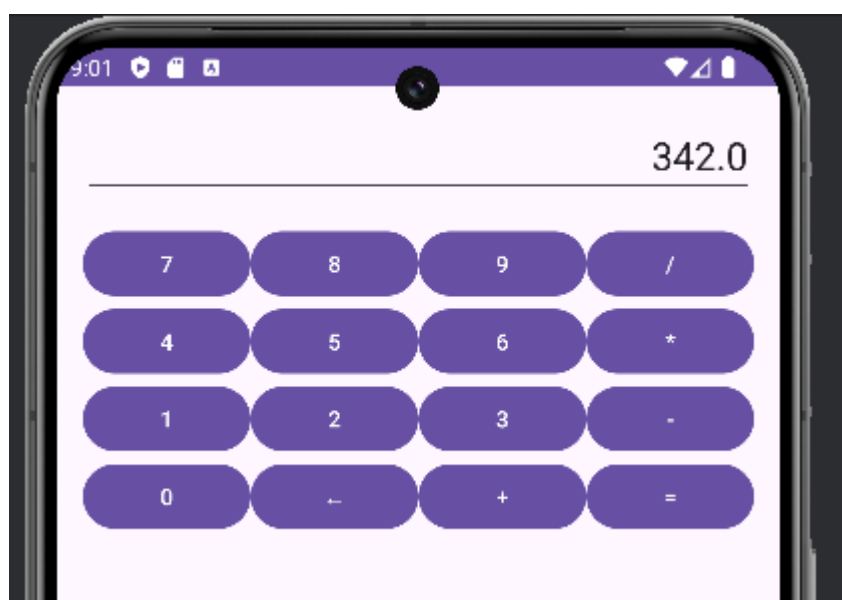
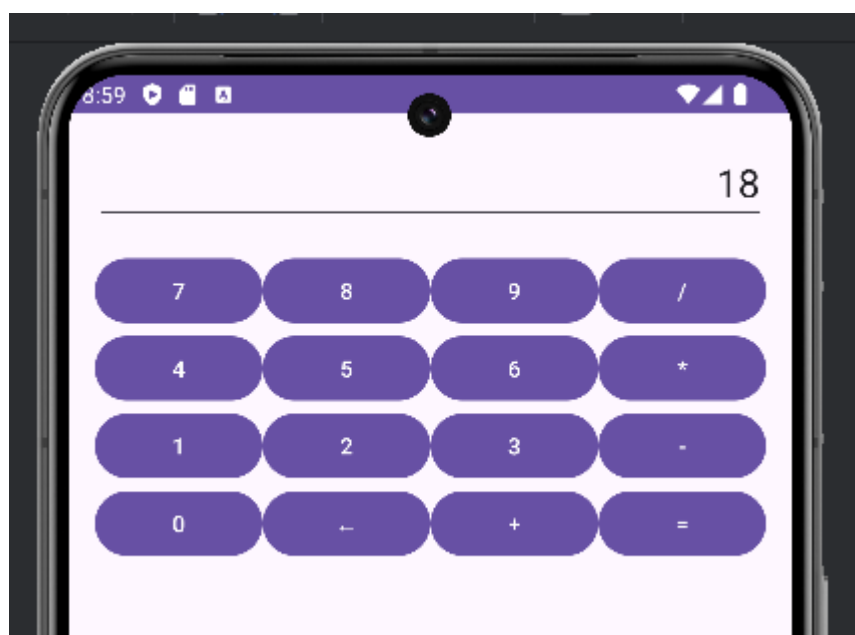




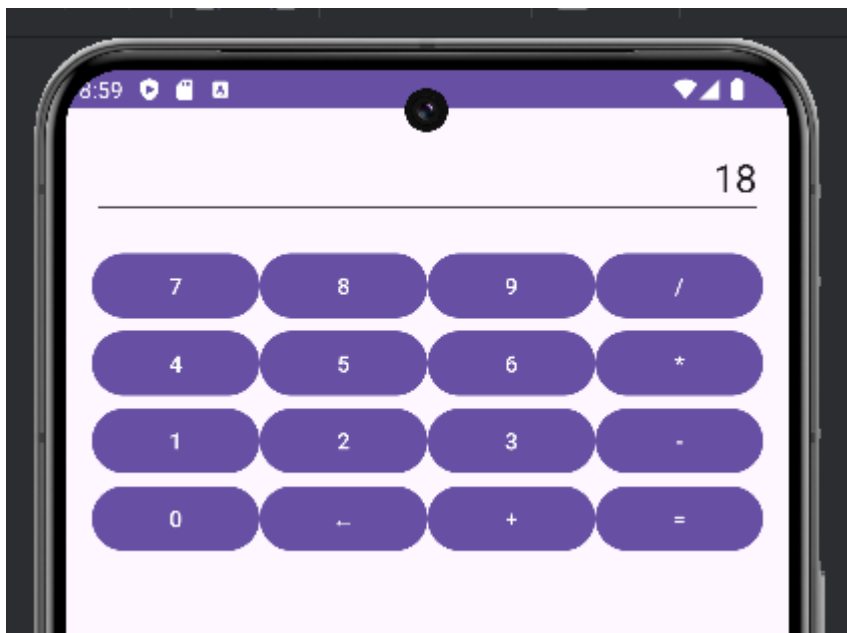
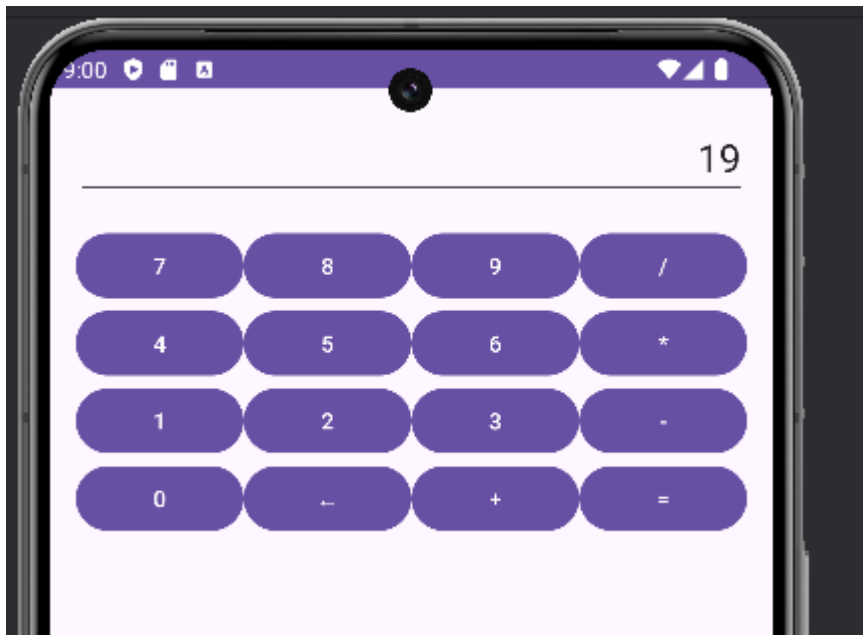
**Multiply:**

