Example 1:

activity_main.xml

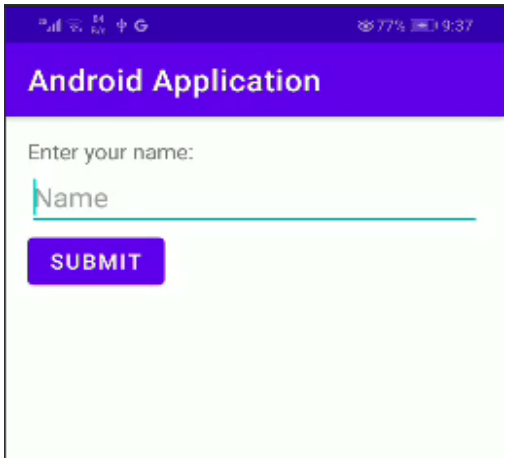
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

        <TextView
            android:id="@+id/textView"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Enter your name:" />

        <EditText
            android:id="@+id/editTextName"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Name" />

        <Button
            android:id="@+id/buttonSubmit"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Submit" />
</LinearLayout>
```

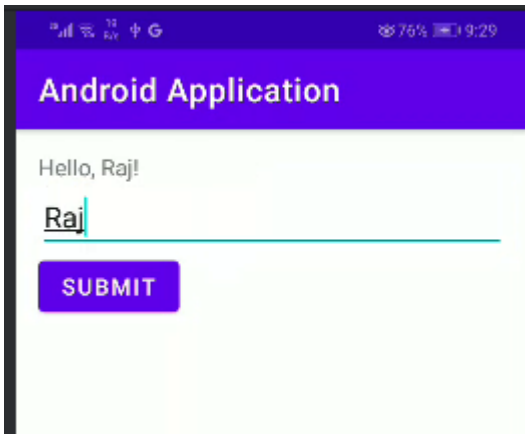
MainActivity.java

```
package com.example.androidapplication;


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

public class MainActivity extends AppCompatActivity {

    private EditText editTextName;
    private Button buttonSubmit;
    private TextView textView;

    @Override
```

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

        editTextName = findViewById(R.id.editTextName);
        buttonSubmit = findViewById(R.id.buttonSubmit);
        textView = findViewById(R.id.textView);

        buttonSubmit.setOnClickListener(new
View.OnClickListener() {
            @SuppressLint("SetTextI18n")
            @Override
            public void onClick(View v) {
                String name =
editTextName.getText().toString();
                textView.setText("Hello, " + name + "!");
            }
        });
    }
}
```

Output:





Example 2:

activity_main.xml

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

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

```
        android:layout_height="wrap_content"
        android:text="name"
        android:textSize="24sp" />

    <EditText
        android:id="@+id/inputName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your name" />

    <RadioGroup
        android:id="@+id/gender"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <RadioButton
            android:id="@+id/male"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="male"
            android:textSize="24sp" />

        <RadioButton
            android:id="@+id/female"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="female"
            android:textSize="24sp" />
    </RadioGroup>

    <Spinner
        android:id="@+id/subjects"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:entries="@array/subjects" />

    <Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="submit" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="" />
</LinearLayout>
```

