GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA

PRACTILE FILE

MOBILE APPLICATION DEVELOPMENT LABORATORY

DEIT-14711

DEPARTMENT OF INFORMATION TECHNOLOGY

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PRACTICAL-1

CREATE FIRST APP ON ANDROID

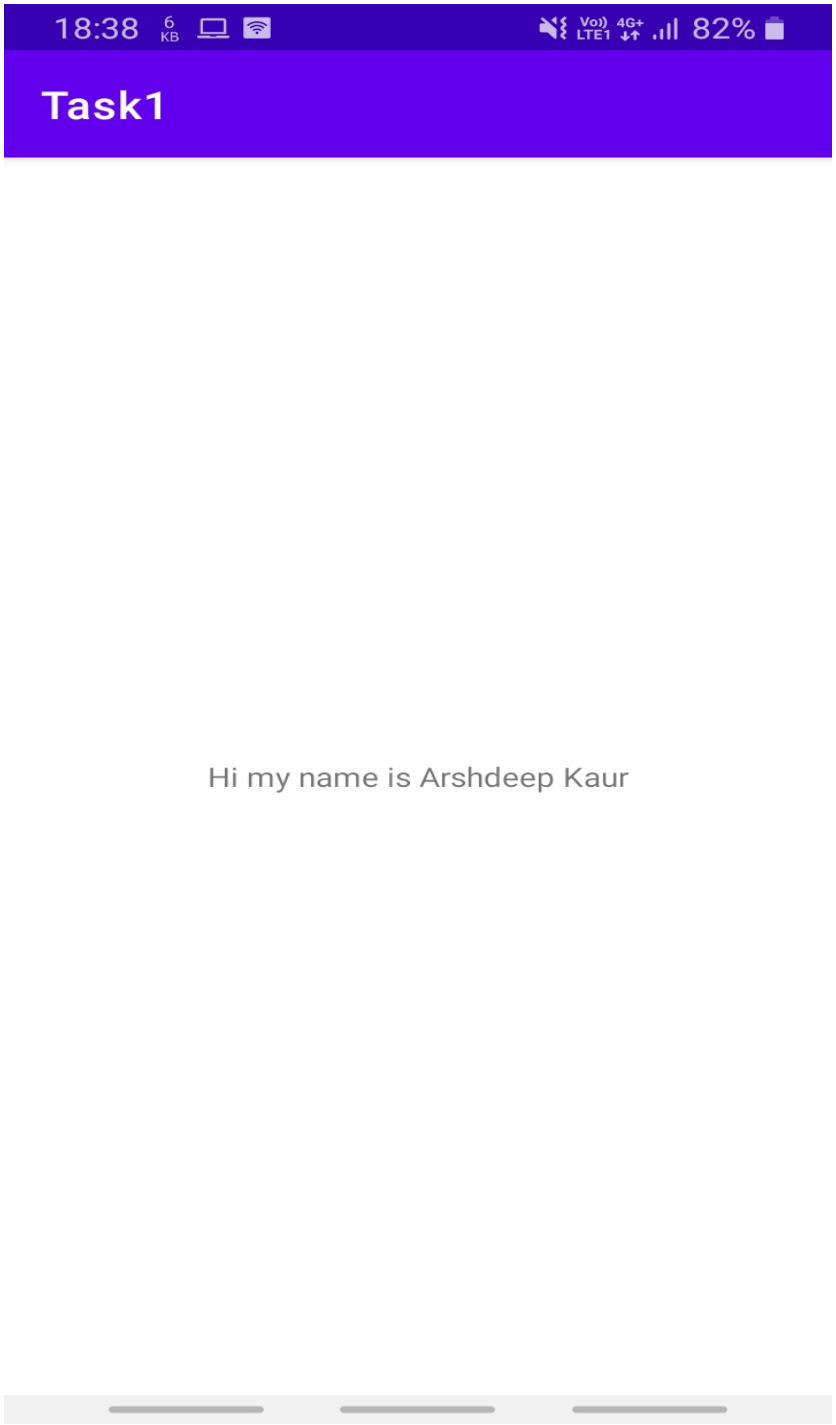
An Android app is a software application running on the Android platform. Because the Android platform is built for mobile devices, a typical Android app is designed for a smartphone or a tablet PC running on the Android OS.

MAINACTIVITY.JAVA

```
package com.task.task1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hi my name is Ankit"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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


18:38
6
KB
Vo))
LTE1
4G+
82%
Task1
Hi my name is Arshdeep Kaur

PRACTICAL-2

CHANGE ICON OF APP AND THE LABEL BACKGROUND

Android O icons represent your app on a device's Home and All Apps screens.

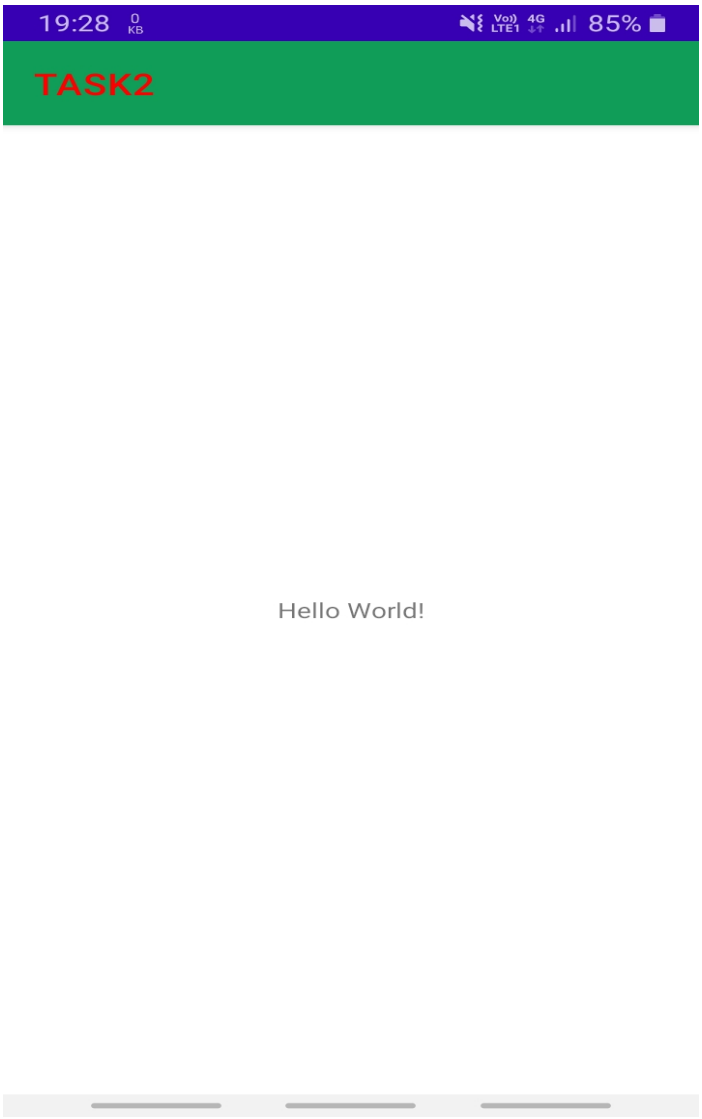
MAINACTIVITY.JAVA

```
package com.task.task2;

import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
import android.graphics.drawable.ColorDrawable;
import android.os.Bundle;
import android.text.Html;

public class MainActivity extends AppCompatActivity {

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

        ColorDrawable colorDrawable
                = new ColorDrawable(Color.parseColor("#0F9D58"));

        actionBar.setBackgroundDrawable(colorDrawable);
        actionBar.setTitle(Html.fromHtml("<font color='#000000'>TASK2 </font>"));
        actionBar.setIcon(R.drawable.icon1);
    }
}
```

ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
```

```
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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



PRACTICAL-3
CREATING BUTTON, MENU AND SCROLLBAR

In **android**, we have a **different type of buttons** available to use based on our requirements, those are ImageButton, ToggleButton, RadioButton. In **android**, we can create a **Button** control in two ways either in the XML layout file or create it in the Activity file programmatically.

In **Android**, a **ScrollView** is a **view** group that is used to make vertically **scrollable** views. A **scroll view** contains a single direct child only. In order to place multiple views in the **scroll view**, one needs to make a **view** group(like LinearLayout) as a direct child and then we can define many views inside it

MAINACTIVITY.JAVA

```
package com.task.task3;

import android.os.Bundle;

import com.google.android.material.floatingactionbutton.FloatingActionButton;
import com.google.android.material.snackbar.Snackbar;