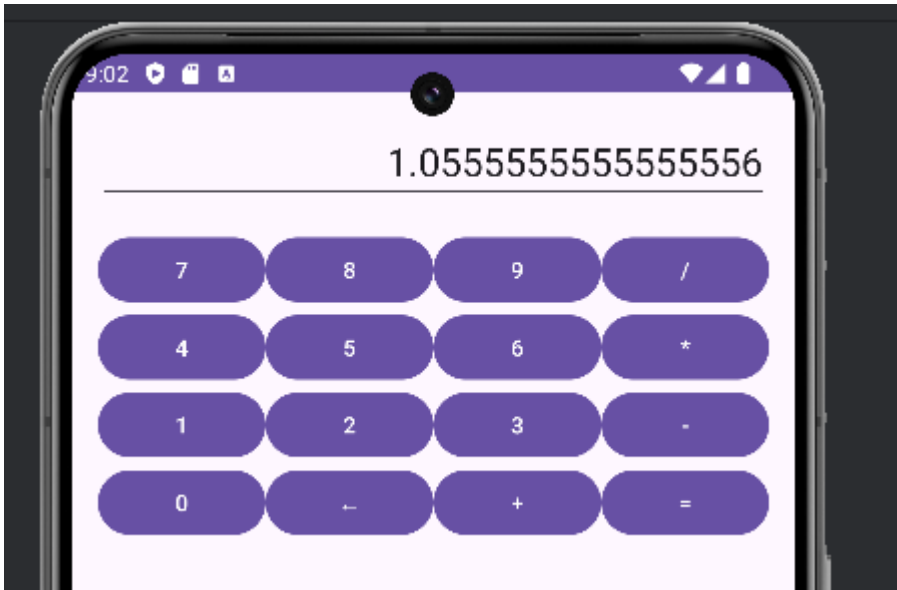




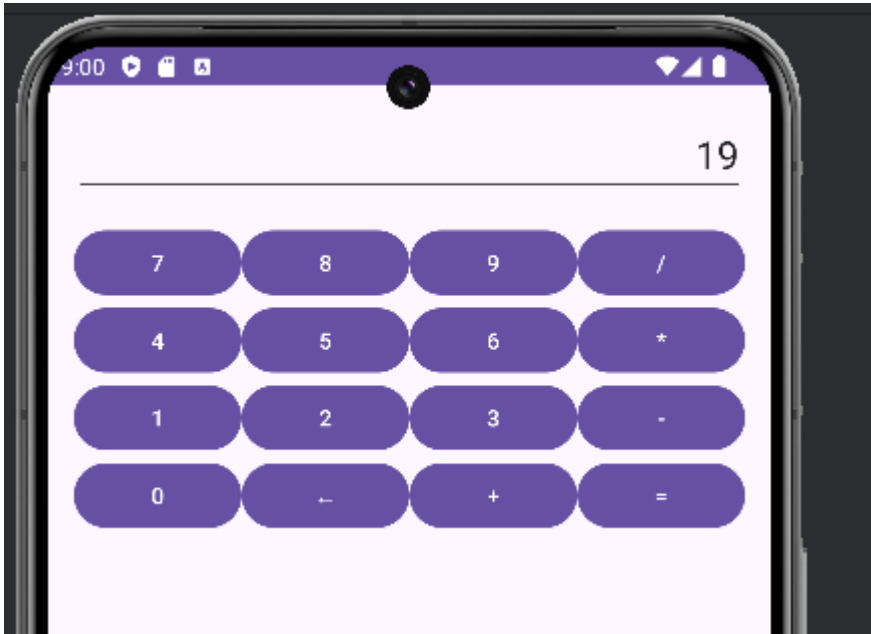


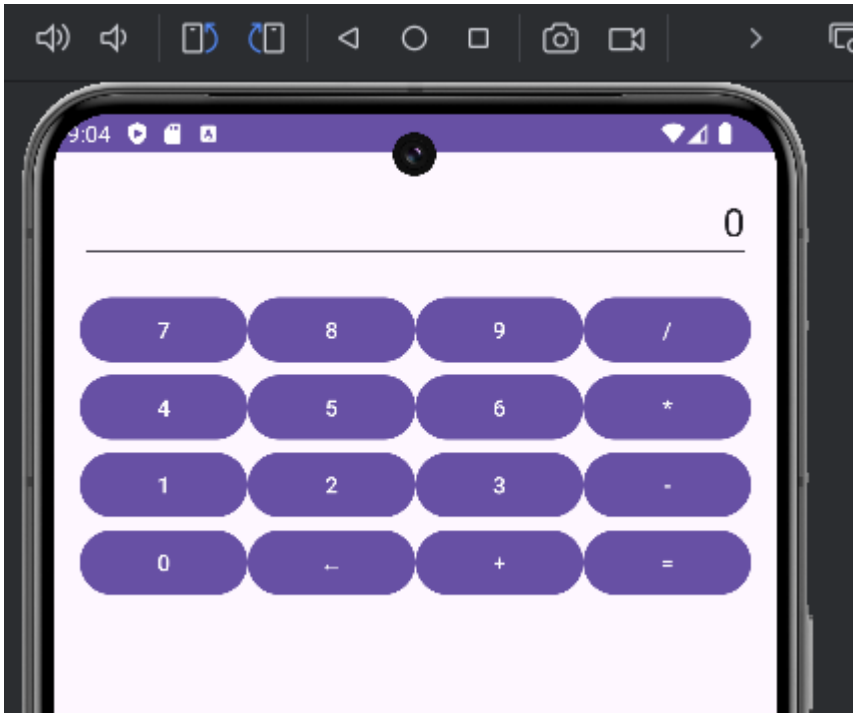
**Divide:**

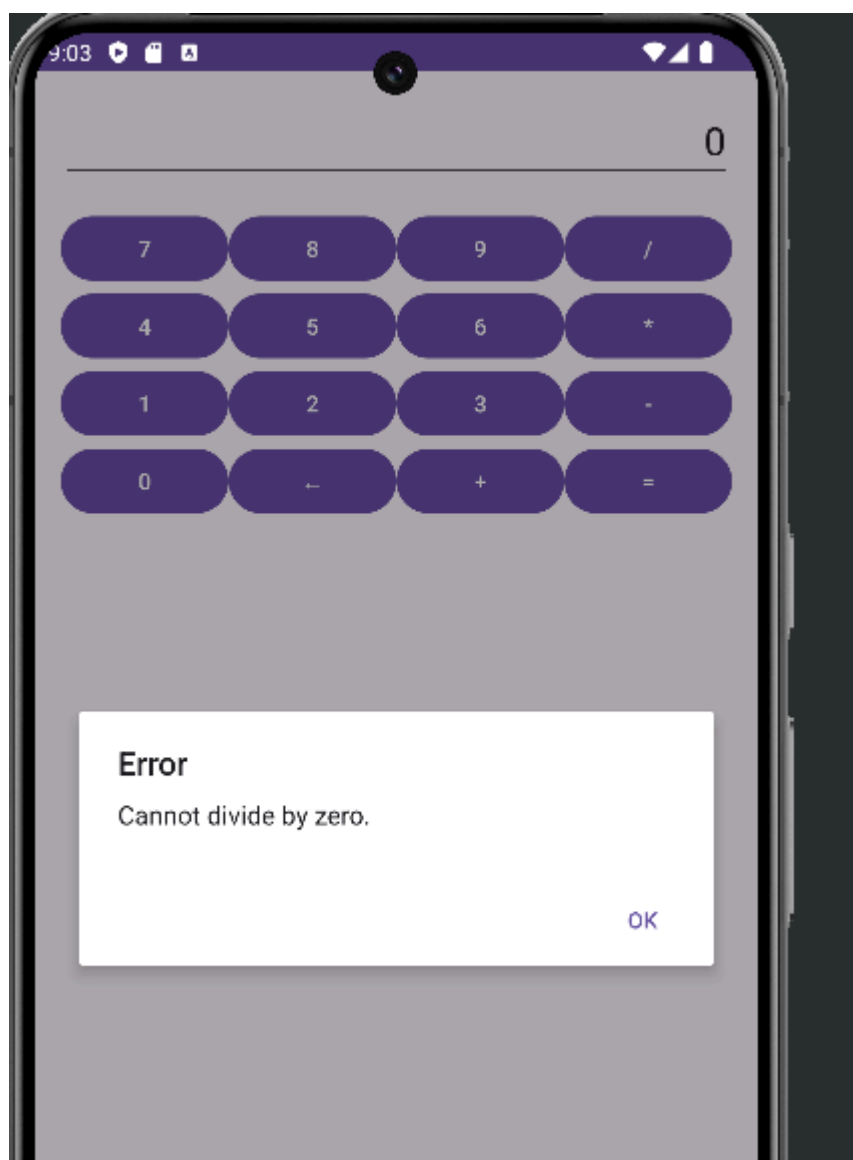




**Divide By Zero:**





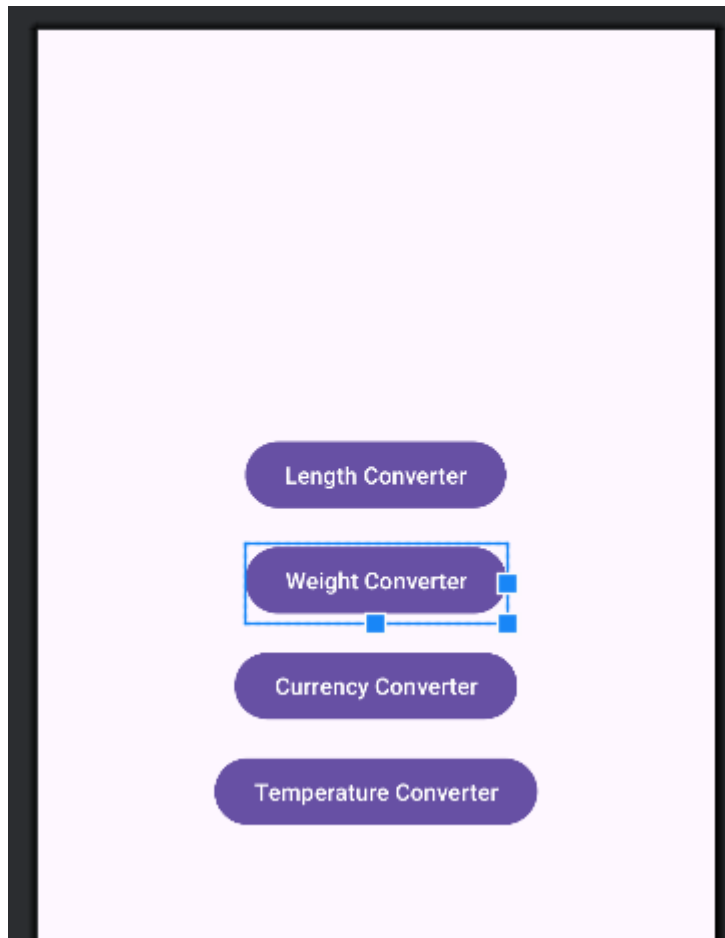