MainActivity.java

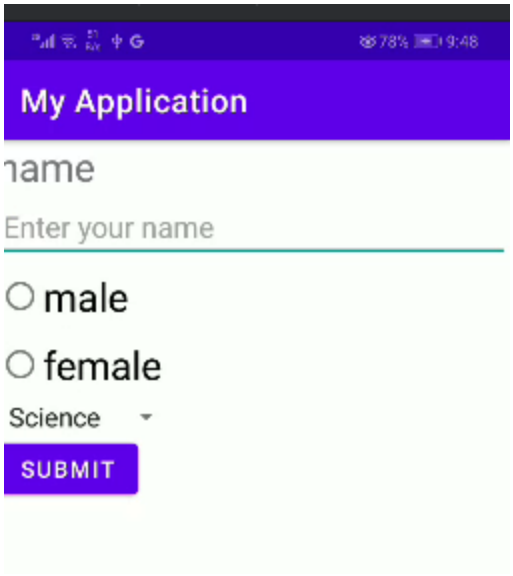
```
package com.example.myapplication;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.*;
import androidx.appcompat.app.AppCompatActivity;


public class MainActivity extends AppCompatActivity {
    Button btn ;
    EditText name;
    Spinner subjects;
    RadioGroup gender;
    TextView display;
        @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.inputName);
        gender = findViewById(R.id.gender);
        subjects = findViewById(R.id.subjects);
        btn = findViewById(R.id.btn);
        display = findViewById(R.id.result);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String textName = name.getText().toString();
                String textGender = ((RadioButton)
findViewById(gender.getCheckedRadioButtonId())).getText().toStr
ing();
           String textSubject =
subjects.getSelectedItem().toString();
   display.setText("Name: "+textName +"Gender:
"+textGender+"Subjects:"+textSubject);
            }
        });
    }
}
```

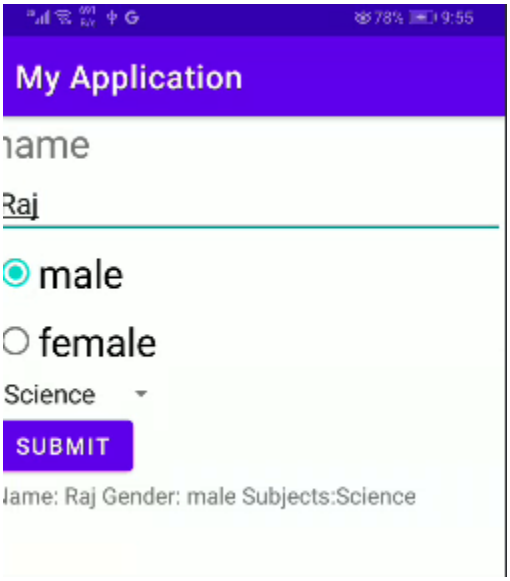
string.xml

```
<resources>
    <string name="app_name">My Application</string>
    <string-array name="subjects">
        <item>Science</item>
        <item>Math</item>
```

```
        <item>English</item>
        <item>Neplai</item>
    </string-array>
</resources>
```

Output:





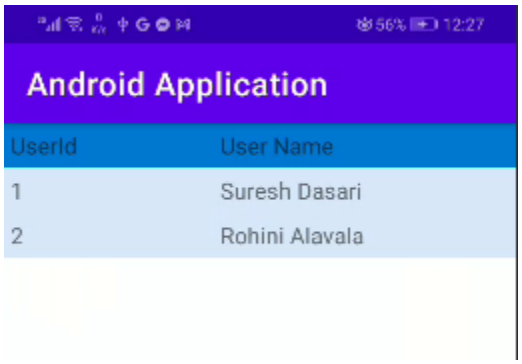
Example 3:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
        <TableRow android:background="#0079D6"
android:padding="5dp">
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="UserId" />
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="User Name" />
        </TableRow>
```

```
        <TableRow android:background="#DAE8FC"
android:padding="5dp">
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="1" />
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="Suresh Dasari" />
        </TableRow>
        <TableRow android:background="#DAE8FC"
android:padding="5dp">
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="2" />
                <TextView
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:text="Rohini Alavala" />
        </TableRow>
</TableLayout>
```

Output:



Example 4:

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
```