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;

import android.view.View;

import android.view.Menu;
import android.view.MenuItem;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,b15,b16,b17;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button)findViewById(R.id.button1);
        b2=(Button)findViewById(R.id.button2);
        b3=(Button)findViewById(R.id.button3);
        b4=(Button)findViewById(R.id.button4);
        b5=(Button)findViewById(R.id.button5);
        b6=(Button)findViewById(R.id.button6);
        b7=(Button)findViewById(R.id.button7);
        b8=(Button)findViewById(R.id.button8);
        b9=(Button)findViewById(R.id.button9);
        b10=(Button)findViewById(R.id.button10);
```

```
        b11=(Button)findViewById(R.id.button11);
        b12=(Button)findViewById(R.id.button12);
        b13=(Button)findViewById(R.id.button13);
        b14=(Button)findViewById(R.id.button14);
        b15=(Button)findViewById(R.id.button15);
        b16=(Button)findViewById(R.id.button16);
        b17=(Button)findViewById(R.id.button17);

        Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        int id = item.getItemId();

        if (id == R.id.menu1) {
            Toast.makeText(getApplicationContext(),"Menu's Item 1
Selected",Toast.LENGTH_LONG).show();
            return true;
        }
        if (id == R.id.menu2) {
            Toast.makeText(getApplicationContext(),"Menu's Item 2
Selected",Toast.LENGTH_LONG).show();
            return true;
        }
        if (id == R.id.menu3) {
            Toast.makeText(getApplicationContext(),"Menu's Item 3
Selected",Toast.LENGTH_LONG).show();
            return true;
        }


        return super.onOptionsItemSelected(item);
    }
    public void buttonclicked(View view) {
        Toast.makeText(getApplicationContext(),"Button
Clicked",Toast.LENGTH_LONG).show();
    }
}
```

ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/Theme.Task3.AppBarOverlay">

        <androidx.appcompat.widget.Toolbar
            android:id="@+id/toolbar"
            android:layout_width="match_parent"
            android:layout_height="?attr/actionBarSize"
            android:background="?attr/colorPrimary"
            app:popupTheme="@style/Theme.Task3.PopupOverlay" />

    </com.google.android.material.appbar.AppBarLayout>
    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="70dp"
        >
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/toolbar"
            android:orientation="vertical">

            <Button
                android:id="@+id/button1"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:onClick="buttonclicked"
                android:text="Button1" />
            <Button
                android:id="@+id/button2"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:onClick="buttonclicked"
                android:text="Button2" />
            <Button
                android:id="@+id/button3"
```

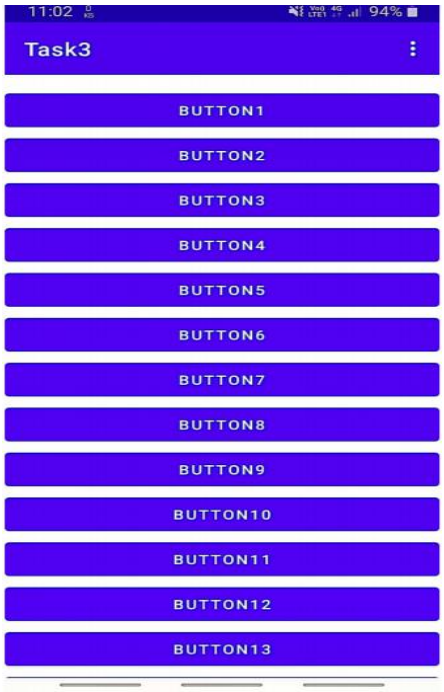
```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button3" />
<Button
    android:id="@+id/button4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button4" />
<Button
    android:id="@+id/button5"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button5" />
<Button
    android:id="@+id/button6"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button6" />
<Button
    android:id="@+id/button7"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button7" />
<Button
    android:id="@+id/button8"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button8" />
<Button
    android:id="@+id/button9"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button9" />
<Button
    android:id="@+id/button10"
    android:layout_width="match_parent"
```

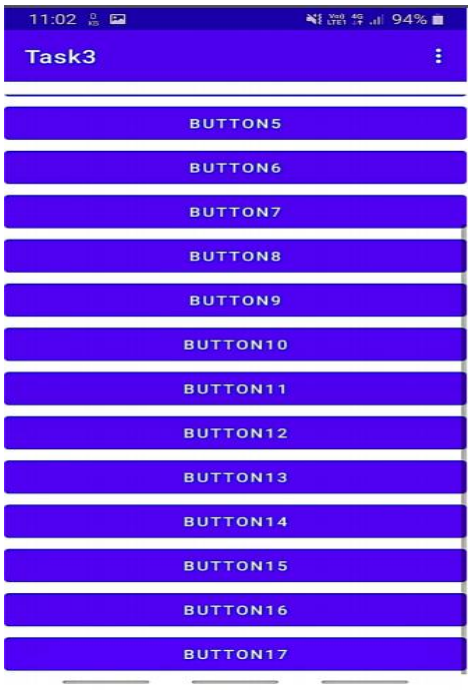
```
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button10" />
<Button
    android:id="@+id/button11"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button11" />
<Button
    android:id="@+id/button12"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button12" />
<Button
    android:id="@+id/button13"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button13" />
<Button
    android:id="@+id/button14"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button14" />
<Button
    android:id="@+id/button15"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button15" />
<Button
    android:id="@+id/button16"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:onClick="buttonclicked"
    android:text="Button16" />
<Button
    android:id="@+id/button17"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
```

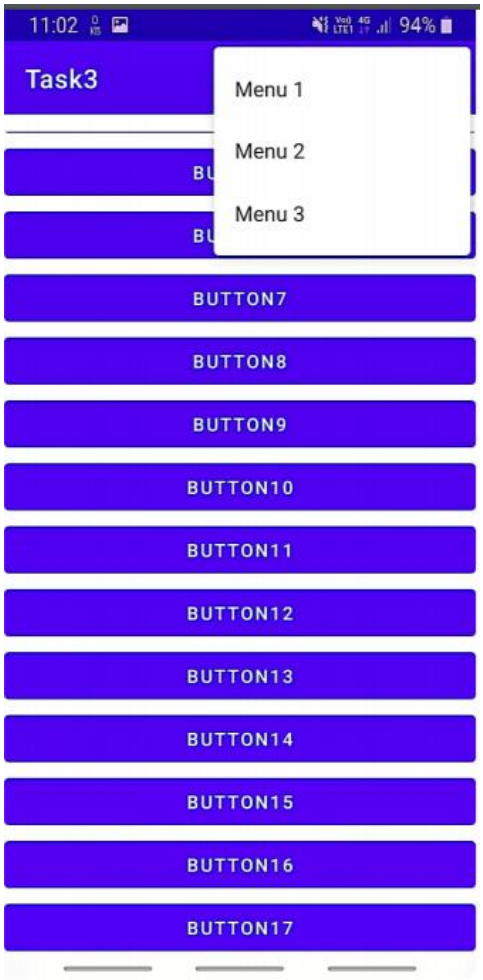
```
            android:onClick="buttonclicked"
            android:layout_weight="1"
            android:text="Button17" />
        </LinearLayout>
    </ScrollView>


</RelativeLayout>
```

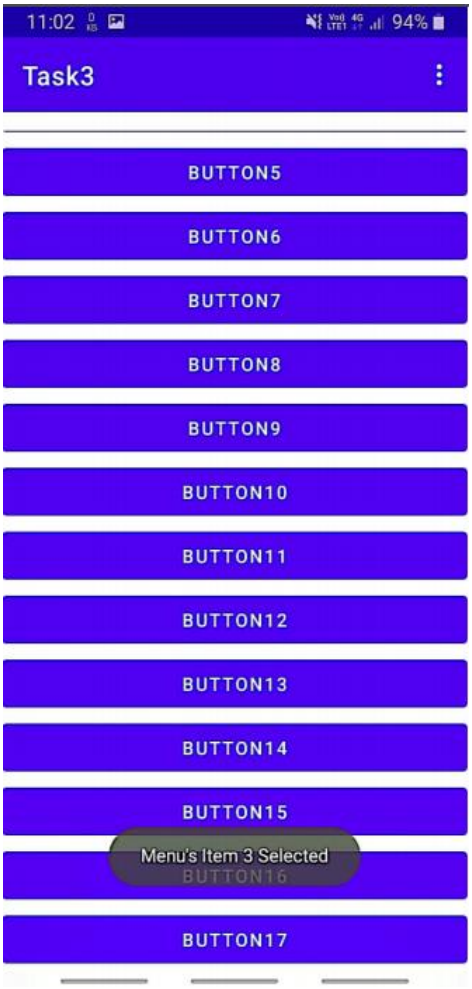
MENU_MAIN.XML

```
<menu 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"
    tools:context="com.task.task3.MainActivity">
    <item
        android:id="@+id/menu1"
        android:orderInCategory="100"
        android:title="Menu 1" />

    <item
        android:id="@+id/menu2"
        android:orderInCategory="100"
        android:title="Menu 2"
        />

    <item
        android:id="@+id/menu3"
        android:orderInCategory="100"
        android:title="Menu 3" />
</menu>
```