### Practical No: 2.3

**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"
    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:**

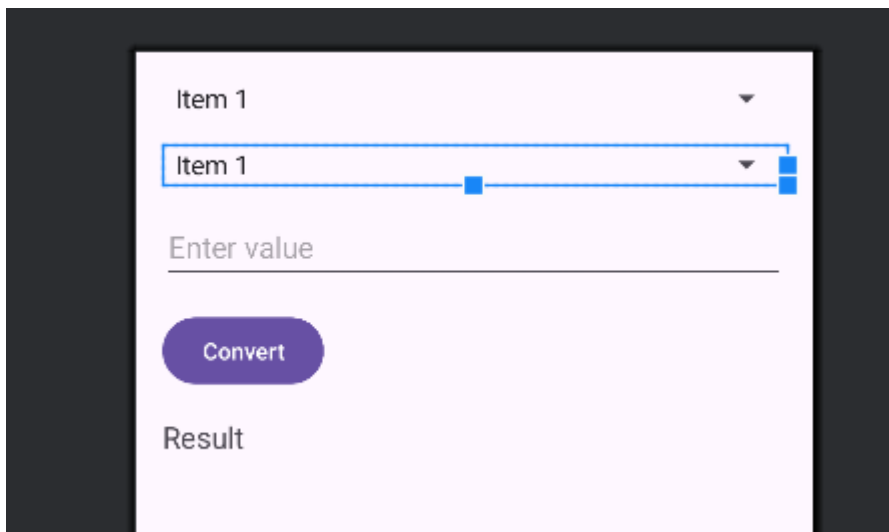
```

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

```

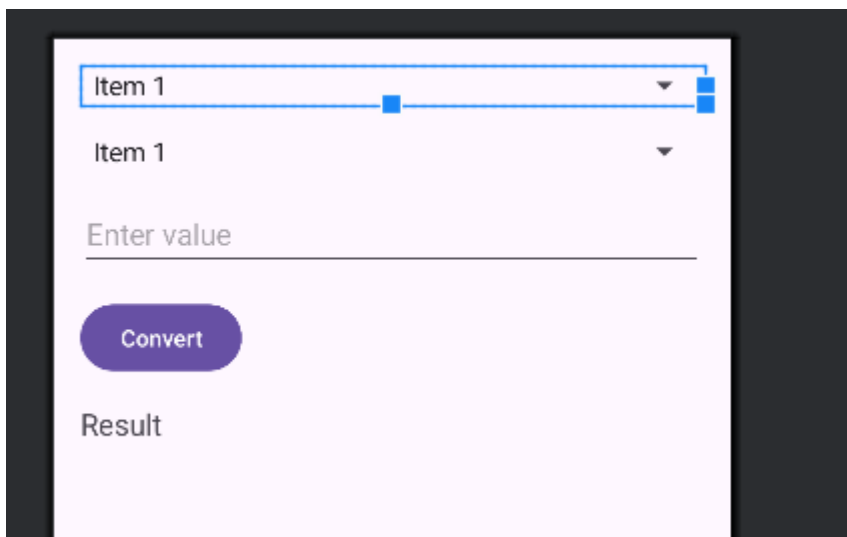