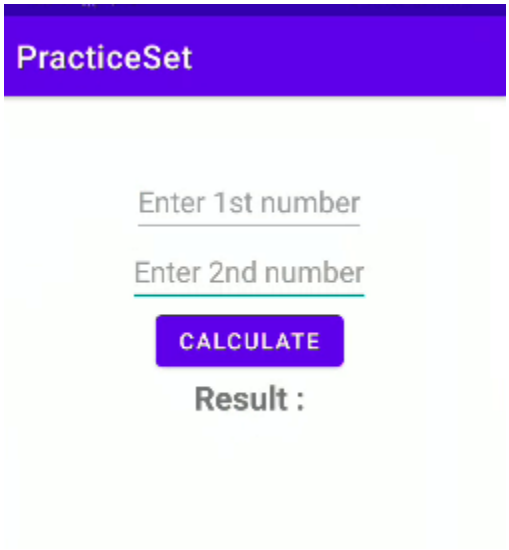
```
    xmlns:android="http://schemas.android.com/apk/res/android">
    <EditText
        android:id="@+id/num1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter 1st number"
        android:layout_marginTop="50dp"
        android:layout_gravity="center"/>
    <EditText
        android:id="@+id/num2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter 2nd number"
        android:layout_gravity="center"/>
    <Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        android:layout_gravity="center"/>
    <TextView
        android:id="@+id/text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Result :"
        android:textStyle="bold"
        android:textSize="20sp"
        android:layout_gravity="center"/>

</LinearLayout>
```

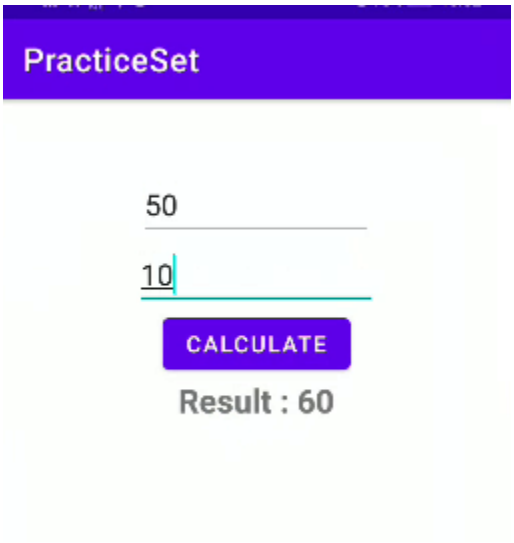
MainActivity.java:

```
package com.example.practiceset;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.*;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
EditText num1, num2;
TextView text;
Button btn;
    @Override
    protected void onCreate(Bundle b) {
        super.onCreate(b);
        setContentView(R.layout.activity_main);
```

```
        num1 = findViewById(R.id.num1);
        num2 = findViewById(R.id.num2);
        text = findViewById(R.id.text);
        btn = findViewById(R.id.btn);
        btn.setOnClickListener(new View.OnClickListener() {
            @SuppressLint("SetTextI18n")
            @Override
            public void onClick(View view) {
                int first =
Integer.parseInt(num1.getText().toString());
                int second =
Integer.parseInt(num2.getText().toString());
                int result = first + second;
                text.setText("Result : " +result);
            }
        });

    }
}
```

Output:





Past Questions

- **Develop a simple calculator application with two input fields for inputting numbers and two buttons for performing multiplication and division, and display the result in TextView using Absolute Layout.** [1+4, 2023]

activity_main.xml:

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

```
    <EditText
        android:id="@+id/firstNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter first number"
        android:inputType="numberDecimal"
        android:layout_x="50dp"
        android:layout_y="50dp" />
    <!-- Second Number Input -->
    <EditText
        android:id="@+id/secondNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter second number"
        android:inputType="numberDecimal"
        android:layout_x="50dp"
        android:layout_y="120dp" />
    <!-- Multiply Button -->
    <Button
        android:id="@+id/multiplyButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Multiply"
        android:layout_x="50dp"
        android:layout_y="190dp"/>
    <!-- Divide Button -->
    <Button
        android:id="@+id/divideButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Divide"
        android:layout_x="180dp"
        android:layout_y="190dp"/>
    <!-- Result Display -->
    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Result"
        android:textSize="18sp"
        android:layout_x="50dp"
        android:layout_y="260dp"/>
</AbsoluteLayout>
```