11:02
94%
Task3
Menu 1
Menu 2
Menu 3
BUTTON7
BUTTON8
BUTTON9
BUTTON10
BUTTON11
BUTTON12
BUTTON13
BUTTON14
BUTTON15
BUTTON16
BUTTON17


11:02
94%
Task3
BUTTON5
BUTTON6
BUTTON7
BUTTON8
BUTTON9
BUTTON10
BUTTON11
BUTTON12
BUTTON13
BUTTON14
BUTTON15
Menu's Item 3 Selected
BUTTON16
BUTTON17

PRACTICAL-4
CREATE FORM USING ALL UI

MAINACTIVITY.JAVA

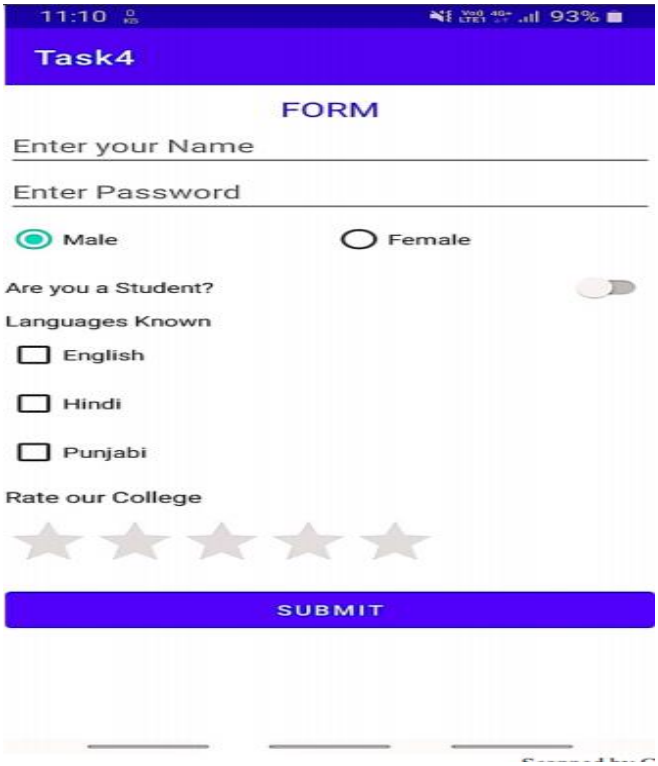
```
package com.task.task4;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
Button b1;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      b1= (Button)findViewById(R.id.button);
      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(),"Form
submitted",Toast.LENGTH_LONG).show();
         }
      });
   }}
```

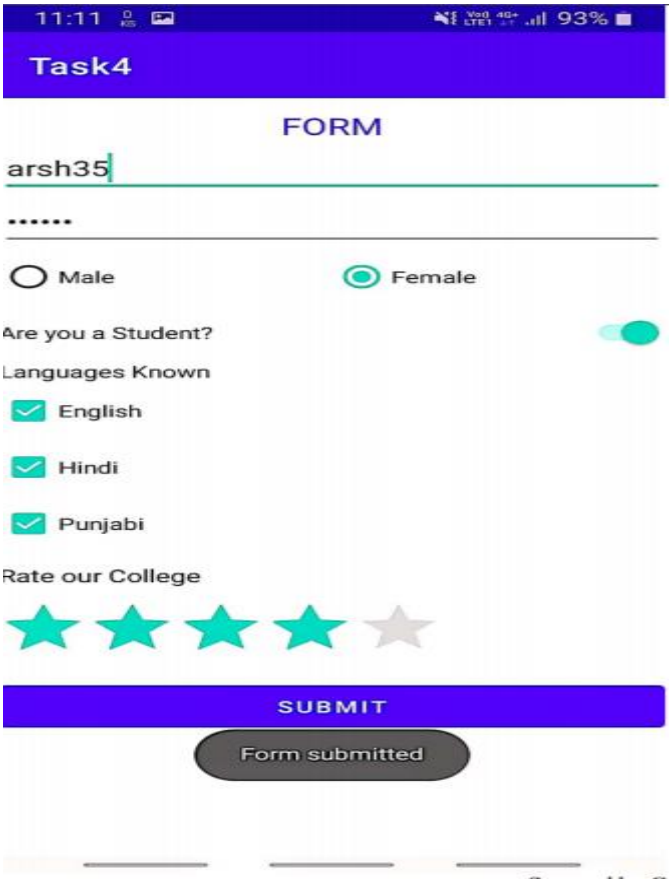
ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView 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="wrap_content"
   tools:context=".MainActivity">
   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:orientation="vertical">

   <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="FORM"
      android:layout_marginTop="10dp"
      android:textColor="@color/purple_500"
```

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

<EditText
    android:id="@+id/editTextTextPersonName2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter your Name" />

<EditText
    android:id="@+id/editTextTextPassword2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter Password"
    android:ems="10"
    android:inputType="textPassword" />
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Select Gender"
    android:textColor="@color/black"
    android:layout_marginTop="10dp" />

<RadioGroup
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:weightSum="2">

    <RadioButton
        android:id="@+id/radioButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:checked="true"
        android:text="Male" />

    <RadioButton
        android:id="@+id/radioButton2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Female" />
</RadioGroup>

<Switch
    android:id="@+id/switch1"
    android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Are you a Student?" />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Languages Known"
        android:textColor="@color/black"
        android:layout_marginTop="10dp" />

    <CheckBox
        android:id="@+id/checkBox2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="English" />

    <CheckBox
        android:id="@+id/checkBox3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Hindi" />

    <CheckBox
        android:id="@+id/checkBox4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Punjabi" />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Rate our College"
        android:textColor="@color/black"
        android:textSize="15dp"
        android:layout_marginTop="10dp" />

    <RatingBar
        android:id="@+id/ratingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:numStars="5" />

    <Button
        android:id="@+id/button"
        android:layout_marginTop="10dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Submit" />
 </LinearLayout>
</ScrollView>
```


11:10
93%
Task4
FORM
Enter your Name
Enter Password
Male
Female
Are you a Student?
Languages Known
English
Hindi
Punjabi
Rate our College
SUBMIT


11:11
93%
Task4
FORM
arsh35
Male
Female
Are you a Student?
Languages Known
English
Hindi
Punjabi
Rate our College
SUBMIT
Form submitted

PRACTICAL-5
DESIGNING FORM USING ALL LAYOUTS

LinearLayout is a view group that aligns all children in a single direction, vertically or horizontally. You can specify the **layout** direction with the **android**:orientation attribute. Note: For better performance and tooling support, you should instead build your **layout** with ConstraintLayout

Android RelativeLayout enables you to specify how child views are positioned relative to each other. The position of each view can be specified as relative to sibling elements or relative to the parent.

android.widget.**TableLayout**. A **layout** that arranges its children into rows and columns. A **TableLayout** consists of a number of TableRow objects, each defining a row (actually, you can have other children, which will be explained below). **TableLayout** containers do not display border lines for their rows, columns, or cells

Frame Layout is one of the simplest **layout** to organize view controls. They are designed to block an area on the screen. ... We can add multiple children to a **FrameLayout** and control their position by assigning gravity to each child, using the **android**:layout_gravity attribute.

FRAME.JAVA

```
package com.task.task5;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class Frame extends AppCompatActivity {

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

LINEAR.JAVA

```
package com.task.task5;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class Linear extends AppCompatActivity {
Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_linear);
```

```
        b1=(Button)findViewById(R.id.linearbutton);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(),"Form
submitted",Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

MAINACTIVITY.JAVA

```
package com.task.task5;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
    Button b1,b2,b3,b4;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button)findViewById(R.id.linear1);
        b2=(Button)findViewById(R.id.relative2);
        b3=(Button)findViewById(R.id.table3);
        b4=(Button)findViewById(R.id.frame4);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i= new Intent(MainActivity.this,Linear.class);
                startActivity(i);
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i= new Intent(MainActivity.this,Relative.class);
                startActivity(i);
            }
        });
        b3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i= new Intent(MainActivity.this,Table.class);
                startActivity(i);
            }
```

```
        });
        b4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i= new Intent(MainActivity.this,Frame.class);
                startActivity(i);
            }
        });
    }
}
```

RELATIVE.JAVA

```
package com.task.task5;

import androidx.appcompat.app.AppCompatActivity;

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

public class Relative extends AppCompatActivity {
Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_relative);
        b1=(Button)findViewById(R.id.rbutton);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(),"Form
Submitted",Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

TABLE.JAVA

```
package com.task.task5;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class Table extends AppCompatActivity {
Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_table);
        b1=(Button)findViewById(R.id.tbutton);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(),"Form
Submitted",Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

ACTIVITY_FRAME.XML

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="10dp"
    tools:context=".Frame">