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <Spinner
        android:id="@+id/fromSpinner"
        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"
    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);

```

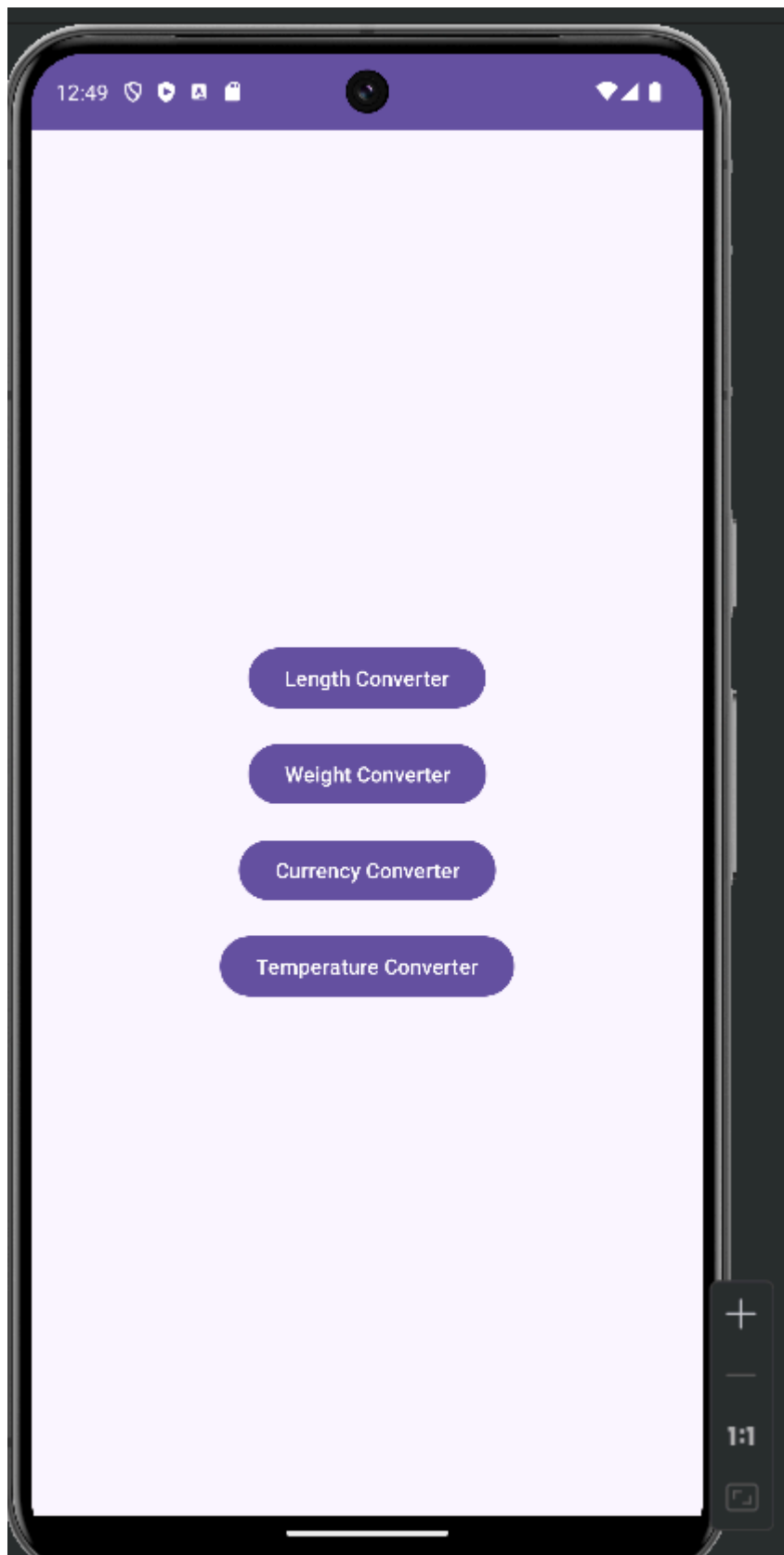
```

