**Practical-1 Create a first app on Android**

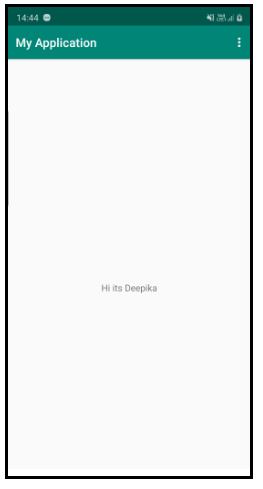
**MainActivity.java:**

**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 its Deepika"  
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**>

**OUTPUT:**



**Practical-2: Create icon of app, change the label Background**

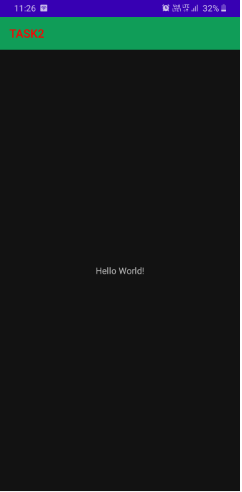
**MainActivity.java:**

**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**>

**OUTPUT:**

****

**Practical-3: Create the menu, Buttons and ScrollView in an Application**

**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();  
 }  
}

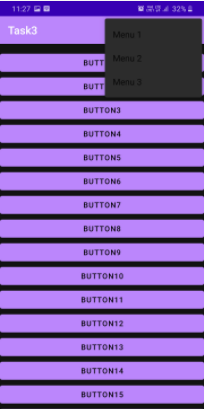
**Activity\_main.xml:**

*<?***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**>

**OUTPUT:**

** **

**Practical-4: Create the form using all the UI i.e Check Button, Radio**

**Button, TextView etc**

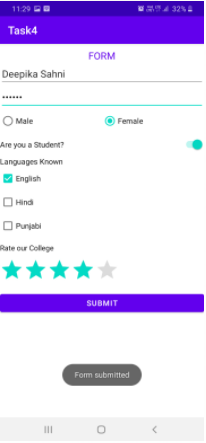
**MainActivity.java:**

**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**>

**OUTPUT:**

****

**Practical-5: By using all Layouts design the form**

**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**>

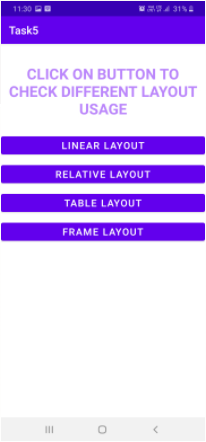
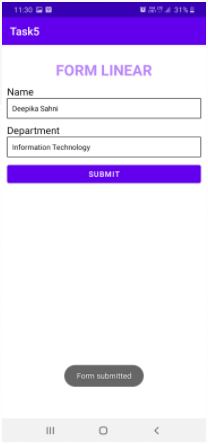
**Activity\_relative.xml:**

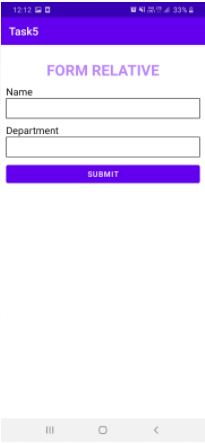
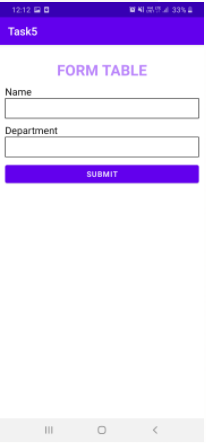
*<?***xml version="1.0" encoding="utf-8"***?>*<**RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
xmlns:app="http://schemas.android.com/apk/res-auto"  
xmlns:tools="http://schemas.android.com/tools"  
android:layout\_width="match\_parent"  
android:layout\_height="match\_parent"  
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**>

**OUTPUT:**



**Practical 6: Create a Fragment**

**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*}  
}

**FirstFragment.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**>

**OUTPUT:**



**Practical 7: Activities and 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**);  
  
 }  
}

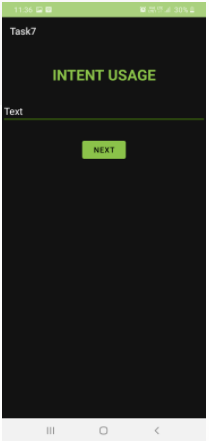
**Activity\_main.xml:**

*<?***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**>

**OUTPUT:**



**Practical 8: Storing data using SQLite database**

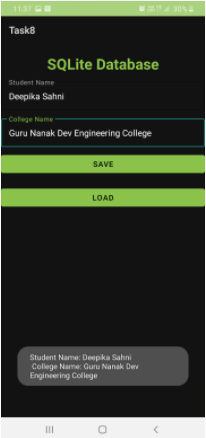
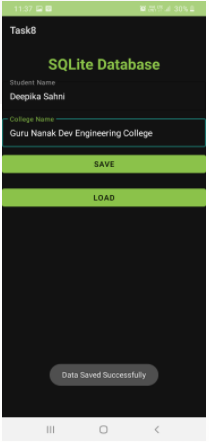
**sqlite.java:**

**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**>

**OUTPUT:**

**Practical 9: Demonstration of Content Provider**

**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"**);  
 }  
 }  
}

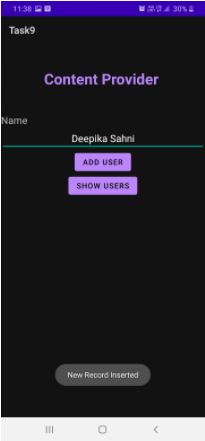
**MyCcntentProvider.java:**

**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**>

**OUTPUT:**



**Practical 10: Demonstrating Services**

**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**));  
 }  
}

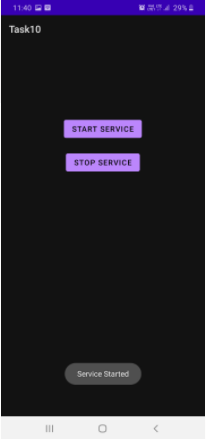
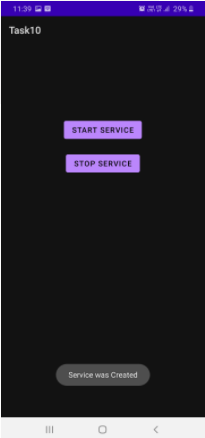
**MyService.java:**

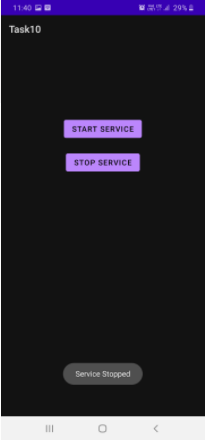
**package** com.task.task10;  
  
**import** android.app.Service;  
**import** android.content.Intent;  
**import** android.media.MediaPlayer;  
**import** android.os.IBinder;  
**import** android.provider.Settings;  
**import** android.widget.Toast;  
**public class** MyService **extends** Service {  
**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**>

**OUTPUT:**





**Practical 11: Android Security and Debugging**

**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**>

**OUTPUT:**