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="FRAME LAYOUT"
        android:textSize="30dp"
        android:layout_marginTop="20dp"
        android:gravity="center"
        android:textColor="@color/purple_200"
        android:textStyle="bold"/>
    <ImageView
        android:src="@drawable/logo"
        android:scaleType="fitCenter"
        android:layout_height="fill_parent"
        android:layout_width="fill_parent"/>

</FrameLayout>
```

ACTIVITY_LINEAR.XML

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

```
android:padding="10dp"
tools:context=".Linear">


<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="FORM LINEAR"
    android:textSize="30dp"
    android:layout_marginTop="20dp"
    android:gravity="center"
    android:textColor="@color/purple_200"
    android:textStyle="bold"/>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Name"
    android:textSize="20dp"
    android:textColor="@color/black"
    android:layout_marginTop="10dp"/>

<EditText
    android:id="@+id/Linearname"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:textSize="15dp"
    android:padding="10dp"
    android:textColor="@color/black"
    android:background="@drawable/editt"
    android:inputType="textPersonName"
     />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Department"
    android:textSize="20dp"
    android:textColor="@color/black"
    android:layout_marginTop="10dp" />

<EditText
    android:id="@+id/linerdepartment"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:textSize="15dp"
    android:padding="10dp"
    android:textColor="@color/black"
```

```
        android:background="@drawable/editt"
        android:inputType="textPersonName" />

    <Button
        android:id="@+id/linearbutton"
        android:layout_marginTop="10dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="SUBMIT" />
</LinearLayout>
```

ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:layout_marginTop="40dp"
    tools:context=".MainActivity">

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textColor="@color/purple_200"
    android:textSize="30dp"
    android:gravity="center"
    android:textStyle="bold"
    android:layout_marginBottom="20dp"
    android:text="CLICK ON BUTTON TO CHECK DIFFERENT LAYOUT
USAGE"></TextView>
    <Button
        android:id="@+id/linear1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:text="LINEAR LAYOUT"
        />

    <Button
        android:id="@+id/relative2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:text="RELATIVE LAYOUT" />

    <Button
        android:id="@+id/table3"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:text="TABLE LAYOUT" />

    <Button
        android:id="@+id/frame4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:text="FRAME LAYOUT" />
</LinearLayout>
```

ACTIVITY_RELATIVE.XML

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="10dp"
    tools:context=".Linear">


    <TextView
        android:id="@+id/r1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="FORM RELATIVE"
        android:textSize="30dp"
        android:layout_marginTop="20dp"
        android:gravity="center"
        android:textColor="@color/purple_200"
        android:textStyle="bold"/>

    <TextView
        android:id="@+id/r2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Name"
        android:textSize="20dp"
        android:layout_below="@+id/r1"
        android:textColor="@color/black"
        android:layout_marginTop="10dp"/>

    <EditText
        android:id="@+id/rname"
        android:layout_width="match_parent"
```

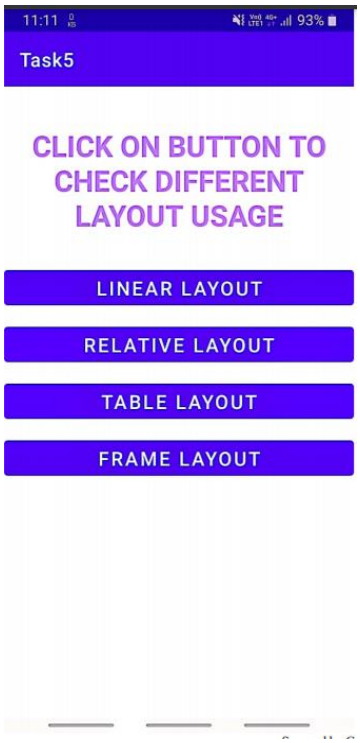
```
        android:layout_height="wrap_content"
        android:ems="10"
        android:textSize="15dp"
        android:padding="10dp"
        android:textColor="@color/black"
        android:layout_below="@+id/r2"
        android:background="@drawable/editt"
        android:inputType="textPersonName"
        />

    <TextView
        android:id="@+id/r3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Department"
        android:textSize="20dp"
        android:layout_below="@+id/rname"
        android:textColor="@color/black"
        android:layout_marginTop="10dp" />

    <EditText
        android:id="@+id/rdepartment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:textSize="15dp"
        android:layout_below="@+id/r3"
        android:padding="10dp"
        android:textColor="@color/black"
        android:background="@drawable/editt"
        android:inputType="textPersonName" />

    <Button
        android:id="@+id/rbutton"
        android:layout_marginTop="10dp"
        android:layout_below="@id/rdepartment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="SUBMIT" />
</RelativeLayout>
```

ACTIVITY_TABLE.XML

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="10dp"
    tools:context=".Table">
```

```
<TableRow
   android:weightSum="1"
   android:layout_width="match_parent"
   android:layout_height="wrap_content">
   <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="FORM TABLE"
      android:textSize="30dp"
      android:layout_marginTop="20dp"
      android:gravity="center"
      android:layout_weight="1"
      android:textColor="@color/purple_200"
      android:textStyle="bold"/>
</TableRow>
   <TableRow
      android:weightSum="1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content">
   <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Name"
      android:textSize="20dp"
      android:layout_weight="1"
      android:textColor="@color/black"
      android:layout_marginTop="10dp"/>
   </TableRow>
   <TableRow
      android:weightSum="1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content">
   <EditText
      android:id="@+id/tname"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:ems="10"
      android:layout_weight="1"
      android:textSize="15dp"
      android:padding="10dp"
      android:textColor="@color/black"
      android:background="@drawable/editt"
      android:inputType="textPersonName"
      />
   </TableRow>
   <TableRow
      android:weightSum="1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content">
```

```
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Department"
        android:layout_weight="1"
        android:textSize="20dp"
        android:textColor="@color/black"
        android:layout_marginTop="10dp" />
    </TableRow>
    <TableRow
        android:weightSum="1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
    <EditText
        android:id="@+id/tdepartment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:textSize="15dp"
        android:layout_weight="1"
        android:padding="10dp"
        android:textColor="@color/black"
        android:background="@drawable/editt"
        android:inputType="textPersonName" />
    </TableRow>
    <TableRow
        android:weightSum="1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
    <Button
        android:id="@+id/tbutton"
        android:layout_marginTop="10dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="SUBMIT" />
    </TableRow>
</TableLayout>
```


11:11
93%
Task5
CLICK ON BUTTON TO CHECK DIFFERENT LAYOUT USAGE
LINEAR LAYOUT
RELATIVE LAYOUT
TABLE LAYOUT
FRAME LAYOUT


11:11
93%
Task5
FORM LINEAR
Name
Department
SUBMIT


11:11
93%
Task5
FORM RELATIVE
Name
Department
SUBMIT
Form submitted


11:11
93%
Task5
FORM TABLE
Name
Department
SUBMIT


11:11
93%
Task5
FRAME LAYOUT
GURU NANAK DEV
1956
ENGG. COLLEGE

PRACTICAL-6
CREATING FRAGMENTS

Android Fragment is the part of activity, it is also known as sub-activity. There can be more than one **fragment** in an activity. Fragments represent multiple screen inside one activity. **Android fragment** lifecycle is affected by activity lifecycle because fragments are included in activity.

MAINACTIVITY.JAVA

```
package com.task.task6;
import android.app.Fragment;
import android.app.FragmentManager;
import android.app.FragmentTransaction;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    Button firstFragment, secondFragment;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
// get the reference of Button's
        firstFragment = (Button) findViewById(R.id.firstFragment);
        secondFragment = (Button) findViewById(R.id.secondFragment);

// perform setOnClickListener event on First Button
        firstFragment.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
// load First Fragment
                loadFragment(new FirstFragment());
            }
        });
// perform setOnClickListener event on Second Button
        secondFragment.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
// load Second Fragment
                loadFragment(new SecondFragment());
            }
        });

    }

    private void loadFragment(Fragment fragment) {
```

```
// create a FragmentManager
        FragmentManager fm = getFragmentManager();
// create a FragmentTransaction to begin the transaction and replace the Fragment
        FragmentTransaction fragmentTransaction = fm.beginTransaction();
// replace the FrameLayout with new Fragment
        fragmentTransaction.replace(R.id.frameLayout, fragment);
        fragmentTransaction.commit(); // save the changes
    }
}
```

FIRSTFRAGEMENT.JAVA

```
package com.task.task6;

import android.app.Fragment;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.Toast;

public class FirstFragment extends Fragment {


    View view;
    Button firstButton;

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
// Inflate the layout for this fragment
        view = inflater.inflate(R.layout.activity_first_fragment, container, false);
// get the reference of Button
        firstButton = (Button) view.findViewById(R.id.firstButton);
// perform setOnClickListener on first Button
        firstButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
// display a message by using a Toast
                Toast.makeText(getActivity(), "First Fragment",
Toast.LENGTH_LONG).show();
            }
        });
        return view;
    }
}
```