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)
}
}

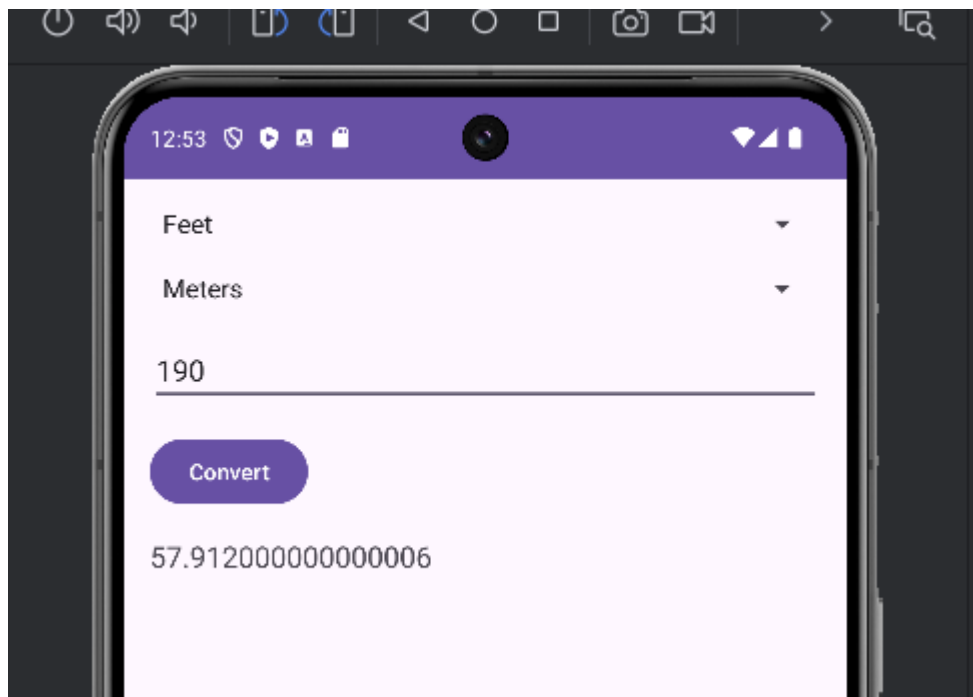
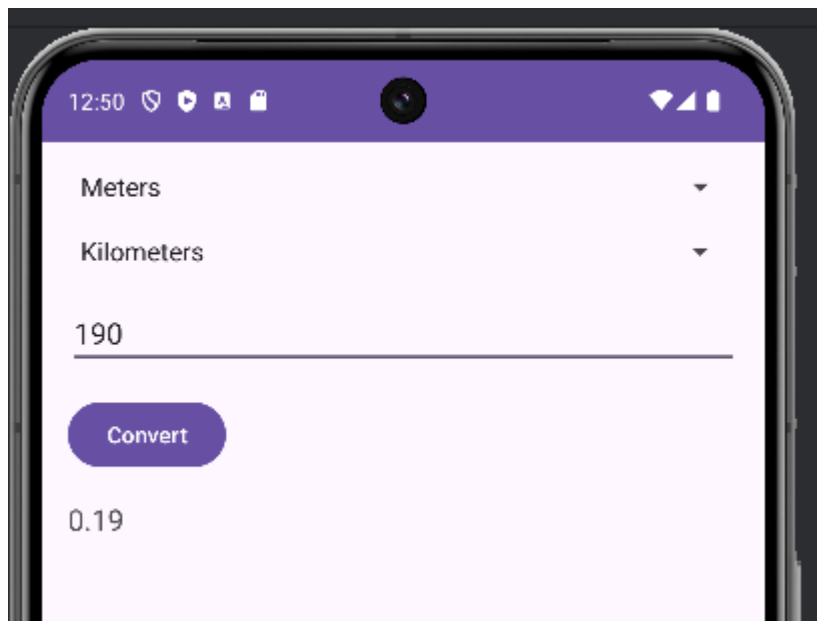
```



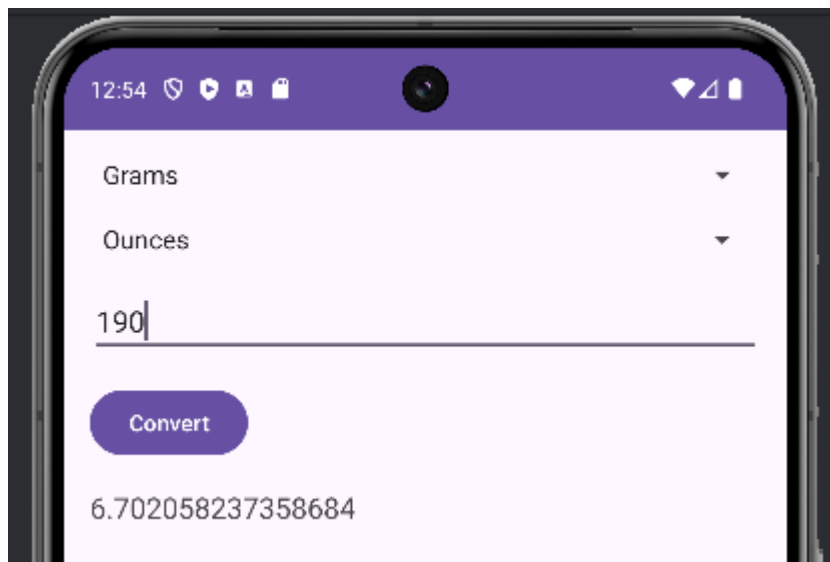