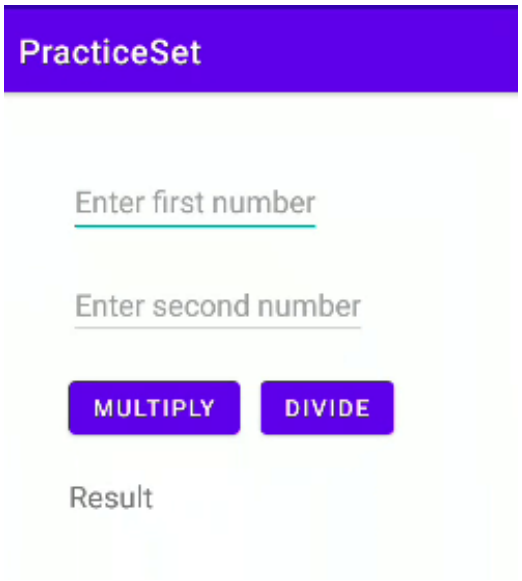
MainActivity.java:

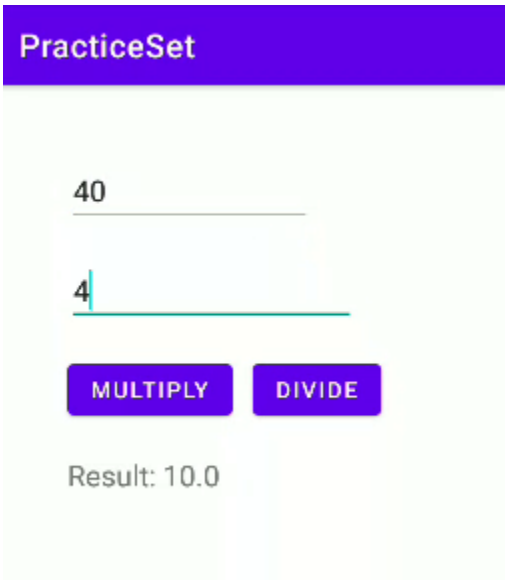
```
package com.example.practiceset;
import android.os.Bundle;
import android.view.View;
import android.widget.*;
```

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

public class MainActivity extends AppCompatActivity {

    EditText firstNumber, secondNumber;
    Button multiplyButton, divideButton;
    TextView resultTextView;

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

        // Initialize UI elements
        firstNumber = findViewById(R.id.firstNumber);
        secondNumber = findViewById(R.id.secondNumber);
        multiplyButton = findViewById(R.id.multiplyButton);
        divideButton = findViewById(R.id.divideButton);
        resultTextView = findViewById(R.id.resultTextView);

        // Multiply Button Action
        multiplyButton.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(firstNumber.getText().toString());
                double num2 =
Double.parseDouble(secondNumber.getText().toString());
                double result = num1 * num2;
                resultTextView.setText("Result: " + result);
            }
        });

        // Divide Button Action
        divideButton.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(firstNumber.getText().toString());
                double num2 =
Double.parseDouble(secondNumber.getText().toString());
                if (num2 != 0) {
                    double result = num1 / num2;
                    resultTextView.setText("Result: " +
result);
                } else {
                    resultTextView.setText("Error: Division by
```

```
zero");
                    }
                }
            });
        }
}
```

Output:





- **Develop an Android application to input your Name, Age, Gender, and other personal information. Pass and display this information in another activity.** [10, 2020]

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:padding="16dp">

    <EditText
        android:id="@+id/etName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your name" />

    <EditText
        android:id="@+id/etAge"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your age"
        android:inputType="number" />
```

```
    <RadioGroup
        android:id="@+id/rgGender"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <RadioButton
            android:id="@+id/radioMale"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male" />

        <RadioButton
            android:id="@+id/radioFemale"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Female" />
    </RadioGroup>

    <!-- Add more fields as needed -->

    <Button
        android:id="@+id/btnSubmit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit" />
</LinearLayout>
```

activity_display.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">

    <TextView
        android:id="@+id/text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=" " />
</LinearLayout>
```

MainActivity.java:

```
package com.example.pastquestion2020;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

        // Get references to UI components
        EditText etName = findViewById(R.id.etName);
        EditText etAge = findViewById(R.id.etAge);
        RadioGroup rgGender = findViewById(R.id.rgGender);
        Button btnSubmit = findViewById(R.id.btnSubmit);

        // Set an OnClickListener on the button
        btnSubmit.setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View v) {
                // Retrieve the entered name and age
                String name = etName.getText().toString();
                String age = etAge.getText().toString();

                // Determine the selected gender
                int selectedGenderId =
rgGender.getCheckedRadioButtonId();
                RadioButton selectedGender =
findViewById(selectedGenderId);
                String gender =
selectedGender.getText().toString();

                // Create an Intent to start the second
activity
                Intent intent = new Intent(MainActivity.this,
DisplayActivity.class);

                // Pass the data to the second activity
                intent.putExtra("name", name);
                intent.putExtra("age", age);
                intent.putExtra("gender", gender);
```

```
                // Start the second activity
                startActivity(intent);
            }
        });
    }
}
```

DisplayActivity.java

```
package com.example.pastquestion2020;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class DisplayActivity extends AppCompatActivity {

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

        // Retrieve the data passed from MainActivity
        String name = getIntent().getStringExtra("name");
        String age = getIntent().getStringExtra("age");
        String gender = getIntent().getStringExtra("gender");

        // Display the data
        TextView text = findViewById(R.id.text);
        text.setText("Name: " + name + "\n Age: " + age + "\n
Gender: " + gender);
    }
}
```

- **Develop an Android application to calculate simple interest using a customized dialog box.**

dialog_interest:

```
<?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="wrap_content"
    android:orientation="vertical"
    android:padding="16dp">
```

```
    <EditText
        android:id="@+id/principal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Principal Amount"
        android:inputType="numberDecimal"/>

    <EditText
        android:id="@+id/rate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Rate of Interest (%)"
        android:inputType="numberDecimal"/>

    <EditText
        android:id="@+id/time"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Time (Years)"
        android:inputType="numberDecimal"/>

    <Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="16dp"/>

    <TextView
        android:id="@+id/textResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_gravity="center"
        android:textSize="18sp"/>
</LinearLayout>
```

activity_main.xml:

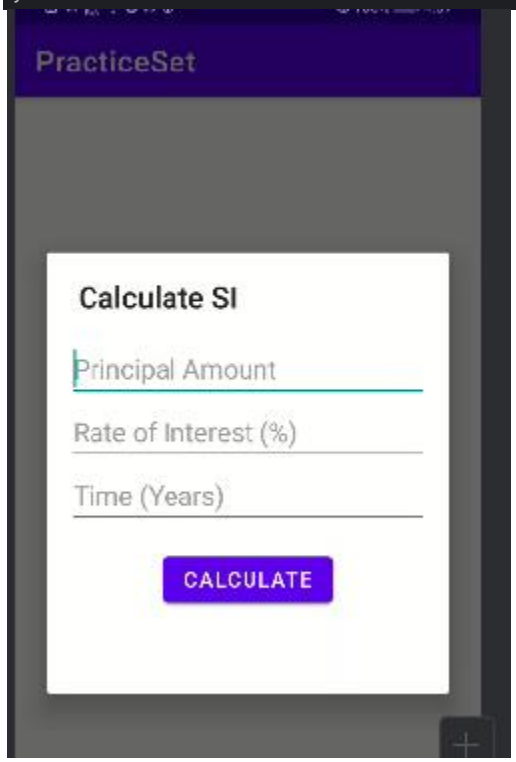
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">
    <Button
        android:id="@+id/btnClick"
        android:layout_width="wrap_content"
```

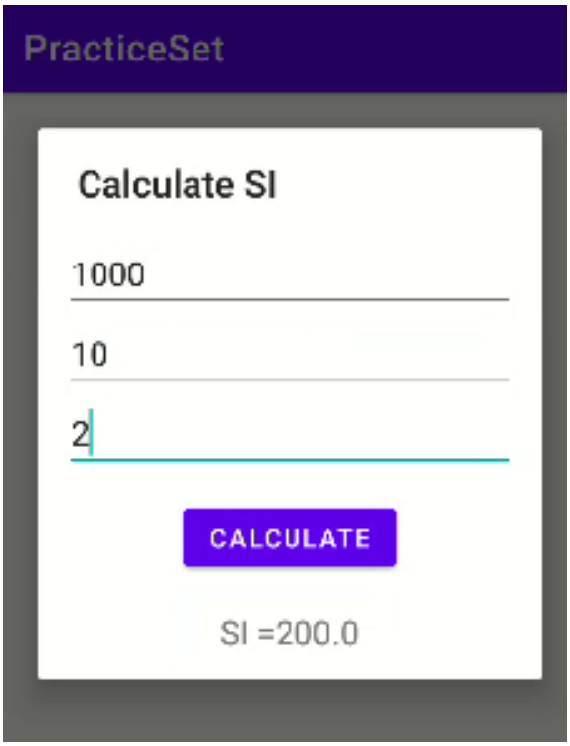
```
        android:layout_height="wrap_content"
        android:text="Calculate Interest"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

MainActivity.java:

```
package com.example.practiceset;

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

public class MainActivity extends AppCompatActivity {

    EditText rate,principal,time;
    Button btnClick,btn;
    TextView textResult;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btnClick = findViewById(R.id.btnClick);
        btnClick.setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {
                showDialog();
            }
        });
    }
    public void showDialog(){
        AlertDialog.Builder builder = new
AlertDialog.Builder(this);
        builder.setTitle("Calculate SI");
        builder.setCancelable(true);
        // Inflate and set the layout for the dialog
        // Pass null as the parent view because it's going in
the dialog layout
        LayoutInflater inflater = getLayoutInflater();
        View
view=inflater.inflate(R.layout.dialog_interest,null);
        builder.setView(view);
        //wiring up widgets
```

```
        principal = view.findViewById(R.id.principal);
        time = view.findViewById(R.id.time);
        rate = view.findViewById(R.id.rate);
        textResult = view.findViewById(R.id.textResult);
        btn = view.findViewById(R.id.btn);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                    double p =
Double.parseDouble(principal.getText().toString());
                    double r =
Double.parseDouble(rate.getText().toString());
                    double t =
Double.parseDouble(time.getText().toString());

                    double si = (p * r * t) / 100;
                    textResult.setText("SI ="+si);
                }
        });
        builder.show();
    }
}
```





- **What does an Android APK file contain? Develop an Android application with a context menu having menu items “Red,” “Yellow,” “Green,” “Black,” and “Blue,” etc., and change the background color of the layout when a user selects a menu item accordingly.** [2+8, 2023]

activity_main.xml

```
<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/btnCalculateFactorial"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate Factorial" />
</LinearLayout>
```

dialog_factorial_input.xml

```
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:padding="16dp">

    <EditText
        android:id="@+id/etNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter a number"
        android:inputType="number" />
</LinearLayout>
```

MainActivity.java:

```
package com.example.practiceset;

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

public class MainActivity extends AppCompatActivity {

    Button btnCalculateFactorial;
```

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

        btnCalculateFactorial =
findViewById(R.id.btnCalculateFactorial);
        btnCalculateFactorial.setOnClickListener(v ->
showFactorialDialog());
    }

    private void showFactorialDialog() {
        // Create an AlertDialog builder
        AlertDialog.Builder builder = new
AlertDialog.Builder(this);
        builder.setTitle("Calculate Factorial");

        // Inflate the custom layout for the dialog
        LayoutInflater inflater = getLayoutInflater();
        View dialogView =
inflater.inflate(R.layout.dialog_factorial_input, null);
        builder.setView(dialogView);

        // Get the input field from the dialog
        EditText etNumber =
dialogView.findViewById(R.id.etNumber);

        // Set the dialog buttons
        builder.setPositiveButton("Calculate", (dialog, which)
-> {
            int num  =
Integer.parseInt(etNumber.getText().toString());
                int result = 1;
                for (int i = 1; i <= num; i++) {
                    result *= i;
                }
                // Display the result in a Toast
                Toast.makeText(this, "Factorial: " + result,
Toast.LENGTH_LONG).show();
        });

        builder.setNegativeButton("Cancel", null);

        // Show the dialog
       builder.show();
    }
}
```

- **What does an Android APK file contain? Develop an Android application with a context menu having menu items “Red,” “Yellow,” “Green,” “Black,” and “Blue,” etc., and change the background color of the layout when a user selects a menu item accordingly.** [2+8, 2023]
    - ➢ APK files contain all contents needed to run the application, including the following:

- **AndroidManifest.xml.** This is an additional Android manifest file that describes the name, version, access rights, library and other contents of the APK file.
- **assets/.** These are application assets and resource files included with the app.
- **classes.dex.** These are compiled Java classes in the DEX file format that are run on the device.
- **lib/.** This folder contains platform-dependent compiled code and native libraries for device-specific architectures, such as x86 or x86_64.
- **META-INF/.** This folder contains the application certificate, manifest file, signature and a list of resources.
- **res/.** This is a directory that holds resources -- for example, images that are not already compiled into resources.arsc.
- **resources.arsc.** This is a file containing pre-compiled resources used by the app.

activity_main.xml

```
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/mainLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center"
    android:padding="16dp">
</LinearLayout>
```

contex_menu.xml

```
<menu
xmlns:android="http://schemas.android.com/apk/res/android">
    <item
```

```
        android:id="@+id/menu_red"
        android:title="Red" />
    <item
        android:id="@+id/menu_yellow"
        android:title="Yellow" />
    <item
        android:id="@+id/menu_green"
        android:title="Green" />
    <item
        android:id="@+id/menu_black"
        android:title="Black" />
    <item
        android:id="@+id/menu_blue"
        android:title="Blue" />
</menu>
```

MainActivity.java:

```
package com.example.practiceset;
import android.graphics.Color;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.MenuItem;
import android.view.View;
import android.widget.LinearLayout;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private LinearLayout mainLayout;

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

        mainLayout = findViewById(R.id.mainLayout);

        // Registering the LinearLayout for the context menu
        registerForContextMenu(mainLayout);
    }

    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);
        getMenuInflater().inflate(R.menu.context_menu, menu);
    }
```

```
    @Override
    public boolean onContextItemSelected(MenuItem item) {
        int itemId = item.getItemId();
        if (itemId == R.id.menu_red) {
            mainLayout.setBackgroundColor(Color.RED);
            return true;
        } else if (itemId == R.id.menu_yellow) {
            mainLayout.setBackgroundColor(Color.YELLOW);
            return true;
        } else if (itemId == R.id.menu_green) {
            mainLayout.setBackgroundColor(Color.GREEN);
            return true;
        } else if (itemId == R.id.menu_black) {
            mainLayout.setBackgroundColor(Color.BLACK);
            return true;
        } else if (itemId == R.id.menu_blue) {
            mainLayout.setBackgroundColor(Color.BLUE);
            return true;
        }
        return super.onContextItemSelected(item);
    }
}
```