SECONDFRAGMENT.JAVA

```
package com.task.task6;
```

```
import android.app.Fragment;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.Toast;


public class SecondFragment extends Fragment {

    View view;
    Button secondButton;

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
// Inflate the layout for this fragment
        view = inflater.inflate(R.layout.activity_second_fragment, container, false);
// get the reference of Button
        secondButton = (Button) view.findViewById(R.id.secondButton);
// perform setOnClickListener on second Button
        secondButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
// display a message by using a Toast
                Toast.makeText(getActivity(), "Second Fragment",
Toast.LENGTH_LONG).show();
            }
        });
        return view;
    }
}
```

ACTIVITY_MAIN.XML

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
   android:padding="5dp"
    tools:context=".MainActivity">
    <!-- display two Button's and a FrameLayout to replace the Fragment's  -->
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:weightSum="2">
    <Button
        android:id="@+id/firstFragment"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_background_color"
        android:text="First Fragment"
        android:textColor="@color/white"
        android:textSize="20sp" />

    <Button
        android:id="@+id/secondFragment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_background_color"
        android:text="Second Fragment"
        android:textColor="@color/white"
        android:textSize="20sp" />
</LinearLayout>


    <FrameLayout
        android:id="@+id/frameLayout"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="10dp" />
</LinearLayout>
```

ACTIVITY_FIRST_FRAGMENT.XML

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".FirstFragment">

    <!--TextView and Button displayed in First Fragment -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:text="This is First Fragment"
        android:textColor="@color/black"
        android:textSize="25sp" />

    <Button
        android:id="@+id/firstButton"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="20dp"
```

```
        android:background="@color/purple_200"
        android:text="First Fragment"
        android:textColor="@color/white"
        android:textSize="20sp"
        android:textStyle="bold" />
</RelativeLayout>
```

ACTIVITY_SECOND_FRAGMENT.XML

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".SecondFragment">

    <!--TextView and Button displayed in Second Fragment -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:text="This is Second Fragment"
        android:textColor="@color/black"
        android:textSize="25sp" />

    <Button
        android:id="@+id/secondButton"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="20dp"
        android:background="@color/purple_200"
        android:text="Second Fragment"
        android:textColor="@color/white"
        android:textSize="20sp"
        android:textStyle="bold" />

</RelativeLayout>
```


11:15
92%
Task6
FIRST FRAGMENT
SECOND FRAGMENT


11:15
92%
Task6
FIRST FRAGMENT
SECOND FRAGMENT
This is First Fragment
FIRST FRAGMENT


11:15
92%
Task6
FIRST FRAGMENT
SECOND FRAGMENT
This is Second Fragment
SECOND FRAGMENT

PRACTICAL-7
IMPLEMENTING INTENTS

An **intent** is to perform an action on the screen. It is mostly used to start activity, send broadcast receiver,start services and send message between two activities. There are two **intents** available in **android** as Implicit **Intents** and Explicit **Intents**.

MAINACTIVITY.JAVA

```
package com.task.task7;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
Button b1;
EditText e1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button)findViewById(R.id.next);
        e1=(EditText)findViewById(R.id.edit);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i= new Intent(MainActivity.this,SecondActivity.class);
                i.putExtra("text",e1.getText().toString());
                startActivity(i);
            }
        });
    }
}
```

SECONDACTIVITY.JAVA

```
package com.task.task7;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class SecondActivity extends AppCompatActivity {
```

```
TextView t1;
String a;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_second);
      t1=(TextView)findViewById(R.id.result);
      Intent i=getIntent();
      a=i.getStringExtra("text");
      t1.setText(a);

   }
}
```

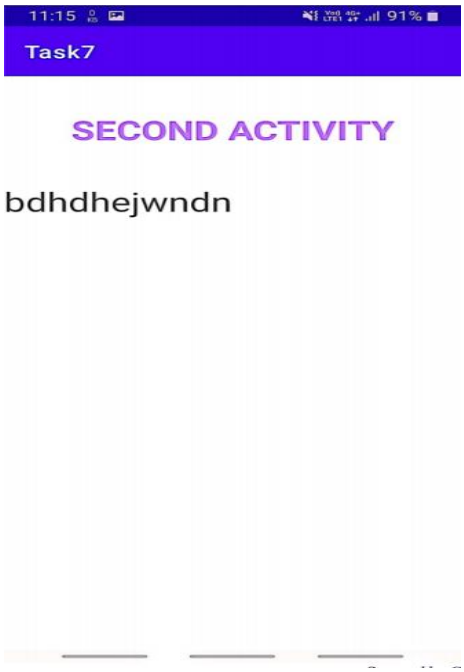
ACTIVITY_MAIN.XML

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

   <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:textSize="30dp"
      android:textStyle="bold"
      android:textColor="@color/purple_200"
      android:layout_marginTop="40dp"
      android:text="INTENT USAGE"
      android:gravity="center"/>

   <EditText
      android:id="@+id/edit"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:ems="10"
      android:layout_marginTop="30dp"
      android:inputType="textPersonName"
      android:hint="Enter any text" />

   <Button
      android:id="@+id/next"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_gravity="center"
      android:layout_marginTop="30dp"
```

```
        android:text="NEXT" />
</LinearLayout>
```

ACTIVITY_SECOND.XML

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

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="SECOND ACTIVITY"
        android:textColor="@color/purple_200"
        android:textStyle="bold"
        android:textSize="30dp"
        android:gravity="center"
        android:layout_marginTop="40dp"/>

    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:textSize="30dp"
        android:inputType="textMultiLine"
        android:text="text" />
</LinearLayout>
```



PRACTICAL-8
STORING DATA USING SQLITE DATABASES

SQLite is a opensource SQL **database** that stores data to a text file on a device. **Android** comes in with built in **SQLite database** implementation. **SQLite** supports all the relational **database** features

sqlite.JAVA

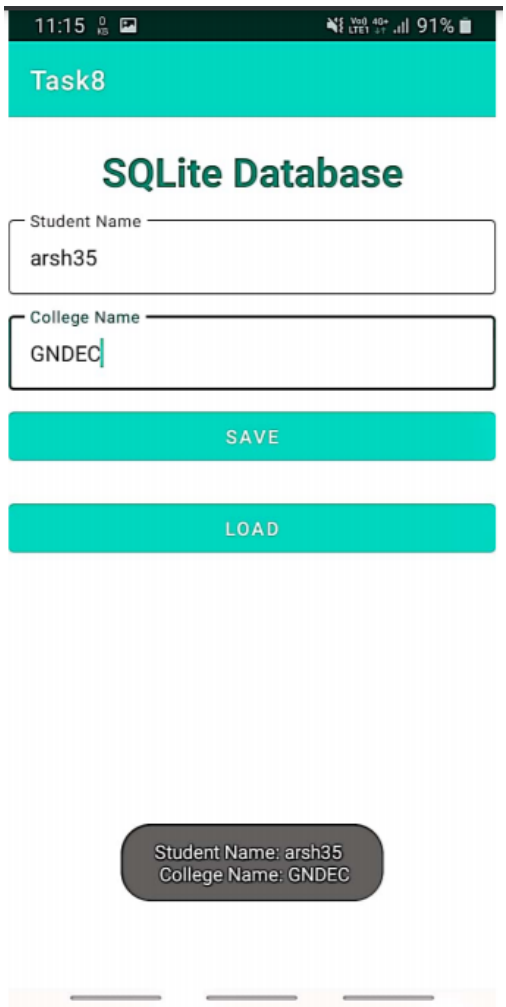
```
package com.mad.mad;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import com.google.android.material.textfield.TextInputLayout;
public class SQLITE extends AppCompatActivity {
Button b1,b2;
TextInputLayout t1,t2;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_s_q_l_i_t_e);
      b1=(Button)findViewById(R.id.button);
      b2=(Button)findViewById(R.id.button2);
      t1=(TextInputLayout)findViewById(R.id.name);
      t2=(TextInputLayout)findViewById(R.id.college);
      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(),"Student Name:
"+t1.getEditText().getText().toString().trim()+"\n College Name:
"+t2.getEditText().getText().toString().trim(),Toast.LENGTH_LONG).show();
         }
      });
      b2.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {

            Toast.makeText(getApplicationContext(),"Data Saved
Successfully",Toast.LENGTH_LONG).show();
         }
      });
   }
}
```

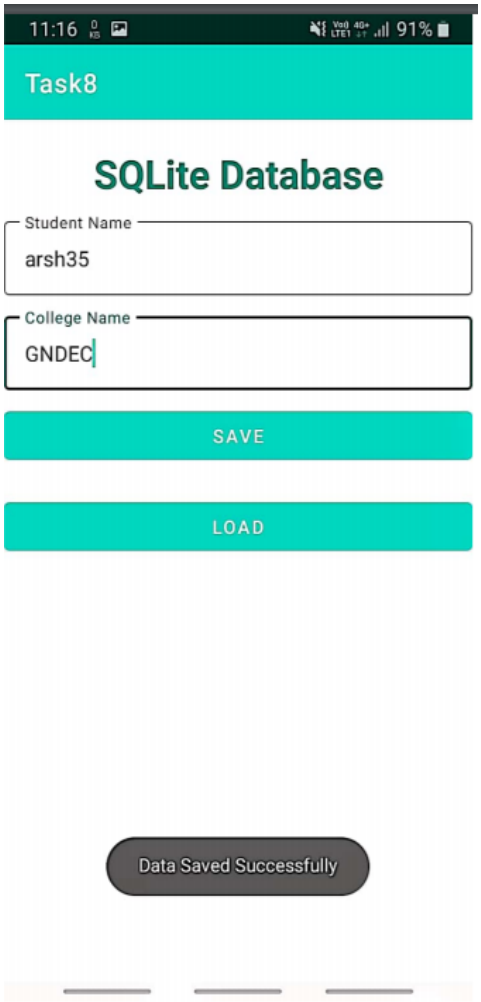
ACTIVITY_S_Q_L_I_T_E.XML

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

```
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
tools:context=".SQLITE">

<TextView
   android:id="@+id/top"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:textStyle="bold"
   android:textSize="30dp"
   android:textColor="@color/purple_200"
   android:layout_marginTop="20dp"
   android:layout_gravity="center"
   android:gravity="center"
   android:text="SQLite Database" />

<com.google.android.material.textfield.TextInputLayout
   android:id="@+id/name"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Student Name"
   style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
   app:hintTextColor="@color/purple_200"
   app:boxStrokeWidthFocused="2dp"
   app:boxStrokeColor="#1B7169"
   android:layout_marginTop="10dp">

   <com.google.android.material.textfield.TextInputEditText
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:inputType="text"/>
</com.google.android.material.textfield.TextInputLayout>

<com.google.android.material.textfield.TextInputLayout
   android:id="@+id/college"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"       android:hint="College Name"
   style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
   app:hintTextColor="@color/purple_200"
   app:boxStrokeWidthFocused="2dp"
   app:boxStrokeColor="#1B7169"
   android:layout_marginTop="10dp">

   <com.google.android.material.textfield.TextInputEditText
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:inputType="text"/>
```

```
</com.google.android.material.textfield.TextInputLayout>

    <Button
        android:id="@+id/button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Save" />

    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="Load" />

</LinearLayout>
```





PRACTICAL-9
DEMONSTRATION OF CONTENT PROVIDER

A **content provider** manages access to a central repository of data. A **provider** is part of an **Android** application, which often provides its own UI for working with the data. However, **content providers** are primarily intended to be used by other applications, which access the **provider** using a **provider** client object.

MAINACTIVITY.JAVA

```
package com.task.task9;
import androidx.appcompat.app.AppCompatActivity;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.view.MotionEvent;
import android.view.View;
import android.view.inputmethod.InputMethodManager;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    public boolean onTouchEvent(MotionEvent event) {
        InputMethodManager imm =
(InputMethodManager)getSystemService(Context.INPUT_METHOD_SERVICE);
        imm.hideSoftInputFromWindow(getCurrentFocus().getWindowToken(), 0);
        return true;
    }
    public void onClickAddDetails(View view) {
        ContentValues values = new ContentValues();
        values.put(MyContentProvider.name, ((EditText)
findViewById(R.id.txtName)).getText().toString());
        getContentResolver().insert(MyContentProvider.CONTENT_URI, values);
        Toast.makeText(getBaseContext(), "New Record Inserted",
Toast.LENGTH_LONG).show();
    }

    public void onClickShowDetails(View view) {

        TextView resultView= (TextView) findViewById(R.id.res);
        Cursor cursor =
```

```
getContentResolver().query(Uri.parse("content://com.task.task9.UserProvider/users"),
null, null, null, null);
        if(cursor.moveToFirst()) {
            StringBuilder strBuild=new StringBuilder();
            while (!cursor.isAfterLast()) {
                strBuild.append("\n"+cursor.getString(cursor.getColumnIndex("id"))+ "-"+
cursor.getString(cursor.getColumnIndex("name")));
                cursor.moveToNext();
            }
            resultView.setText(strBuild);
        }
        else {
            resultView.setText("No Records Found");
        }
    }
}
```

MYCONTENTPROVIDER.JAVA

```
package com.task.task9;
import android.content.ContentProvider;
import android.content.ContentUris;
import android.content.ContentValues;
import android.content.Context;
import android.content.UriMatcher;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteException;
import android.database.sqlite.SQLiteOpenHelper;
import android.database.sqlite.SQLiteQueryBuilder;
import android.net.Uri;
import java.util.HashMap;

public class MyContentProvider extends ContentProvider {
    static final String PROVIDER_NAME = "com.task.task9.UserProvider";
    static final String URL = "content://" + PROVIDER_NAME + "/users";
    static final Uri CONTENT_URI = Uri.parse(URL);

    static final String id = "id";
    static final String name = "name";
    static final int uriCode = 1;
    static final UriMatcher uriMatcher;
    private static HashMap<String, String> values;
    static {
        uriMatcher = new UriMatcher(UriMatcher.NO_MATCH);
        uriMatcher.addURI(PROVIDER_NAME, "users", uriCode);
        uriMatcher.addURI(PROVIDER_NAME, "users/*", uriCode);
    }

    @Override
```

```
public String getType(Uri uri) {
   switch (uriMatcher.match(uri)) {
      case uriCode:
         return "vnd.android.cursor.dir/users";
      default:
         throw new IllegalArgumentException("Unsupported URI: " + uri);
   }
}

@Override
public boolean onCreate() {
   Context context = getContext();
   DatabaseHelper dbHelper = new DatabaseHelper(context);
   db = dbHelper.getWritableDatabase();
   if (db != null) {
      return true;
   }
   return false;
}

@Override
public Cursor query(Uri uri, String[] projection, String selection,
                String[] selectionArgs, String sortOrder) {
   SQLiteQueryBuilder qb = new SQLiteQueryBuilder();
   qb.setTables(TABLE_NAME);

   switch (uriMatcher.match(uri)) {
      case uriCode:
         qb.setProjectionMap(values);
         break;
      default:
         throw new IllegalArgumentException("Unknown URI " + uri);
   }
   if (sortOrder == null || sortOrder == "") {
      sortOrder = id;
   }
   Cursor c = qb.query(db, projection, selection, selectionArgs, null,
         null, sortOrder);
   c.setNotificationUri(getContext().getContentResolver(), uri);
   return c;
}
@Override
public Uri insert(Uri uri, ContentValues values) {
   long rowID = db.insert(TABLE_NAME, "", values);
   if (rowID > 0) {
      Uri _uri = ContentUris.withAppendedId(CONTENT_URI, rowID);
      getContext().getContentResolver().notifyChange(_uri, null);
      return _uri;
   }
   throw new SQLiteException("Failed to add a record into " + uri);
```

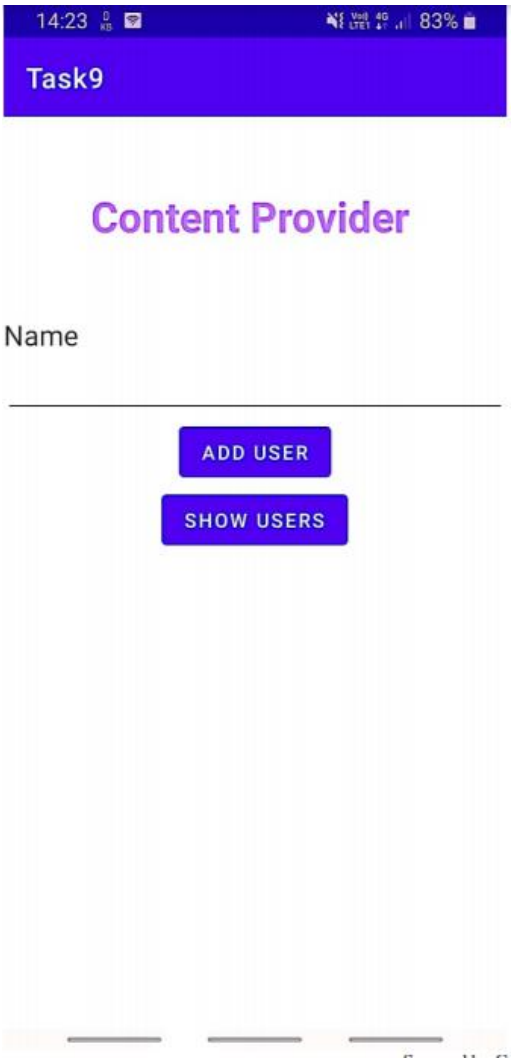
```
}
@Override
public int update(Uri uri, ContentValues values, String selection,
                String[] selectionArgs) {
   int count = 0;
   switch (uriMatcher.match(uri)) {
      case uriCode:
         count = db.update(TABLE_NAME, values, selection, selectionArgs);
         break;
      default:
         throw new IllegalArgumentException("Unknown URI " + uri);
   }
   getContext().getContentResolver().notifyChange(uri, null);
   return count;
}
@Override
public int delete(Uri uri, String selection, String[] selectionArgs) {
   int count = 0;
   switch (uriMatcher.match(uri)) {
      case uriCode:
         count = db.delete(TABLE_NAME, selection, selectionArgs);
         break;
      default:
         throw new IllegalArgumentException("Unknown URI " + uri);
   }
   getContext().getContentResolver().notifyChange(uri, null);
   return count;
}
private SQLiteDatabase db;
static final String DATABASE_NAME = "EmpDB";
static final String TABLE_NAME = "Employees";
static final int DATABASE_VERSION = 1;
static final String CREATE_DB_TABLE = " CREATE TABLE " + TABLE_NAME
      + " (id INTEGER PRIMARY KEY AUTOINCREMENT, "
      + " name TEXT NOT NULL);";

private static class DatabaseHelper extends SQLiteOpenHelper {
   DatabaseHelper(Context context) {
      super(context, DATABASE_NAME, null, DATABASE_VERSION);
   }

   @Override
   public void onCreate(SQLiteDatabase db) {
      db.execSQL(CREATE_DB_TABLE);
   }

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

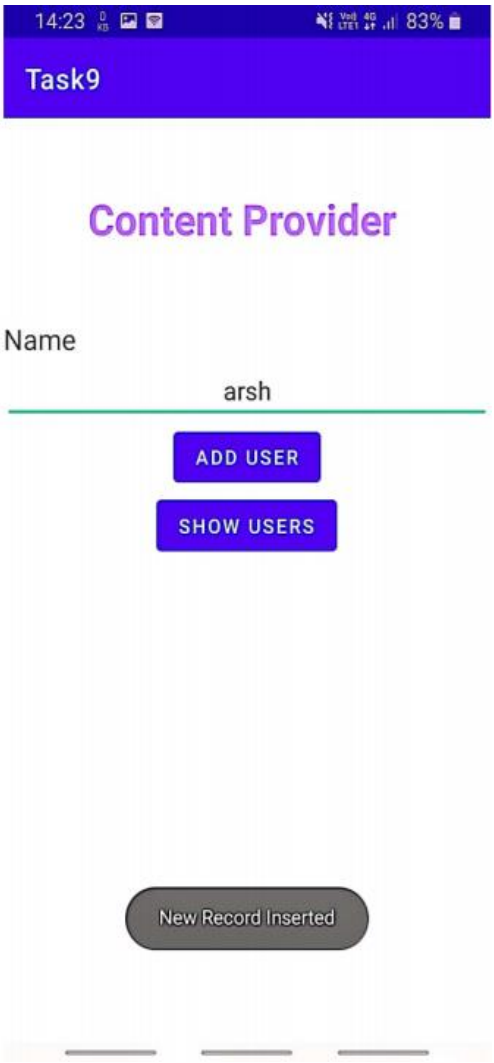
```
    }
  }
}
```

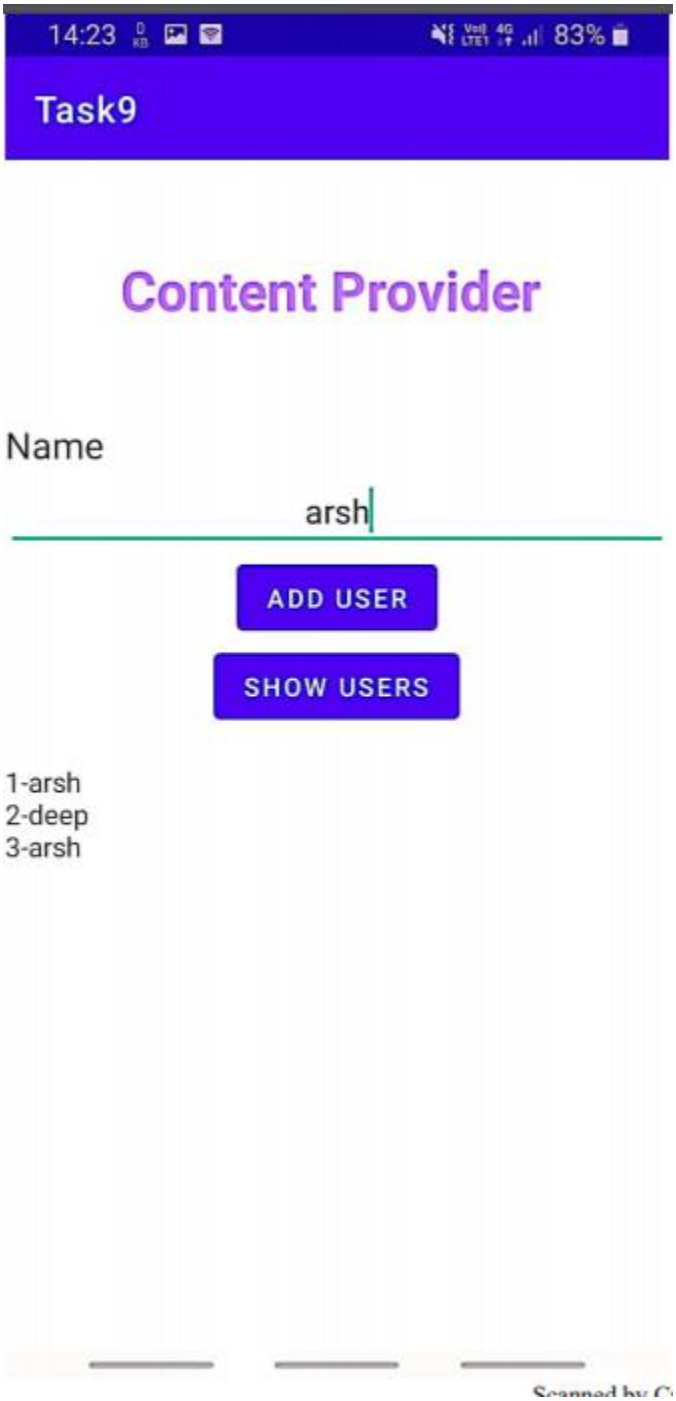
ACTIVITY_MAIN.XML

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

  <TextView
    android:id="@+id/textView2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Content Provider "
    android:textColor="@color/purple_200"
    android:textStyle="bold"
    android:textSize="30dp"
    android:gravity="center"
    android:layout_marginTop="50dp"
    android:layout_centerHorizontal="true" />

  <TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:text="Name"
    android:textSize="20dp" />

  <EditText
    android:id="@+id/txtName"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:ems="10" />

  <Button
    android:id="@+id/btnAdd"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:onClick="onClickAddDetails"
    android:text="Add User" />

  <Button
    android:id="@+id/btnRetrieve"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
```

```
        android:onClick="onClickShowDetails"
        android:text="Show Users" />

    <TextView
        android:id="@+id/res"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:clickable="false"
        android:textSize="15dp"
        android:ems="10" />
</LinearLayout>
```






14:23
83%
Task9
Content Provider
Name
arsh
ADD USER
SHOW USERS
1-arsh
2-deep
3-arsh

PRACTICAL-10
DEMONSTRATING SERVICES

A Service is an application component that can perform long-running operations in the background. It does not provide a user interface. Once started, a service might continue running for some time, even after the user switches to another application. Additionally, a component can bind to a service to interact with it and even perform interprocess communication (IPC). For example, a service can handle network transactions, play music, perform file I/O, or interact with a content provider, all from the background.

MAINACTIVITY.JAVA

```
package com.task.task10;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {

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

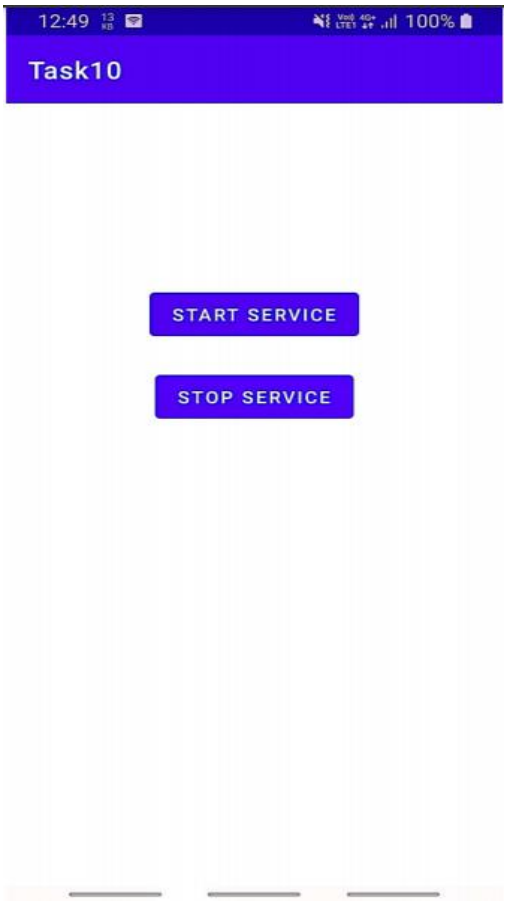
MYSERVICE.JAVA

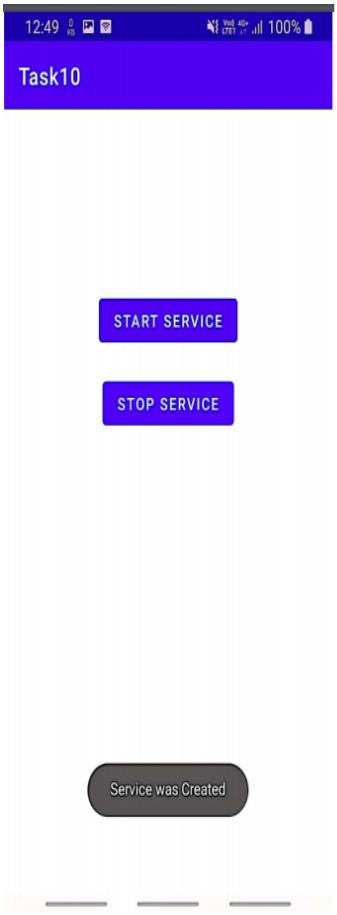
```
package com.task.task10;
import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
import android.provider.Settings;
import android.widget.Toast;
public class MyService extends Service {
    private MediaPlayer player;
    @Override
    public IBinder onBind(Intent intent) {
        return  null;
    }
    @Override
    public void onCreate() {
```

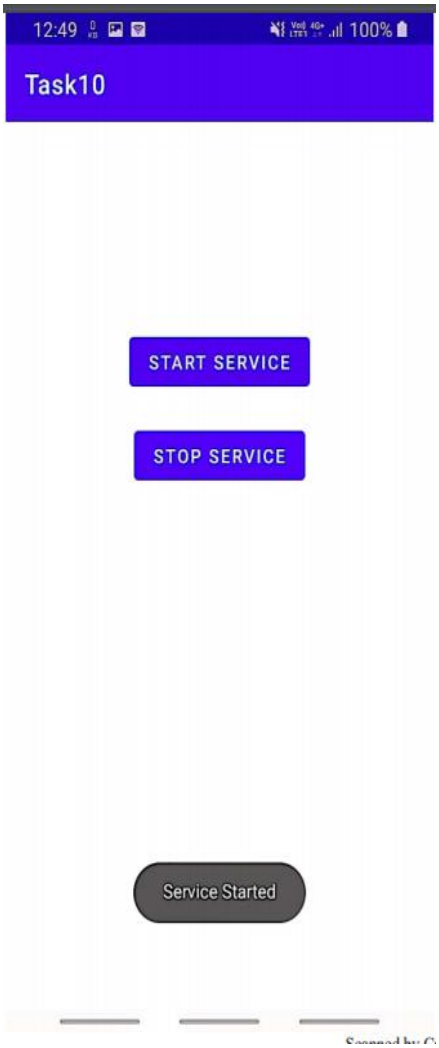
```
        Toast.makeText(this, "Service was Created", Toast.LENGTH_LONG).show();
    }
    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        player = MediaPlayer.create(this, Settings.System.DEFAULT_RINGTONE_URI);
        // This will play the ringtone continuously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

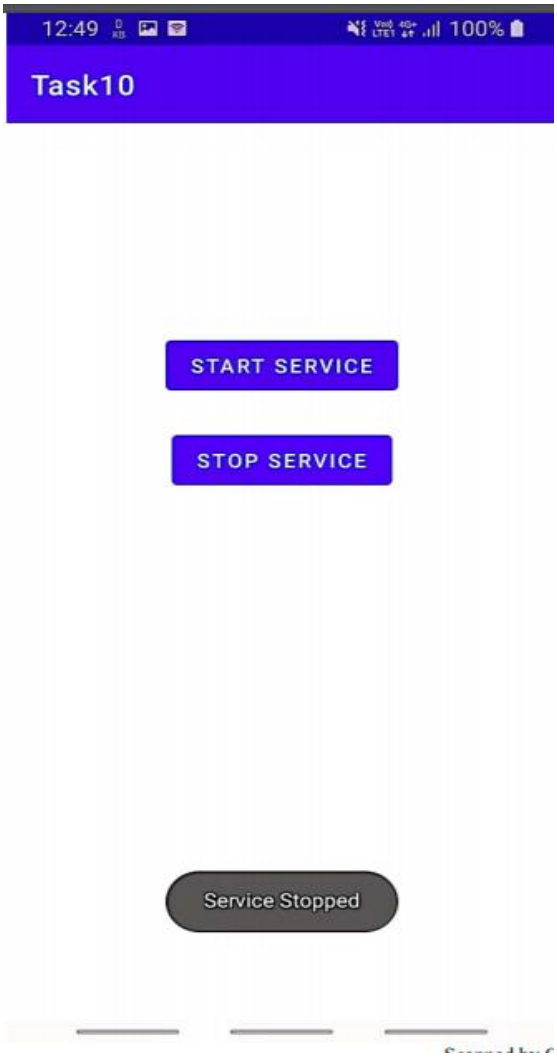
ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:id="@+id/btnStart"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="startService"
        android:layout_gravity="center"
        android:layout_marginTop="150dp"
        android:text="Start Service"/>
    <Button
        android:id="@+id/btnstop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:onClick="stopService"
        android:layout_marginTop="20dp"
        android:text="Stop Service"/>
</LinearLayout>
```


12:49
100%
Task10
START SERVICE
STOP SERVICE


12:49
100%
Task10
START SERVICE
STOP SERVICE
Service was Created


12:49
100%
Task10
START SERVICE
STOP SERVICE
Service Started


12:49
100%
Task10
START SERVICE
STOP SERVICE
Service Stopped

PRACTICAL-11
SECURITY AND DEBUGGING

Debugging allows you to go through each line of code, evaluating your app's variables, methods and how well your code is working. It's easier to find small mistake in large pieces of code. In this article we will go through basic tips and tricks on **debugging** an **Android** app.

MAINACTIVITY.JAVA

```
package com.example.task11;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2;
    TextView t;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 = findViewById(R.id.t1);
        e2 = findViewById(R.id.editText);
        t = findViewById(R.id.re);


    }
    public void add(View view){
        Log.i("Mainactivity","Executed 1");
        int a1 = Integer.parseInt(e1.getText().toString());
        Log.i("Mainactivity","Executed 2");
        int a2 = Integer.parseInt(e2.getText().toString());
        Log.i("Mainactivity","Executed 3");
        int res = a1 + a2;
        Log.i("Mainactivity","Executed 4");
        t.setText(""+res);
        Log.i("Mainactivity","Executed 5");
    }
}
```

ACTIVITY_MAIN.XML

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

```
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
tools:context=".MainActivity">


<EditText
   android:id="@+id/t1"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Enter number 1"
   app:layout_constraintBottom_toTopOf="@+id/editText"
   app:layout_constraintTop_toTopOf="parent"
   app:layout_constraintVertical_bias="0.73"
   tools:ignore="MissingConstraints"
   tools:layout_editor_absoluteX="0dp" />

<EditText
   android:id="@+id/editText"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Enter number 2"
   tools:ignore="MissingConstraints"
   tools:layout_editor_absoluteX="0dp"
   tools:layout_editor_absoluteY="253dp" />

<Button
   android:id="@+id/button"
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:text="Add two numbers"
   android:gravity="center"
   android:layout_marginTop="30dp"
   android:layout_marginLeft="85dp"
   app:layout_constraintBottom_toBottomOf="parent"
   app:layout_constraintEnd_toEndOf="parent"
   app:layout_constraintHorizontal_bias="0.497"
   app:layout_constraintStart_toStartOf="parent"
   app:layout_constraintTop_toBottomOf="@+id/editText"
   app:layout_constraintVertical_bias="0.217"
   tools:ignore="MissingConstraints"
   android:onClick="add"/>

<TextView
   android:id="@+id/re"
   android:layout_width="98dp"

   android:layout_height="25dp"
   android:layout_marginTop="50dp"
```

```
        android:gravity="center"
        android:layout_marginLeft="100dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button"
        app:layout_constraintVertical_bias="0.258"

        tools:ignore="MissingConstraints" />

</LinearLayout>
```