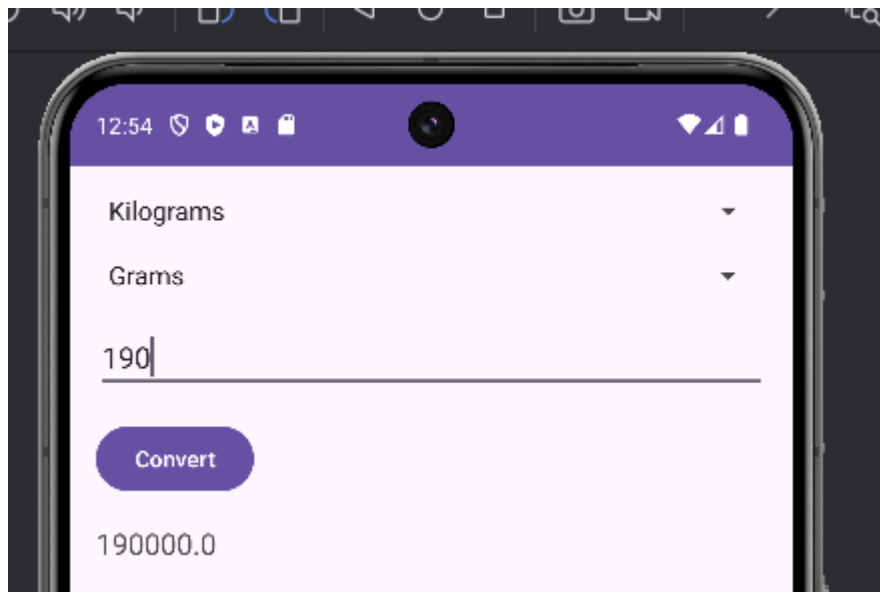
**Output:**



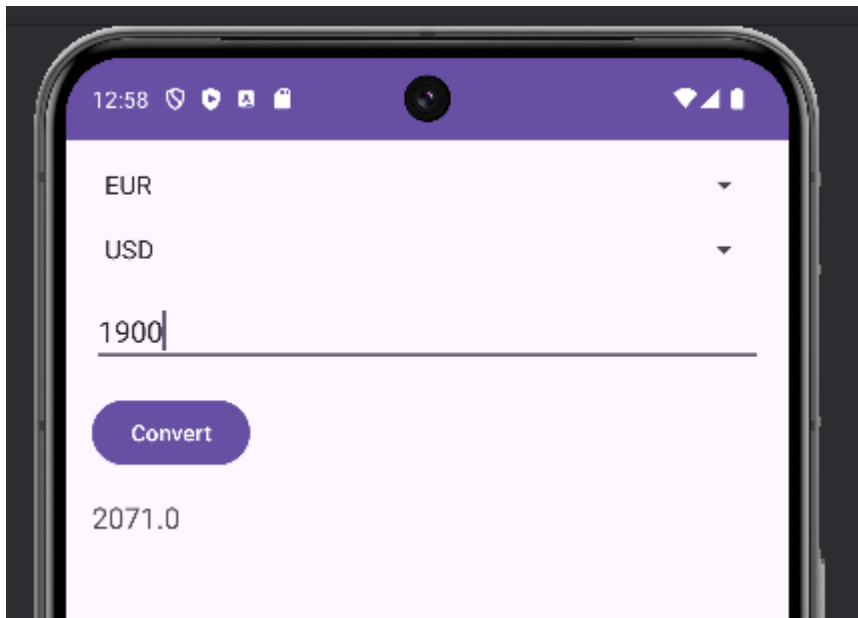
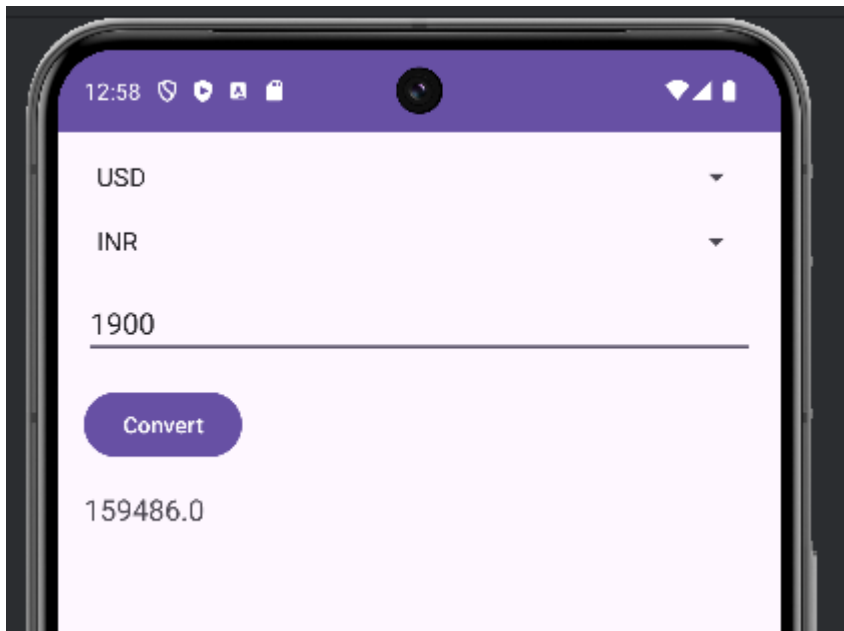
**For Length:**



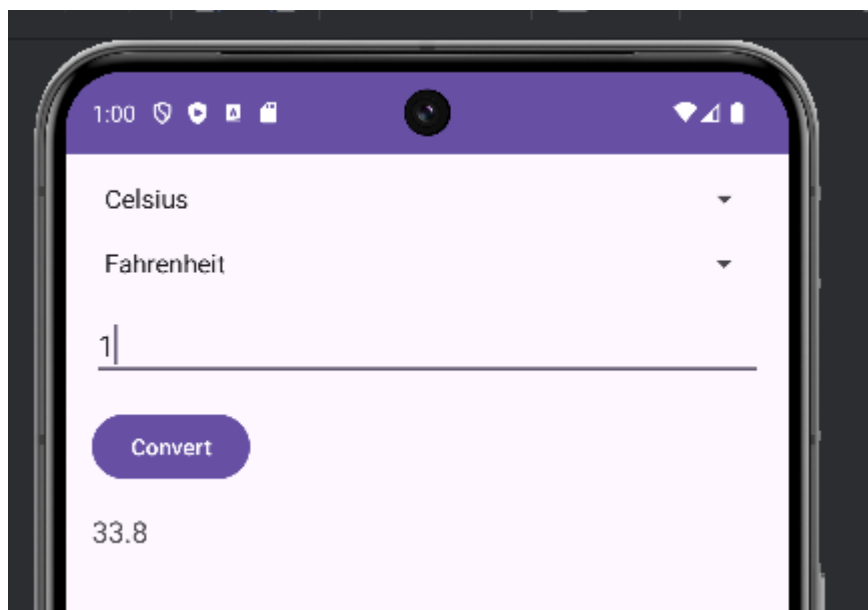
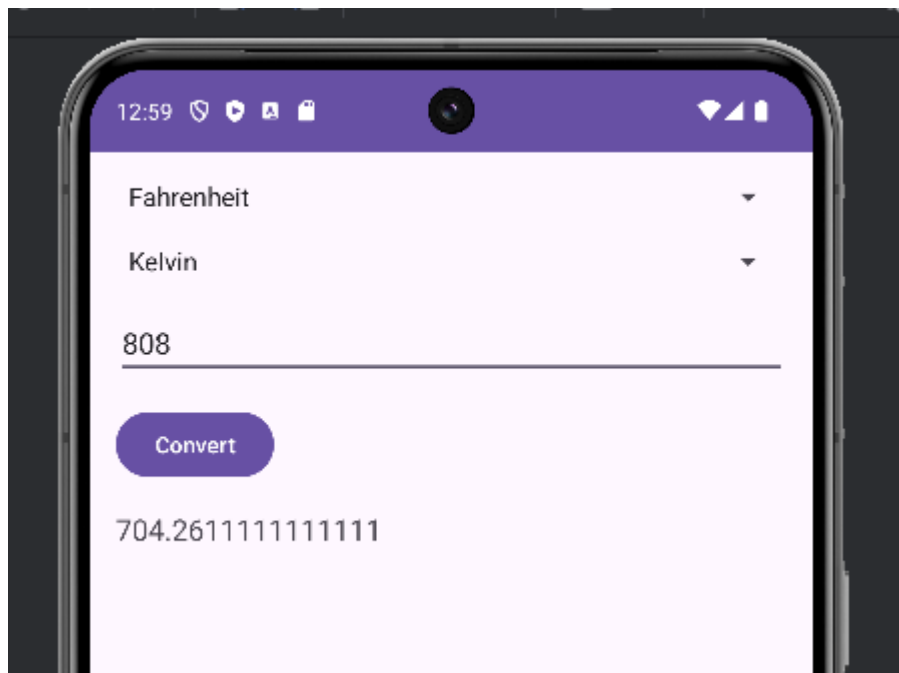
**For weight:**



**For Currency:**

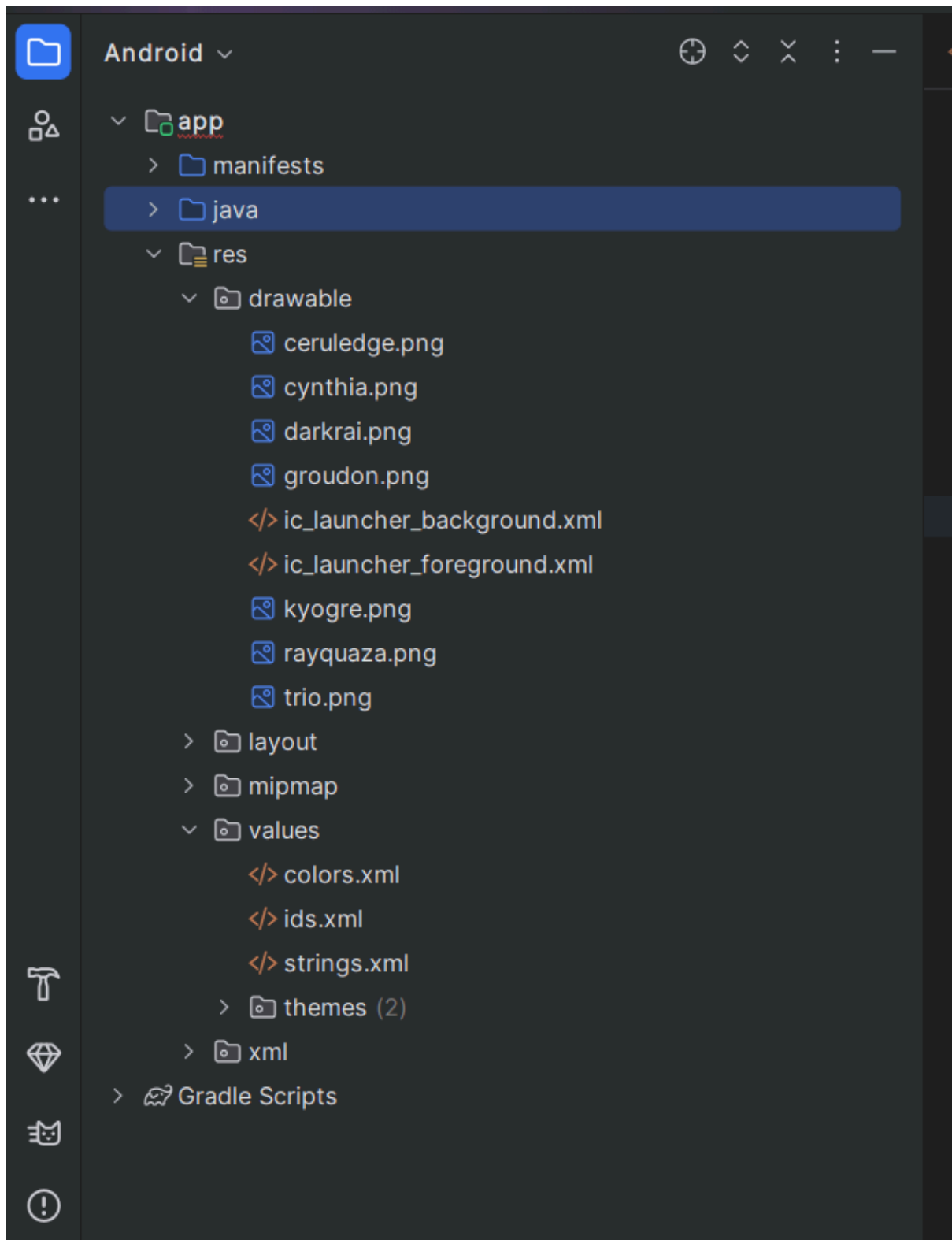


**For Temperature:**



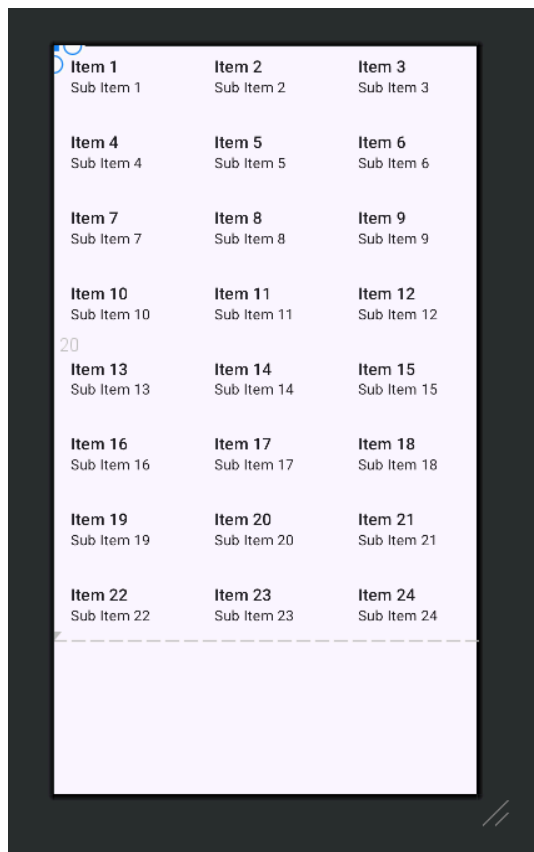
## Practical No: 2.4

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"
    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>
```



**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:

