Practical No.1

1.Java Android Program to demonstrate Login & Registration form with validation.
Programs:

activity_login.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"
android:background="#C3F8A2"
tools:context=".login">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Login Page"
android:layout_marginTop="20dp"
android:textStyle="bold"
android:id="@+id/success"
android:textColor="#EE1555"
android:textSize="40dp"
android:layout_gravity="center"/>
<EditText
android:layout_width="match_parent"
android:layout_height="50dp"
android:id="@+id/email"
android:inputType="textWebEmailAddress"
android:hint="Email id"
android:layout_marginTop="90dp"/>
<EditText
android:layout_marginTop="5dp"
android:layout_width="match_parent"
android:layout_height="50dp"
android:id="@+id/password"
android:inputType="textPassword"
android:hint="Password"/>
<Button
android:layout_marginTop="20dp"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAllCaps="false"
android:id="@+id/login"
android:background="#F3E58C"
android:text="Login"
android:onClick="onClick"
android:layout_gravity="center"
android:textSize="20dp"/>
<TextView
```

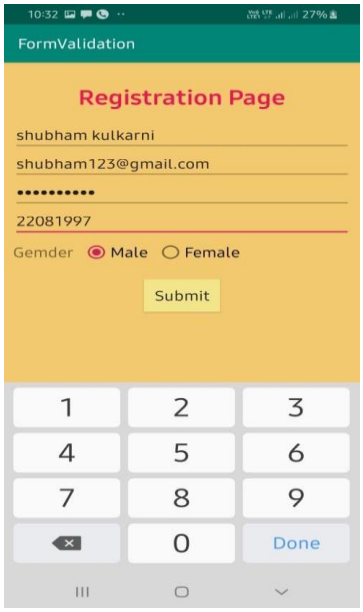
```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Not a member? Sign up now "
android:layout_marginTop="20dp"
android:layout_gravity="center"
android:id="@+id/newmember"
android:textSize="20dp"/>
</LinearLayout>
```

login.java

```
package com.example.formvalidation;
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;
import android.widget.TextView;
import android.widget.Toast;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
public class login extends AppCompatActivity
{
TextView member;
Button login;
EditText mail,password;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_login);
mail=(EditText)findViewById(R.id.email);
password=(EditText)findViewById(R.id.password);
member=(TextView)findViewById(R.id.newmember);
member.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
Intent a=new Intent(getApplicationContext(),Reg.class);
startActivity(a);
finish();
}
});
login=(Button)findViewById(R.id.login);
login.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
String validemail = "[a-zA-Z0-9\\+\\.\\_\\%\\-\\+]{1,256}" +
"\\@" +
```

```
"[a-zA-Z0-9][a-zA-Z0-9\\-]{0,64}" +
"(" +
"\\." +
"[a-zA-Z0-9][a-zA-Z0-9\\-]{0,25}" +
")+";String email=mail.getText().toString();
Matcher matcher= Pattern.compile(validemail).matcher(email);
if(matcher.matches())
{
Toast.makeText(getApplicationContext(),"true",Toast.LENGTH_LONG).show();
}
else
{
Toast.makeText(getApplicationContext(), "Enter valid Email",
Toast.LENGTH_LONG).show();
}
if(password.getText().toString().equals(""))
{
password.setError("Enter Password");
}
TextView text=(TextView)findViewById(R.id.success);
text.setText("Login Success...");
}
});
}
}
```

Output:



activity_reg.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"
android:background="#F3C96F"
tools:context=".Reg">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Registration Page"
android:layout_marginTop="20dp"
android:textSize="30dp"
android:textStyle="bold"
android:id="@+id/done"
android:textColor="#EE1555"
android:layout_gravity="center"/>
<EditText
android:layout_marginTop="20dp"
android:layout_width="match_parent"
android:layout_height="40dp"
android:hint="Full Name"
android:inputType="text"
android:id="@+id/fullname"
android:textSize="20dp"/>
<EditText
android:layout_marginTop="2dp"
android:layout_width="match_parent"
android:layout_height="40dp"
android:hint="Email Id"
android:inputType="textWebEmailAddress"
android:id="@+id/email"
android:textSize="20dp"/>
<EditText
android:layout_marginTop="2dp"
android:layout_width="match_parent"
android:layout_height="40dp"
android:hint="Password"
android:inputType="textPassword"
android:id="@+id/password"
android:textSize="20dp"/>
<EditText
android:layout_marginTop="2dp"
android:layout_width="match_parent"
android:layout_height="40dp"
android:hint="Date of Birth"
android:inputType="date"
android:id="@+id/dob"
android:textSize="20dp"/>
```

```
<RadioGroup
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:layout_marginTop="2dp">
<TextView
android:layout_width="wrap_content"
android:layout_height="40dp"
android:text="Gemder"
android:textSize="20dp"/>
<RadioButton
android:layout_width="wrap_content"android:layout_height="40dp"
android:text="Male"
android:layout_marginLeft="10dp"
android:textSize="20dp"/>
<RadioButton
android:layout_width="wrap_content"
android:layout_height="40dp"
android:text="Female"
android:layout_marginLeft="10dp"
android:textSize="20dp"/>
</RadioGroup>
<Button
android:layout_marginTop="20dp"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAllCaps="false"
android:id="@+id/submit"
android:background="#F3E58C"
android:text="Submit"
android:onClick="onClick"
android:layout_gravity="center"
android:textSize="20dp"/>
</LinearLayout>
```

Reg.java

```
package com.example.formvalidation;
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;
import android.widget.TextView;
import android.widget.Toast;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
public class Reg extends AppCompatActivity
{
EditText fullname,password,email,dob;
Button submit;
```

```
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_reg);
fullname=(EditText)findViewById(R.id.fullname);
password=(EditText)findViewById(R.id.password);
email=(EditText)findViewById(R.id.email);
dob=(EditText)findViewById(R.id.dob);
submit=(Button)findViewById(R.id.submit);
submit.setOnClickListener(new View.OnClickListener()
{@Override
public void onClick(View v)
{
if(fullname.getText().toString().equals(""))
{
fullname.setError("Enter valid Fullname");
}
String validemail = "[a-zA-Z0-9\\+\\.\\_\\%\\-\\+]{1,256}" +
"\\@" +
"[a-zA-Z0-9][a-zA-Z0-9\\-]{0,64}" +
"(" +
"\\." +
"[a-zA-Z0-9][a-zA-Z0-9\\-]{0,25}" +
")+";
String emailv=email.getText().toString();
Matcher matcher= Pattern.compile(validemail).matcher(emailv);
if(matcher.matches())
{
Toast.makeText(getApplicationContext(),"true",Toast.LENGTH_LONG).show();
}
else
{
Toast.makeText(getApplicationContext(), "Enter valid Email",
Toast.LENGTH_LONG).show();
}
if(password.getText().toString().equals(""))
{
password.setError("Enter valid Password");
}
else if(dob.getText().toString().equals(""))
{
dob.setError("Enter valid Birth Date");
}
TextView text=(TextView)findViewById(R.id.done);
text.setText("Registration Success...");
}
});
}
}
```

AndroidmManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.formvalidation">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"android:theme="@style/AppTheme">
<activity android:name=".Reg" />
<activity android:name=".login">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Practical No. 2

Create the simple calculator and perform appropriate operation.
Program:

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">
<Button
android:id="@+id/btn0"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="0"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btnEqual"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btnDot"
app:layout_constraintTop_toBottomOf="@+id/btn8" />
<TextView
android:id="@+id/textView"
android:layout_width="300dp"
android:layout_height="50dp"
android:layout_marginStart="36dp"
android:layout_marginTop="38dp"
android:layout_marginEnd="36dp"
android:text="Calculate"
android:textSize="35dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<EditText
android:id="@+id/editText"
android:layout_width="339dp"
android:layout_height="59dp"
android:layout_marginStart="36dp"
android:layout_marginTop="24dp"
android:layout_marginEnd="36dp"
android:ems="10"
android:inputType="textPersonName"
android:textAlignment="textEnd"
android:textSize="30sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />
```

```
<Button
android:id="@+id/btn1"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="94dp"
android:text="1"
android:textSize="24sp"app:layout_constraintEnd_toStartOf="@+id/btn2"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editText" />
<Button
android:id="@+id/btn2"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="94dp"
android:text="2"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btn3"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn1"
app:layout_constraintTop_toBottomOf="@+id/editText" />
<Button
android:id="@+id/btn3"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="94dp"
android:text="3"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btnAdd"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn2"
app:layout_constraintTop_toBottomOf="@+id/editText" />
<Button
android:id="@+id/btnAdd"
android:layout_width="100dp"
android:layout_height="50dp"
android:layout_marginTop="94dp"
android:text="+"
android:textSize="24sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn3"
app:layout_constraintTop_toBottomOf="@+id/editText" />
<Button
android:id="@+id/btn4"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="4"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btn5"
app:layout_constraintHorizontal_bias="0.5"
```

```
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/btn1" />
<Button
android:id="@+id/btn5"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="5"android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btn6"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn4"
app:layout_constraintTop_toBottomOf="@+id/btn2" />
<Button
android:id="@+id/btn6"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="6"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btnSub"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn5"
app:layout_constraintTop_toBottomOf="@+id/btn3" />
<Button
android:id="@+id/btnSub"
android:layout_width="100dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="-"
android:textSize="24sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn6"
app:layout_constraintTop_toBottomOf="@+id/btnAdd" />
<Button
android:id="@+id/btn7"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="7"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btn8"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/btn4" />
<Button
android:id="@+id/btn8"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="8"
android:textSize="24sp"
```

```
app:layout_constraintEnd_toStartOf="@+id/btn9"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn7"
app:layout_constraintTop_toBottomOf="@+id/btn5" />
<Button
android:id="@+id/btn9"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"android:text="9"
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btnMul"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn8"
app:layout_constraintTop_toBottomOf="@+id/btn6" />
<Button
android:id="@+id/btnMul"
android:layout_width="100dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="*"
android:textSize="24sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn9"
app:layout_constraintTop_toBottomOf="@+id/btnSub" />
<Button
android:id="@+id/btnDot"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="."
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btn0"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/btn7" />
<Button
android:id="@+id/btnEqual"
android:layout_width="75dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
android:text="="
android:textSize="24sp"
app:layout_constraintEnd_toStartOf="@+id/btnDiv"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btn0"
app:layout_constraintTop_toBottomOf="@+id/btn9" />
<Button
android:id="@+id/btnDiv"
android:layout_width="100dp"
android:layout_height="50dp"
android:layout_marginTop="15dp"
```

```
android:text="/"
android:textSize="24sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/btnEqual"
app:layout_constraintTop_toBottomOf="@+id/btnMul" />
<Button
android:id="@+id/btnClear"
android:layout_width="100dp"
android:layout_height="50dp"android:layout_marginTop="15dp"
android:text="C"
android:textSize="24sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/btnEqual" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.mycalculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity
{
Button
btn1,btn2,btn3,btn4,btn5,btn6,btn7,btn8,btn9,btn0,btnAdd,btnSub,btnMul,btnDiv,btnE
qual,btnDot;
Button btnClear;
EditText ed1;
float Res1,Res2;
boolean Add,Sub,Mul,Div;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btn1=(Button)findViewById(R.id.btn1);
btn2=(Button)findViewById(R.id.btn2);
btn3=(Button)findViewById(R.id.btn3);
btn4=(Button)findViewById(R.id.btn4);
btn5=(Button)findViewById(R.id.btn5);
btn6=(Button)findViewById(R.id.btn6);
btn7=(Button)findViewById(R.id.btn7);
btn8=(Button)findViewById(R.id.btn8);
btn9=(Button)findViewById(R.id.btn9);
btn0=(Button)findViewById(R.id.btn0);
btnAdd=(Button)findViewById(R.id.btnAdd);
```

```
btnSub=(Button)findViewById(R.id.btnSub);
btnMul=(Button)findViewById(R.id.btnMul);
btnDiv=(Button)findViewById(R.id.btnDiv);
btnEqual=(Button)findViewById(R.id.btnEqual);
btnDot=(Button)findViewById(R.id.btnDot);
btnClear=(Button)findViewById(R.id.btnClear);
ed1=(EditText)findViewById(R.id.editText);
btn1.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{ed1.setText(ed1.getText()+"1");
}
});
btn2.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"2");
}
});
btn3.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"3");
}
});
btn4.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"4");
}
});
btn5.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"5");
}
});
btn6.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"6");
```

```
}
});
btn7.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"7");
}
});
btn8.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"8");
}
});btn9.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"9");
}
});
btn0.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+"0");
}
});
btnDot.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText(ed1.getText()+".");
}
});
btnAdd.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
if(ed1==null)
{
ed1.setText("");
}
else
{
```

```
Res1=Float.parseFloat(ed1.getText()+"");
Add=true;
ed1.setText(null);
}
}
});
btnSub.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
if(ed1==null)
{
ed1.setText("");
}
else
{
Res1=Float.parseFloat(ed1.getText()+"");
Sub=true;
ed1.setText(null);
}
}
});
btnMul.setOnClickListener(new View.OnClickListener(){
@Override
public void onClick(View v)
{
if(ed1==null)
{
ed1.setText("");
}
else
{
Res1=Float.parseFloat(ed1.getText()+"");
Mul=true;
ed1.setText(null);
}
}
});
btnDiv.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
if(ed1==null)
{
ed1.setText("");
}
else
{
Res1=Float.parseFloat(ed1.getText()+"");
Div=true;
```

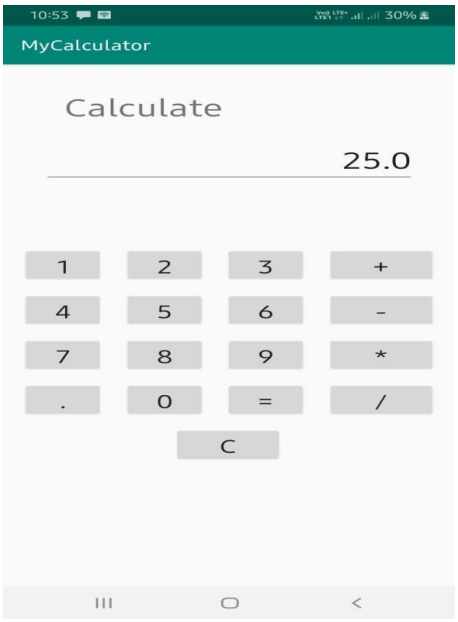
```
ed1.setText(null);
}
}
});
btnEqual.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
Res2=Float.parseFloat(ed1.getText()+"");
if(Add==true)
{
ed1.setText(Res1+Res2+"");
Add=false;
}
if(Sub==true)
{
ed1.setText(Res1-Res2+"");
Sub=false;
}
if(Mul==true)
{
ed1.setText(Res1*Res2+"");
Mul=false;
}
if(Div==true)
{
ed1.setText(Res1/Res2+"");
Div=false;
}}
});
btnClear.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
ed1.setText("");
}
});
}
}
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.mycalculator">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
```

```
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:



Practical No. 3

By using Spinner, Buttons. Write a program to draw GUI.
Program:
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:id="@+id/textView2"
android:layout_width="118dp"
android:layout_height="25dp"
android:layout_marginStart="45dp"
android:layout_marginTop="69dp"
android:layout_marginEnd="21dp"
android:layout_marginBottom="54dp"
android:text="Enter Item : "
android:textColor="@android:color/holo_orange_dark"
android:textSize="18sp"
app:layout_constraintBottom_toTopOf="@+id/button"
app:layout_constraintEnd_toStartOf="@+id/editText"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<EditText
android:id="@+id/editText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="21dp"
android:layout_marginTop="59dp"
android:layout_marginEnd="14dp"
android:layout_marginBottom="43dp"
android:ems="10"
android:inputType="textPersonName"
app:layout_constraintBottom_toTopOf="@+id/button2"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/textView2"
app:layout_constraintTop_toTopOf="parent" />
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="34dp"
android:layout_marginTop="54dp"
android:layout_marginEnd="1dp"
android:text="Add to spinner"
android:textColor="?android:attr/colorEdgeEffect"
app:layout_constraintEnd_toStartOf="@+id/button2"
```

```
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView2" />
<Button
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"android:layout_marginStart="32dp"
android:layout_marginTop="43dp"
android:layout_marginEnd="24dp"
android:text="Remove from spinner"
android:textColor="?android:attr/colorEdgeEffect"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/button"
app:layout_constraintTop_toBottomOf="@+id/editText" />
<TextView
android:id="@+id/textView3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="48dp"
android:layout_marginTop="68dp"
android:layout_marginEnd="200dp"
android:text="See Response Below"
android:textColor="@android:color/holo_red_dark"
android:textSize="18sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/button" />
<Spinner
android:id="@+id/spinner"
android:layout_width="264dp"
android:layout_height="45dp"
android:layout_marginStart="76dp"
android:layout_marginTop="63dp"
android:layout_marginEnd="71dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView3" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.spinneraddremove;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.Toast;
import java.util.ArrayList;
import java.util.Arrays;
public class MainActivity extends AppCompatActivity
```

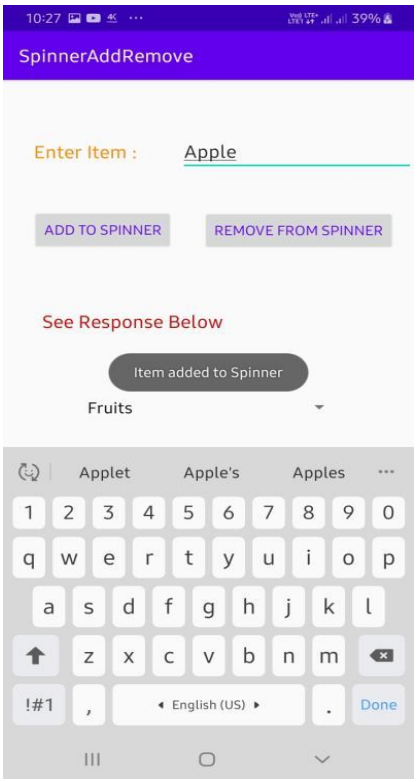
```
{
Button b1,b2;
EditText t1;
Spinner sp;
String data[] = {"Fruits"};
ArrayList list = new ArrayList(Arrays.asList(data));@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
b1 = (Button)findViewById(R.id.button);
b2 = (Button)findViewById(R.id.button2);
t1 = (EditText)findViewById(R.id.editText);
sp = (Spinner)findViewById(R.id.spinner);
final ArrayAdapter adapter = new ArrayAdapter(this,
R.layout.support_simple_spinner_dropdown_item, list);
sp.setAdapter(adapter);
b1.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
String s = t1.getText().toString();
list.add(s);
adapter.notifyDataSetChanged();
sp.setAdapter(adapter);
Toast.makeText(getApplicationContext(),"Item added to
Spinner",Toast.LENGTH_LONG).show();
}
});
b2.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
String s = t1.getText().toString();
list.remove(s);
adapter.notifyDataSetChanged();
sp.setAdapter(adapter);
Toast.makeText(getApplicationContext(),"Item removed from
Spinner",Toast.LENGTH_LONG).show();
}
});
}
}
```

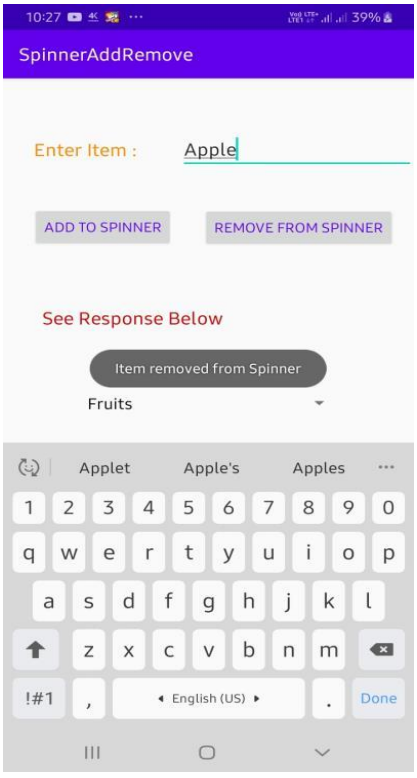
AndroidManifest.xml

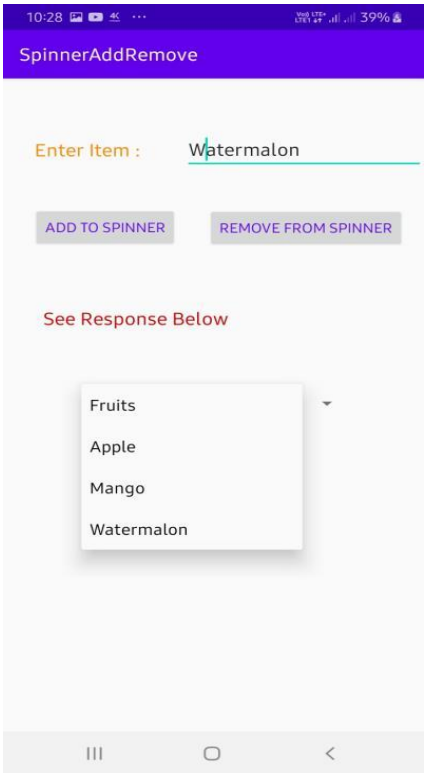
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.spinneraddremove">
<application
```

```
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme"><activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:







Practical No.4

Create an Android application, which show to the user 5-10 quiz questions. All questions have 4 possible options and one right option exactly. Application counts and shows to the user how many answers were right and shows the result to user.
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
android:paddingBottom="@dimen/activity_vertical_margin"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingRight="@dimen/activity_horizontal_margin"
android:paddingTop="@dimen/activity_vertical_margin"
tools:context="com.example.vikasojha.quizbee.MainActivity"
>
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/quizapp"
android:layout_marginTop="48dp"
android:textSize="60dp"
android:id="@+id/textView"
android:layout_alignParentTop="true"
android:layout_alignLeft="@+id/editName"
android:layout_alignStart="@+id/editName"
android:textColor="#F44336" />
<Button
android:layout_width="200dp"
android:layout_height="52dp"
android:text="Start"
android:id="@+id/button"
android:textSize="30dp"
android:layout_above="@+id/button2"
android:layout_alignLeft="@+id/editName"
android:layout_alignStart="@+id/editName"
android:layout_marginBottom="25dp"
android:background="#FF5722"
android:textColor="#ffffff" />
<EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="textPersonName"
android:ems="10"
android:id="@+id/editName"
android:textColor="#df040b"
android:hint="Enter your name"
android:layout_centerVertical="true"
android:layout_centerHorizontal="true" />
```

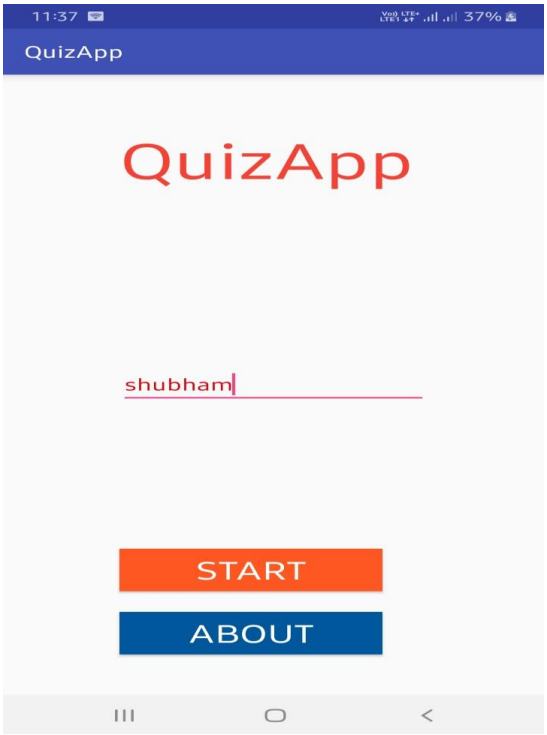
```
<Button
android:layout_width="200dp"
android:layout_height="52dp"
android:text="About"
android:id="@+id/button2"
android:textSize="30dp"
android:layout_marginBottom="33dp"
android:layout_alignParentBottom="true"
android:layout_alignLeft="@+id/button"android:layout_alignStart="@+id/button"
android:background="#01579B"
android:textColor="#ffffff" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.vikasojha.quizbee;
import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Button startbutton=(Button)findViewById(R.id.button);
Button aboutbutton=(Button)findViewById(R.id.button2);
final EditText nametext=(EditText)findViewById(R.id.editName);
startbutton.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
String name=nametext.getText().toString();
Intent intent=new
Intent(getApplicationContext(),QuestionsActivity.class);
intent.putExtra("myname",name);
startActivity(intent);
}
});
aboutbutton.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
Intent intent=new
```

```
Intent(getApplicationContext(),DeveloperActivity.class);
startActivity(intent);
}
});
}
}
```

Output:



activity_question.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
android:paddingBottom="@dimen/activity_vertical_margin"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingRight="@dimen/activity_horizontal_margin"
android:paddingTop="@dimen/activity_vertical_margin"
tools:context="com.example.vikasojha.quizbee.QuestionsActivity">
<TextView
android:layout_width="200dp"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:id="@+id/DispName"
android:textColor="@color/accent_material_light"
android:layout_alignParentTop="true"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true" />
<RadioGroup
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignLeft="@+id/DispName"
android:layout_alignStart="@+id/DispName"android:id="@+id/answersgrp"
android:clickable="true"
android:layout_centerVertical="true">
<!--android:layout-->
<!--android:checkedButton="@+id/radioButton"-->
<RadioButton
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="A"
android:id="@+id/radioButton"
android:checked="false"
/>
<RadioButton
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="B"
android:id="@+id/radioButton2"
android:checked="false" />
<RadioButton
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="C"
android:id="@+id/radioButton3"
android:checked="false" />
<RadioButton
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="D"
```

```
android:id="@+id/radioButton4"
android:checked="false" />
</RadioGroup>
<Button
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Next Question"
android:id="@+id/button3"
android:layout_marginTop="27dp"
android:layout_below="@+id/answersgrp"
android:layout_alignParentRight="true"
android:layout_alignParentEnd="true"
android:background="#FF5722"
android:textColor="#ffffff"/>
<Button
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Quit"
android:id="@+id/buttonquit"
android:layout_marginTop="20dp"
android:layout_below="@+id/button3"
android:layout_alignParentRight="true"
android:layout_alignParentEnd="true"android:background="#01579B"
android:textColor="#ffffff" />
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:text="Questions"
android:id="@+id/tvque"
android:layout_marginBottom="52dp"
android:layout_above="@+id/answersgrp"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true" />
<TextView
android:layout_width="wrap_content"
android:layout_height="24dp"
android:textAppearance="@color/abc_background_cache_hint_selector_material_dark"
android:text="Your Score"
android:id="@+id/textView3"
android:textColor="#000000"
android:textSize="19dp"
android:layout_alignParentBottom="true"
android:layout_alignParentLeft="true"/>
<TextView
android:layout_width="wrap_content"
android:layout_height="24dp"
android:textAppearance="@color/abc_background_cache_hint_selector_material_dark"
android:id="@+id/textView4"
android:text="0"
android:textColor="#000000"
android:layout_alignParentBottom="true"
```

```
android:textAlignment="center"
android:layout_alignParentRight="true"
android:textSize="19dp" />
</RelativeLayout>
```

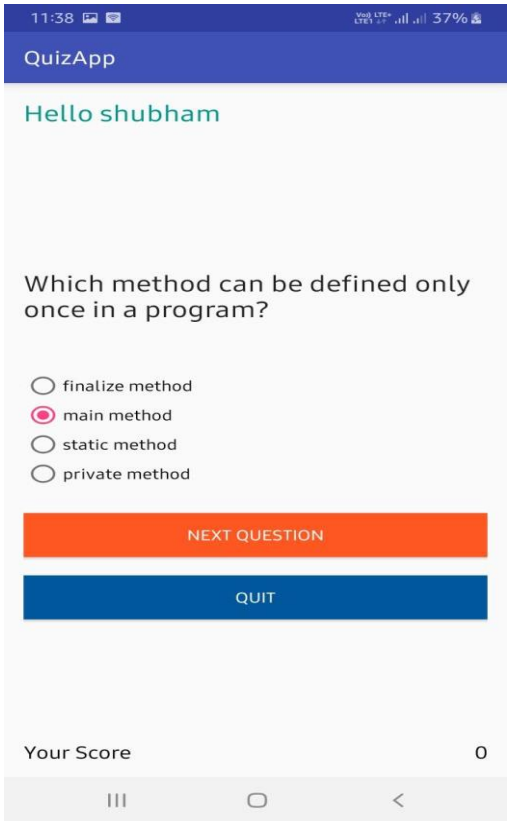
QuestionActivity.java

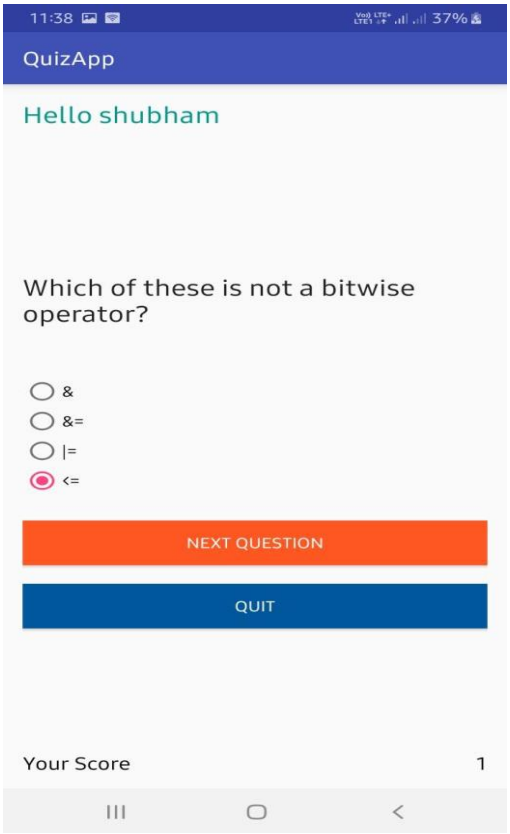
```
package com.example.vikasojha.quizbee;
import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.RelativeLayout;
import android.widget.TextView;
import android.widget.Toast;
public class QuestionsActivity extends AppCompatActivity
{TextView tv;
Button submitbutton, quitbutton;
RadioGroup radio_g;
RadioButton rb1,rb2,rb3,rb4;
String questions[] = {
"Which method can be defined only once in a program?",
"Which of these is not a bitwise operator?",
"Which keyword is used by method to refer to the
object that invoked it?",
"Which of these keywords is used to define interfaces
in Java?",
"Which of these access specifiers can be used for an
interface?",
"Which of the following is correct way of importing an
entire package ‘pkg’?",
"What is the return type of Constructors?",
"Which of the following package stores all the
standard java classes?",
"Which of these method of class String is used to
compare two String objects for their equality?",
"An expression involving byte, int, & literal numbers
is promoted to which of these?"
};
String answers[] = {"main method","<=","this","interface","public","import
pkg.*","None of the mentioned","java","equals()","int"};
String opt[] = {
"finalize method","main method","static method","private
method",
"&","&=","|=","<=",
"import","this","catch","abstract",
"Interface","interface","intf","Intf",
```

```
"public","protected","private","All of the mentioned",
"Import pkg.","import pkg.*","Import pkg.*","import pkg.",
"int","float","void","None of the mentioned",
"lang","java","util","java.packages",
"equals()","Equals()","isequal()","Isequal()",
"int","long","byte","float"
};
int flag=0;
public static int marks=0,correct=0,wrong=0;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_questions);
final TextView score = (TextView)findViewById(R.id.textView4);
TextView textView=(TextView)findViewById(R.id.DispName);
Intent intent = getIntent();
String name= intent.getStringExtra("myname");
if (name.trim().equals(""))
textView.setText("Hello User");
else
textView.setText("Hello " + name);
submitbutton=(Button)findViewById(R.id.button3);
quitbutton=(Button)findViewById(R.id.buttonquit);tv=(TextView) findViewById(R.id.tvque);
radio_g=(RadioGroup)findViewById(R.id.answersgrp);
rb1=(RadioButton)findViewById(R.id.radioButton);
rb2=(RadioButton)findViewById(R.id.radioButton2);
rb3=(RadioButton)findViewById(R.id.radioButton3);
rb4=(RadioButton)findViewById(R.id.radioButton4);
tv.setText(questions[flag]);
rb1.setText(opt[0]);
rb2.setText(opt[1]);
rb3.setText(opt[2]);
rb4.setText(opt[3]);
submitbutton.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
//int color = mBackgroundColor.getColor();
//mLayout.setBackgroundColor(color);
if(radio_g.getCheckedRadioButtonId()==-1)
{
Toast.makeText(getApplicationContext(), "Please select one
choice", Toast.LENGTH_SHORT).show();
return;
}
RadioButton uans = (RadioButton)
findViewById(radio_g.getCheckedRadioButtonId());
String ansText = uans.getText().toString();
//
Toast.makeText(getApplicationContext(), ansText,
```

```
Toast.LENGTH_SHORT).show();
if(ansText.equals(answers[flag]))
{
correct++;
Toast.makeText(getApplicationContext(), "Correct",
Toast.LENGTH_SHORT).show();
}
else
{
wrong++;
Toast.makeText(getApplicationContext(), "Wrong",
Toast.LENGTH_SHORT).show();
}
flag++;
if (score != null)
score.setText(""+correct);
if(flag<questions.length)
{
tv.setText(questions[flag]);
rb1.setText(opt[flag*4]);
rb2.setText(opt[flag*4 +1]);
rb3.setText(opt[flag*4 +2]);
rb4.setText(opt[flag*4 +3]);
}
else
{marks=correct;
Intent in = new
Intent(getApplicationContext(),ResultActivity.class);
startActivity(in);
}
radio_g.clearCheck();
}
});
quitbutton.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
Intent intent=new
Intent(getApplicationContext(),ResultActivity.class);
startActivity(intent);
}
});
}
}
```

Output:


11:38
37%
QuizApp
Hello shubham
Which method can be defined only once in a program?
finalize method
main method
static method
private method
NEXT QUESTION
QUIT
Your Score
0


11:38
37%
QuizApp
Hello shubham
Which of these is not a bitwise operator?
&
&=
|=
<=
NEXT QUESTION
QUIT
Your Score
1

Practical No. 5

Construct an app to display the image on date wise.
Program:

DateImage.java

```
public class DateImage {

    private String date;

    private int imageResourceId;


    public DateImage(String date, int imageResourceId) {

        this.date = date;

        this.imageResourceId = imageResourceId;

    }


    public String getDate() {

        return date;

    }


    public int getImageResourceId() {

        return imageResourceId;

    }

}
```

MainActivity.java

```
private ArrayList<DateImage> dateImages = new ArrayList<>();


@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);
```

```
    // Add date images to the ArrayList
    dateImages.add(new DateImage("Monday, March 11, 2024", R.drawable.image1));
    dateImages.add(new DateImage("Tuesday, March 12, 2024", R.drawable.image2));
    dateImages.add(new DateImage("Wednesday, March 13, 2024", R.drawable.image3));
    // Add more date images as needed

    // Get the current date
    Calendar calendar = Calendar.getInstance();
    String currentDate = DateFormat.getDateInstance().format(calendar.getTime());

    // Find the ImageView and Button in the layout
    ImageView imageView = findViewById(R.id.imageView);
    Button button = findViewById(R.id.button);

    // Set the current date as the text of the Button
    button.setText(currentDate);

    // Loop through the ArrayList to find the image for the current date
    for (DateImage dateImage : dateImages) {
        if (dateImage.getDate().equals(currentDate)) {
            // Set the image as the source of the ImageView
            imageView.setImageResource(dateImage.getImageResourceId());
            break;
        }
    }
}
```

activity_main.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=".MainActivity">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="20dp"
        android:text="Current Date" />

</RelativeLayout>
```

Practical No.6

Construct image switcher using setFactory().
Program:

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="horizontal"
android:gravity="center"
tools:context=".MainActivity">
<ImageButton
android:layout_width="50dp"
android:layout_height="80dp"
android:id="@+id/bt_previous"
android:background="@android:color/transparent"
android:src="@drawable/ic_navigate_before"/>
<ImageSwitcher
android:layout_width="350dp"
android:layout_height="350dp"
android:id="@+id/image_switcher"/>
<ImageButton
android:layout_width="50dp"
android:layout_height="80dp"
android:id="@+id/bt_next"
android:background="@android:color/transparent"
android:src="@drawable/ic_navigate_next"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.imageswitcherdemo;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageButton;
import android.widget.ImageSwitcher;
import android.widget.ImageView;
import android.widget.LinearLayout;
import android.widget.ViewSwitcher;
public class MainActivity extends AppCompatActivity
{
ImageButton btPrevious,btNext;
ImageSwitcher imageSwitcher;
int imageList[] =
{R.drawable.one,R.drawable.two,R.drawable.three,R.drawable.four,R.drawable.five,R.
drawable.six};
int count = imageList.length;
```

```
int currentIndex = 0;
@Overrideprotected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btPrevious = findViewById(R.id.bt_previous);
btNext = findViewById(R.id.bt_next);
imageSwitcher = findViewById(R.id.image_switcher);
imageSwitcher.setFactory(new ViewSwitcher.ViewFactory()
{
@Override
public View makeView()
{
ImageView imageView = new ImageView(getApplicationContext());
imageView.setScaleType(ImageView.ScaleType.FIT_CENTER);
imageView.setLayoutParams(new
ImageSwitcher.LayoutParams(LinearLayout.LayoutParams.FILL_PARENT,
LinearLayout.LayoutParams.FILL_PARENT));
return imageView;
}
});
imageSwitcher.setImageResource(imageList[0]);
btPrevious.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
imageSwitcher.setInAnimation(MainActivity.this,R.anim.from_right);
imageSwitcher.setOutAnimation(MainActivity.this,R.anim.to_left);
--currentIndex;
if(currentIndex < 0)
currentIndex = imageList.length-1;
imageSwitcher.setImageResource(imageList[currentIndex]);
}
});
btNext.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
imageSwitcher.setInAnimation(MainActivity.this,R.anim.from_left);
imageSwitcher.setOutAnimation(MainActivity.this,R.anim.to_right);
currentIndex++;
if(currentIndex == count)
currentIndex = 0;
imageSwitcher.setImageResource(imageList[currentIndex]);
}
});
}
}
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.imageswitcherdemo">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

from_right.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
android:shareInterpolator="false">
<translate android:fromXDelta="100%" android:toXDelta="0%"
android:fromYDelta="0%" android:toYDelta="0%" android:duration="250"/>
</set>
```

to_left.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
android:shareInterpolator="false">
<translate android:fromXDelta="0%" android:toXDelta="-100%"
android:fromYDelta="0%" android:toYDelta="0%" android:duration="250"/>
</set>
```

from_left.xml

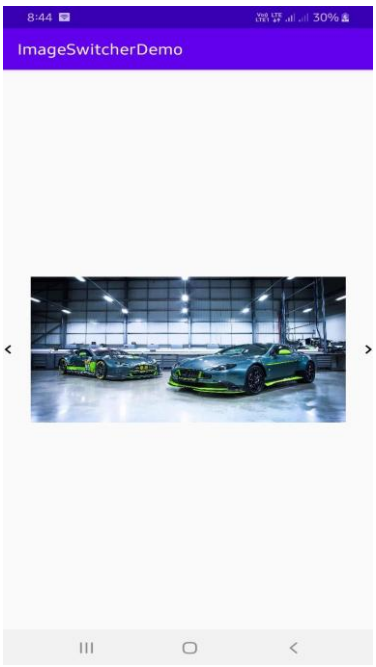
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
android:shareInterpolator="false">
<translate android:fromXDelta="-100%" android:toXDelta="0%"
android:fromYDelta="0%" android:toYDelta="0%" android:duration="250"/>
</set>
```

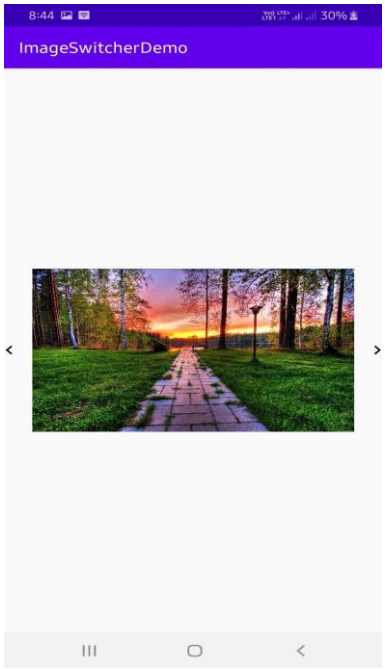
to_right.xml

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

<translate android:fromXDelta="0%" android:toXDelta="100%"
android:fromYDelta="0%" android:toYDelta="0%" android:duration="250"/>
</set>

Output:





Practical No. 7

Construct a bank app to display different menu like windrow, deposite etc
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    android:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/balanceTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Balance: $1000"
        android:textSize="18sp"
        android:textStyle="bold"/>

    <Button
        android:id="@+id/depositButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/balanceTextView"
        android:layout_marginTop="16dp"
        android:text="Deposit"/>

    <Button
        android:id="@+id/withdrawButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/depositButton"
        android:layout_marginTop="16dp"
        android:text="Withdraw"/>

</RelativeLayout>
```

MainActivity.java

```
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
```

```
    private TextView balanceTextView;
    private Button depositButton, withdrawButton;

    private double balance = 1000.0;

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

        balanceTextView = findViewById(R.id.balanceTextView);
        depositButton = findViewById(R.id.depositButton);
        withdrawButton = findViewById(R.id.withdrawButton);

        updateBalanceText();

        depositButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                deposit();
            }
        });

        withdrawButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                withdraw();
            }
        });
    }

    private void updateBalanceText() {
        balanceTextView.setText("Balance: $" + balance);
    }

    private void deposit() {
        balance += 100.0; // Deposit $100 (You can change the amount)
        updateBalanceText();
    }

    private void withdraw() {
        if (balance >= 100.0) { // Allowing withdrawal only if the balance is sufficient
            balance -= 100.0; // Withdraw $100 (You can change the amount)
            updateBalanceText();
        }
    }
}
```

Practical No.8

Create an Android application, where the user can enter player name and points in one view and display it in another view.

Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    android:padding="16dp"
    tools:context=".MainActivity">

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

    <EditText
        android:id="@+id/playerPointsEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/playerNameEditText"
        android:layout_marginTop="16dp"
        android:inputType="number"
        android:hint="Enter Player Points"/>

    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/playerPointsEditText"
        android:layout_marginTop="16dp"
        android:text="Submit"/>

</RelativeLayout>
```

activity_display.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    android:padding="16dp"
    tools:context=".DisplayActivity">

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

```
        android:layout_height="wrap_content"
        android:text="Player Details"
        android:textSize="18sp"
        android:textStyle="bold"/>

</RelativeLayout>
```

Practical No.9

Write an application to accept two numbers from the user, and displays them, but reject input if both numbers are greater than 10 and asks for two new numbers.

Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    android:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/firstNumberEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter first number"
        android:inputType="number"/>

    <EditText
        android:id="@+id/secondNumberEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/firstNumberEditText"
        android:layout_marginTop="16dp"
        android:hint="Enter second number"
        android:inputType="number"/>

    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/secondNumberEditText"
        android:layout_marginTop="16dp"
        android:text="Submit"/>

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/submitButton"
        android:layout_marginTop="16dp"
        android:text=""
        android:textSize="18sp"
        android:textStyle="bold"/>
</RelativeLayout>
```

MainActivity.java

```
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText firstNumberEditText, secondNumberEditText;
    private Button submitButton;
    private TextView resultTextView;

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

        firstNumberEditText = findViewById(R.id.firstNumberEditText);
        secondNumberEditText = findViewById(R.id.secondNumberEditText);
        submitButton = findViewById(R.id.submitButton);
        resultTextView = findViewById(R.id.resultTextView);

        submitButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                checkAndDisplayNumbers();
            }
        });
    }

    private void checkAndDisplayNumbers() {
        // Get numbers from EditText fields
        int firstNumber = Integer.parseInt(firstNumberEditText.getText().toString());
        int secondNumber = Integer.parseInt(secondNumberEditText.getText().toString());

        // Check if both numbers are greater than 10
        if (firstNumber > 10 && secondNumber > 10) {
            resultTextView.setText("Both numbers are greater than 10. Please enter new numbers.");
            // Clear previous input
            firstNumberEditText.getText().clear();
            secondNumberEditText.getText().clear();
        } else {
            // Display the entered numbers
            String result = "First Number: " + firstNumber + "\nSecond Number: " + secondNumber;
            resultTextView.setText(result);
        }
    }
}
```

Practical No. 10

Create an application that allows the user to enter a number in the textbox named „getnum“. Check whether the number in the textbox „getnum“ is palindrome or not. Print the message accordingly in the label control named lbldisplay when the user clicks on the button „check“.
Program:
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    android:padding="16dp"
    tools:context=".MainActivity">

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

    <Button
        android:id="@+id/checkButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/getnum"
        android:layout_marginTop="16dp"
        android:text="Check"
        android:onClick="checkPalindrome"/>

    <TextView
        android:id="@+id/lbldisplay"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/checkButton"
        android:layout_marginTop="16dp"
        android:text=""
        android:textSize="18sp"
        android:textStyle="bold"/>
</RelativeLayout>
```

MainActivity.java

```
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

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

```
public class MainActivity extends AppCompatActivity {

    private EditText getNumEditText;
    private Button checkButton;
    private TextView displayTextView;

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

        getNumEditText = findViewById(R.id.getnum);
        checkButton = findViewById(R.id.checkButton);
        displayTextView = findViewById(R.id.lbldisplay);
    }

    public void checkPalindrome(View view) {
        String inputString = getNumEditText.getText().toString().trim();

        if (isPalindrome(inputString)) {
            displayTextView.setText("The number is a palindrome!");
        } else {
            displayTextView.setText("The number is not a palindrome.");
        }
    }

    private boolean isPalindrome(String str) {
        // Remove non-digit characters and convert to lowercase (for case-insensitive check)
        str = str.replaceAll("[^0-9]", "").toLowerCase();

        // Check if the string is a palindrome
        int left = 0;
        int right = str.length() - 1;

        while (left < right) {
            if (str.charAt(left) != str.charAt(right)) {
                return false;
            }
            left++;
            right--;
        }

        return true;
    }
}
```

Practical No. 11

Java Andorid Program to Perform all arithmetic Operations using Calculators
Program:

activity_launcher.xml

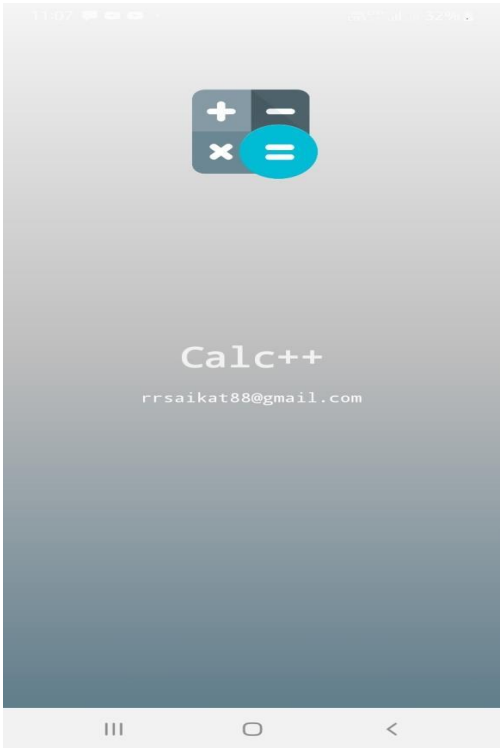
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:background="@drawable/bg"
android:orientation="vertical"
android:layout_gravity="center"
tools:context="com.rrsaikat.calc.LauncherActivity">
<ImageView
android:layout_width="110dp"
android:layout_height="110dp"
android:layout_gravity="center"
android:layout_marginTop="100dp"
android:background="@drawable/cl"/>
<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="190dp"
android:orientation="vertical">
<TextView
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:gravity="center"
android:text="Calc++"
android:alpha=".8"
android:textColor="@android:color/primary_text_dark"
android:textStyle="bold"
android:textSize="30sp"
android:typeface="monospace"/>
<TextView
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="16dp"
android:gravity="center"
android:text="rrsaikat88@gmail.com"
android:textColor="@color/md_white_1000"
android:typeface="monospace"/>
</LinearLayout>
</LinearLayout>
```

LauncherActivity.java

```
package com.rrsaikat.calc;
import android.content.Intent;
import android.graphics.Color;
```

```
import android.os.AsyncTask;
import android.os.Build;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;public class LauncherActivity extends AppCompatActivity
{
private static final int SPLASH_TIME = 3000;
@Override
protected void onCreate (Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
//
Transparent Status Bar
if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.LOLLIPOP)
{
getWindow().getDecorView().setSystemUiVisibility(View.SYSTEM_UI_FLAG_LAYOUT_STA
BLE
|
View.SYSTEM_UI_FLAG_LAYOUT_FULLSCREEN);
getWindow().setStatusBarColor(Color.TRANSPARENT);
}
setContentView(R.layout.activity_launcher);
new BackgroundTask().execute();
}
public class BackgroundTask extends AsyncTask
{
Intent intent;
@Override
protected void onPreExecute()
{
super.onPreExecute();
intent = new Intent(LauncherActivity.this, MainActivity.class);
}
@Override
protected Object doInBackground(Object[] params)
{
/* Use this method to load background
* data that your app needs. */
try
{
Thread.sleep(SPLASH_TIME);
}
catch (InterruptedException e)
{
e.printStackTrace();
}
return null;
}
@Override
protected void onPostExecute(Object o)
{
super.onPostExecute(o);
```

```
Pass your loaded data here using Intent
intent.putExtra("data_key", "");
startActivity(intent);
finish();
}
//
//
}@Override
public void onStart ()
{
super.onStart();
// Check if user is signed in (non-null) and update UI accordingly.
}
}
```



activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/linearLay0"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:background="@color/md_blue_grey_400"
tools:context="com.rrsaikat.calc.MainActivity">
<LinearLayout
android:id="@+id/top_label"
android:layout_width="match_parent"
android:layout_height="wrap_content"
```

```
android:orientation="horizontal"
android:textAlignment="center">
<TextViewandroid:id="@+id/shift_display"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp"
android:textColor="@color/divider" />
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp"
android:textColor="@color/divider" />
<TextView
android:id="@+id/float_number"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp"
android:text="@string/no_text"
android:textColor="@color/divider" />
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp" />
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp" />
<TextView
android:id="@+id/degree"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:padding="8dp"
android:text="DEG"
android:textAlignment="center"
android:textColor="@color/md_white_1000" />
</LinearLayout>
<LinearLayout
android:id="@+id/display_screen"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:background="@drawable/btn_bg">
<TextView
android:id="@+id/display"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:gravity="right"
```

```
android:layout_gravity="right"
android:cursorVisible="true"
android:textColorHint="@color/icons"
android:paddingLeft="10dp"android:paddingRight="10dp"
android:singleLine="true"
android:text="ln2"
android:textColor="@color/primary_text"
android:textSize="60sp" />
</LinearLayout>
<!--First Row-->
<!--Second Row Button-->
<LinearLayout
android:id="@+id/first_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:textAlignment="center">
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp" />
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:textColor="@color/divider" />
<TextView
android:id="@+id/rcl"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/no_text"
android:textColor="@color/divider" />
<TextView
android:id="@+id/sto"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
```

```
android:text="@string/no_text"
android:textColor="@color/divider" />
<TextView
android:id="@+id/m_minus"android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/m_minus"
android:textColor="@color/divider"/>
</LinearLayout>
<LinearLayout
android:id="@+id/second_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_weight="1"
android:theme="@style/MyButton">
<Button
android:id="@+id/shift"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/shift"
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/rad"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/rad"
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/abs"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/abs"
```

```
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Buttonandroid:id="@+id/mr"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/mr"
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/ms"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/ms"
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/m_plus"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/m_plus"
android:textColor="@color/calculator_color"
android:textSize="14sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
<!--Third Row Text-->
<LinearLayout
android:id="@+id/third_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:textAlignment="center"
android:weightSum="6">
<TextView
android:layout_width="0dp"
```

```
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:textColor="@color/divider" />
<TextView
android:id="@+id/inverse_sin"android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/inverse_sin"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/inverse_cos"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/inverse_cos"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/inverse_tan"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/inverse_tan"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/expo"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/expo"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/ten_power_x"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/ten_power"
```

```
android:textColor="@color/divider"
android:textSize="13dp" />
</LinearLayout>
<!--Fourth Row Button-->
<LinearLayout
android:id="@+id/fourth_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_weight="1"android:theme="@style/MyButton">
<Button
android:id="@+id/hys"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/rnd"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/sin_sign"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/sin_sign"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/cos_sign"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/cos_sign"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
```

```
android:id="@+id/tan_sign"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/tan_sign"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/natural_log"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/natural_log"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/log"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/log"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
<!--Fifth Row Text-->
<LinearLayout
android:id="@+id/fifth_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:textAlignment="center"
android:weightSum="6">
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
```

```
android:gravity="center"
android:padding="4dp"
android:textColor="@color/divider" />
<TextView
android:id="@+id/cube_root"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/cube_root"
android:textColor="@color/divider"
android:textSize="13dp" /><TextView
android:id="@+id/cube"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/cube"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/one_over_x"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/one_over_x"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
</LinearLayout>
<!--Sixth Row Button-->
<LinearLayout
android:id="@+id/sixth_row"
```

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_weight="1"
android:theme="@style/MyButton">
<Button
android:id="@+id/x_power_y"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/x_power_y"
android:textAllCaps="false"android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/square_root"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/square_root"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/x_square"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/x_square"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/percent"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
```

```
android:padding="8dp"
android:text="@string/percent"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/open_bracket"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/open_bracket"android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/close_bracket"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/close_bracket"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="16sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
<!--Seventh Row 5 Buttons-->
<LinearLayout
android:id="@+id/seventh_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="8dp"
android:layout_weight="1"
android:theme="@style/MyButton">
<Button
android:id="@+id/seven_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/seven_button"
android:textAllCaps="false"
```

```
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/eight_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/eight_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" /><Button
android:id="@+id/nine_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/nine_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/single_delete"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/del"
android:padding="8dp"
android:text="Del"
android:textAllCaps="false"
android:textColor="#dfded4"
android:textSize="20sp"
android:textStyle="bold"/>
<Button
android:id="@+id/clear"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/del"
android:padding="8dp"
```

```
android:text="@string/clear"
android:textAllCaps="false"
android:textColor="#dfded4"
android:textSize="20sp"
android:textStyle="bold"/>
</LinearLayout>
<!--Eigth Row 5 Text-->
<LinearLayout
android:id="@+id/eigth_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:textAlignment="center">
<TextView
android:id="@+id/factorial"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/factorial"
android:textColor="@color/divider"android:textSize="13dp" />
<TextView
android:id="@+id/combination"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/combination"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:id="@+id/permutation"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/permutation"
android:textColor="@color/divider"
android:textSize="13dp" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
<TextView
android:layout_width="0dp"
```

```
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
</LinearLayout>
<!--Nine Row 5 Buttons-->
<LinearLayout
android:id="@+id/ninth_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_weight="1"
android:textAlignment="center"
android:theme="@style/MyButton">
<Button
android:id="@+id/four_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"android:text="@string/four_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/five_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/five_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/six_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/six_button"
android:textAllCaps="false"
```

```
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/multiplication"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/multiplication"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/division"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"android:padding="8dp"
android:text="@string/division"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
<!--Ten Row 5 Text-->
<LinearLayout
android:id="@+id/tenth_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:textAlignment="center">
<TextView
android:id="@+id/pi"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/pi"
android:textColor="@color/divider" />
<TextView
android:id="@+id/e"
android:layout_width="0dp"
android:layout_height="wrap_content"
```

```
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/e"
android:textColor="@color/divider" />
<TextView
android:id="@+id/comma"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text="@string/comma"
android:textColor="@color/divider" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
<TextView
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"android:gravity="center"
android:padding="4dp"
android:text=""
android:textColor="@color/divider" />
</LinearLayout>
<!--Eleven Row 5 Buttons-->
<LinearLayout
android:id="@+id/Eleven_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_weight="1"
android:textAlignment="center"
android:theme="@style/MyButton">
<Button
android:id="@+id/one_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/one_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
```

```
<Button
android:id="@+id/two_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/two_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/three_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/three_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" /><Button
android:id="@+id/addition"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/addition"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/subtraction"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/subtraction"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
```

```
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
<!--Twelve Row 5 Buttons-->
<LinearLayout
android:id="@+id/twelve_row"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="8dp"
android:layout_weight="1"
android:textAlignment="center">
<Button
android:id="@+id/zero_button"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/zero_button"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/dot"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/dot"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/exp"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/exp"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
```

```
android:theme="@style/MyButton" />
<Button
android:id="@+id/ans"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/ans"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
<Button
android:id="@+id/equal_sign"
android:layout_width="0dp"
android:layout_height="match_parent"
android:layout_marginRight="1dp"
android:layout_weight="1"
android:background="@drawable/cicle_bg"
android:padding="8dp"
android:text="@string/equal_sign"
android:textAllCaps="false"
android:textColor="@color/calculator_color"
android:textSize="20sp"
android:textStyle="bold"
android:theme="@style/MyButton" />
</LinearLayout>
</LinearLayout>
```

MainActivity.java

```
package com.rrsaikat.calc;
import android.content.Context;
import android.content.SharedPreferences;
import android.content.pm.ActivityInfo;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.text.Html;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity implements
View.OnClickListener
{
```

```
private TextView outputResult;
private TextView shiftDisplay;
private TextView degreeRad;
private boolean isDegree = false;
private boolean isInverse = false;
private String lastResultObtain = "";
private String resultObject;
private String currentDisplayedInput = "";
private String inputToBeParsed = "";
private Calculator mCalculator;
private static String PREFS_NAME = "memory";
private Button button0, button1, button2,button3,button4,button5,button6,button7,
button8,button9,buttonClear, buttonDivide,buttonMultiply,buttonSubtract,
buttonAdd, buttonPercentage, buttonEqual, buttonDecimal, closeParenthesis,
openParenthesis, buttonAnswer,
buttonSingleDelete, buttonExp;
private TextView labelFactorial, labelCombination, labelPermutation, labelPi,
labelE, labelComma, labelCubeRoot, labelCube,
labelInverseX, labelInverseSin, labelInverseCos, labelInverseTan,
labelExponential, labelTenPowerX, labelRCL,
labelSTO, labelMMinus, labelFloat, labelDeg;
private Button buttonSin, buttonLn,buttonCos, buttonLog, buttonTan,
buttonSquareRoot, buttonXSquare, buttonYPowerX,
buttonRnd;
private Button buttonShift, buttonRad, buttonAbs, buttonMr, buttonMs, buttonMPlus;
@Override
protected void onCreate(Bundle savedInstanceState)
{
requestWindowFeature(Window.FEATURE_NO_TITLE);
getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT);
mCalculator = new Calculator();
outputResult = (TextView)findViewById(R.id.display);
outputResult.setText("");
shiftDisplay = (TextView)findViewById(R.id.shift_display);
degreeRad = (TextView)findViewById(R.id.degree);
button0 = (Button)findViewById(R.id.zero_button);button1 =
(Button)findViewById(R.id.one_button);
button2 = (Button)findViewById(R.id.two_button);
button3 = (Button)findViewById(R.id.three_button);
button4 = (Button)findViewById(R.id.four_button);
button5 = (Button)findViewById(R.id.five_button);
button6 = (Button)findViewById(R.id.six_button);
button7 = (Button)findViewById(R.id.seven_button);
button8 = (Button)findViewById(R.id.eight_button);
button9 = (Button)findViewById(R.id.nine_button);
buttonDivide = (Button)findViewById(R.id.division);
buttonMultiply = (Button)findViewById(R.id.multiplication);
buttonSubtract = (Button)findViewById(R.id.subtraction);
```

```
buttonAdd = (Button)findViewById(R.id.addition);
buttonPercentage = (Button)findViewById(R.id.percent);
buttonDecimal = (Button)findViewById(R.id.dot);
closeParenthesis = (Button)findViewById(R.id.close_bracket);
openParenthesis = (Button)findViewById(R.id.open_bracket);
buttonExp = (Button)findViewById(R.id.exp);
buttonSquareRoot = (Button)findViewById(R.id.square_root);
buttonXSquare = (Button)findViewById(R.id.x_square);
buttonYPowerX = (Button)findViewById(R.id.x_power_y);
buttonSin = (Button)findViewById(R.id.sin_sign);
buttonCos = (Button)findViewById(R.id.cos_sign);
buttonTan = (Button)findViewById(R.id.tan_sign);
buttonLn = (Button)findViewById(R.id.natural_log);
buttonLog = (Button)findViewById(R.id.log);
buttonRnd = (Button)findViewById(R.id.hys);
buttonDivide.setText(Html.fromHtml(Helpers.division));
buttonSquareRoot.setText(Html.fromHtml(Helpers.squareRoot));
buttonXSquare.setText(Html.fromHtml(Helpers.xSquare));
buttonYPowerX.setText(Html.fromHtml(Helpers.yPowerX));
buttonShift = (Button)findViewById(R.id.shift);
buttonRad = (Button)findViewById(R.id.rad);
buttonAbs = (Button)findViewById(R.id.abs);
buttonMr = (Button)findViewById(R.id.mr);
buttonMs = (Button)findViewById(R.id.ms);
buttonMPlus = (Button)findViewById(R.id.m_plus);
buttonClear = (Button)findViewById(R.id.clear);
buttonSingleDelete = (Button)findViewById(R.id.single_delete);
buttonEqual = (Button)findViewById(R.id.equal_sign);
buttonAnswer = (Button)findViewById(R.id.ans);
labelFactorial = (TextView)findViewById(R.id.factorial);
labelCombination = (TextView)findViewById(R.id.combination);
labelPermutation = (TextView)findViewById(R.id.permutation);
labelPi = (TextView)findViewById(R.id.pi);
labelE = (TextView)findViewById(R.id.e);
labelComma = (TextView)findViewById(R.id.comma);
labelCubeRoot = (TextView)findViewById(R.id.cube_root);
labelCube = (TextView)findViewById(R.id.cube);
labelInverseX = (TextView)findViewById(R.id.one_over_x);
labelInverseSin = (TextView)findViewById(R.id.inverse_sin);
labelInverseCos = (TextView)findViewById(R.id.inverse_cos);
labelInverseTan = (TextView)findViewById(R.id.inverse_tan);
labelExponential = (TextView)findViewById(R.id.expo);
labelTenPowerX = (TextView)findViewById(R.id.ten_power_x);
labelRCL = (TextView)findViewById(R.id.rcl);
labelSTO = (TextView)findViewById(R.id.sto);
labelMMinus = (TextView)findViewById(R.id.m_minus);
labelFloat = (TextView)findViewById(R.id.float_number);labelDeg =
(TextView)findViewById(R.id.degree);
labelInverseSin.setText(Html.fromHtml(Helpers.inverseSin));
labelInverseCos.setText(Html.fromHtml(Helpers.inverseCos));
labelInverseTan.setText(Html.fromHtml(Helpers.inverseTan));
labelExponential.setText(Html.fromHtml(Helpers.exponential));
```

```
labelTenPowerX.setText(Html.fromHtml(Helpers.tenPowerX));
labelCubeRoot.setText(Html.fromHtml(Helpers.cubeSquare));
labelCube.setText(Html.fromHtml(Helpers.cubeRoot));
labelPi.setText(Html.fromHtml(Helpers.pi));
button0.setOnClickListener(this);
button1.setOnClickListener(this);
button2.setOnClickListener(this);
button3.setOnClickListener(this);
button4.setOnClickListener(this);
button5.setOnClickListener(this);
button6.setOnClickListener(this);
button7.setOnClickListener(this);
button8.setOnClickListener(this);
button9.setOnClickListener(this);
buttonClear.setOnClickListener(this);
buttonDivide.setOnClickListener(this);
buttonMultiply.setOnClickListener(this);
buttonSubtract.setOnClickListener(this);
buttonAdd.setOnClickListener(this);
buttonPercentage.setOnClickListener(this);
buttonEqual.setOnClickListener(this);
buttonAnswer.setOnClickListener(this); // i have forgotten to add this
line
/*
buttonAnswer.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
Toast.makeText(MainActivity.this , "Clicked w" ,
Toast.LENGTH_SHORT).show();
if (resultObject != null) {
String enteredInput =
outputResult.getText().toString();
enteredInput += resultObject;
currentDisplayedInput = enteredInput;
inputToBeParsed = enteredInput;
//resultObject =
mCalculator.getResult(currentDisplayedInput, inputToBeParsed);
outputResult.setText(removeTrailingZero(enteredInput));
//currentDisplayedInput +=
removeTrailingZero(resultObject);
}
}
});
*/
buttonDecimal.setOnClickListener(this);
closeParenthesis.setOnClickListener(this);
openParenthesis.setOnClickListener(this);
buttonSingleDelete.setOnClickListener(this);
buttonExp.setOnClickListener(this);
buttonSquareRoot.setOnClickListener(this);
buttonXSquare.setOnClickListener(this);buttonYPowerX.setOnClickListener(this);
buttonSin.setOnClickListener(this);
```

```
buttonCos.setOnClickListener(this);
buttonTan.setOnClickListener(this);
buttonLn.setOnClickListener(this);
buttonLog.setOnClickListener(this);
buttonRnd.setOnClickListener(this);
buttonShift.setOnClickListener(this);
buttonRad.setOnClickListener(this);
buttonAbs.setOnClickListener(this);
buttonMr.setOnClickListener(this);
buttonMs.setOnClickListener(this);
buttonMPlus.setOnClickListener(this);
}
private void obtainInputValues(String input)
{
switch (input){
case "0":
currentDisplayedInput += "0";
inputToBeParsed += "0";
break;
case "1":
if(isInverse){
currentDisplayedInput += "π";
inputToBeParsed += "pi";
}else{
currentDisplayedInput += "1";
inputToBeParsed += "1";
}
toggleInverse();
toggleShiftButton();
break;
case "2":
if(isInverse){
currentDisplayedInput += "e";
inputToBeParsed += "e";
}else{
currentDisplayedInput += "2";
inputToBeParsed += "2";
}
toggleInverse();
toggleShiftButton();
break;
case "3":
if(isInverse){
currentDisplayedInput += ",";
inputToBeParsed += ",";
}else{
currentDisplayedInput += "3";
inputToBeParsed += "3";
}
toggleInverse();
toggleShiftButton();
break;
```

```
case "4":
if(isInverse){
currentDisplayedInput += "!(";
inputToBeParsed += "!(";
}else{currentDisplayedInput += "4";
inputToBeParsed += "4";
}
toggleInverse();
toggleShiftButton();
break;
case "5":
if(isInverse){
currentDisplayedInput += "comb(";
inputToBeParsed += "comb(";
}else{
currentDisplayedInput += "5";
inputToBeParsed += "5";
}
toggleInverse();
toggleShiftButton();
break;
case "6":
if(isInverse){
currentDisplayedInput += "permu(";
inputToBeParsed += "permu(";
}else{
currentDisplayedInput += "6";
inputToBeParsed += "6";
}
toggleInverse();
toggleShiftButton();
break;
case "7":
currentDisplayedInput += "7";
inputToBeParsed += "7";
break;
case "8":
currentDisplayedInput += "8";
inputToBeParsed += "8";
break;
case "9":
currentDisplayedInput += "9";
inputToBeParsed += "9";
break;
case ".":
currentDisplayedInput += ".";
inputToBeParsed += ".";
break;
case "+":
currentDisplayedInput += "+";
inputToBeParsed += "+";
break;
```

```
case "-":
currentDisplayedInput += "-";
inputToBeParsed += "-";
break;
case "÷":
currentDisplayedInput += "÷";
inputToBeParsed += "/";
break;
case "x":
currentDisplayedInput += "*";
inputToBeParsed += "*";break;
case "(":
currentDisplayedInput += "(";
inputToBeParsed += "(";
break;
case ")":
currentDisplayedInput += ")";
inputToBeParsed += ")";
break;
case "%":
if(isInverse){
currentDisplayedInput += "1÷";
inputToBeParsed += "1÷";
}else{
currentDisplayedInput += "%";
inputToBeParsed += "%";
}
toggleInverse();
toggleShiftButton();
break;
case "ln":
if(isInverse){
currentDisplayedInput += "e^";
inputToBeParsed += "e^";
}else{
currentDisplayedInput += "ln(";
inputToBeParsed += "ln(";
}
toggleInverse();
toggleShiftButton();
break;
case "log":
if(isInverse){
currentDisplayedInput += "10^";
inputToBeParsed += "10^";
}else{
currentDisplayedInput += "log(";
inputToBeParsed += "log(";
}
toggleInverse();
toggleShiftButton();
break;
```

```
case "√":
if(isInverse){
currentDisplayedInput += "3√(";
inputToBeParsed += "crt(";
}else{
currentDisplayedInput += "√(";
inputToBeParsed += "sqrt(";
}
toggleInverse();
toggleShiftButton();
break;
case "Yx":
currentDisplayedInput += "^";
inputToBeParsed += "^";
break;
case "sin":
if(isInverse){currentDisplayedInput += "asin(";
inputToBeParsed += "asin(";
}else{
currentDisplayedInput += "sin(";
inputToBeParsed += "sin(";
}
toggleInverse();
toggleShiftButton();
break;
case "cos":
if(isInverse){
currentDisplayedInput += "acos(";
inputToBeParsed += "acos(";
}else{
currentDisplayedInput += "cos(";
inputToBeParsed += "cos(";
}
toggleInverse();
toggleShiftButton();
break;
case "tan":
if(isInverse){
currentDisplayedInput += "atan(";
inputToBeParsed += "atan(";
}else{
currentDisplayedInput += "tan(";
inputToBeParsed += "tan(";
}
toggleInverse();
toggleShiftButton();
break;
case "exp":
currentDisplayedInput += "E";
inputToBeParsed += "E0";
break;
case "x2":
```

```
if(isInverse){
currentDisplayedInput += "^3";
inputToBeParsed += "^3";
}else{
currentDisplayedInput += "^2";
inputToBeParsed += "^2";
}
toggleInverse();
toggleShiftButton();
break;
case "rnd":
double ran = Math.random();
currentDisplayedInput += String.valueOf(ran);
inputToBeParsed += String.valueOf(ran);
break;
case "ABS":
currentDisplayedInput += "abs(";
inputToBeParsed += "abs(";
break;
case "MR":
String mValue = getStoredPreferenceValue(MainActivity.this);
String result = removeTrailingZero(mValue);
if(!result.equals("0")){currentDisplayedInput += result;
inputToBeParsed += result;
}
break;
case "MS":
clearMemoryStorage(MainActivity.this);
break;
case "M+":
if (isInverse){
double inputValueMinus = isANumber(outputResult.getText().toString());
if(!Double.isNaN(inputValueMinus)){
subtractMemoryStorage(MainActivity.this, inputValueMinus);
}
}else{
double inputValue = isANumber(outputResult.getText().toString());
if(!Double.isNaN(inputValue)){
addToMemoryStorage(MainActivity.this, inputValue);
}
}
toggleInverse();
toggleShiftButton();
break;
}
outputResult.setText(currentDisplayedInput);
}
@Override
public void onClick(View view) {
Button button = (Button) view;
String data = button.getText().toString();
//Toast.makeText(this, "Click " + data, Toast.LENGTH_LONG).show();
```

```
if(data.equals("AC")){
outputResult.setText("");
currentDisplayedInput = "";
inputToBeParsed = "";
}
else if(data.equals("Del")){
String enteredInput = outputResult.getText().toString();
if(enteredInput.length() > 0){
enteredInput = enteredInput.substring(0, enteredInput.length() -
1);
currentDisplayedInput = enteredInput;
inputToBeParsed = enteredInput;
outputResult.setText(currentDisplayedInput);
}
}else if(data.equals("=")){
String enteredInput = outputResult.getText().toString();
// call a function that will return the result of the calculate.
resultObject = mCalculator.getResult(currentDisplayedInput,
inputToBeParsed);
outputResult.setText(removeTrailingZero(resultObject));
}else if(data.equals("Ans")){
if (resultObject != null) {
String enteredInput = outputResult.getText().toString();
enteredInput += resultObject;
//currentDisplayedInput = enteredInput;
inputToBeParsed = enteredInput;
outputResult.setText(removeTrailingZero(enteredInput));}else {
Toast.makeText(MainActivity.this , "No Answer found" ,
Toast.LENGTH_SHORT).show();
}
}else if(data.equals("SHIFT")){
if(!isInverse){
isInverse = true;
}else{
isInverse = false;
}
toggleShiftButton();
}else if(data.equals("RAD")){
buttonRad.setText("DEG");
degreeRad.setText("RAD");
}
else if(data.equals("DEG")){
buttonRad.setText("RAD");
degreeRad.setText("DEG");
}else{
obtainInputValues(data);
}
}
private String removeTrailingZero(String formattingInput){
if(!formattingInput.contains(".")){
return formattingInput;
}
```

```
int dotPosition = formattingInput.indexOf(".");
String newValue = formattingInput.substring(dotPosition,
formattingInput.length());
if(newValue.equals(".0")){
return formattingInput.substring(0, dotPosition);
}
return formattingInput;
}
private void toggleInverse(){
if(isInverse){
isInverse = false;
}
}
private void toggleShiftButton(){
if(isInverse){
shiftDisplay.setText("SHIFT");
}else{
shiftDisplay.setText("");
}
}
private double isANumber(String numberInput){
double result = Double.NaN;
try{
result = Double.parseDouble(numberInput);
}catch(NumberFormatException nfe){
}
return result;
}
private void addToMemoryStorage(Context context, double inputToStore){
float returnPrefValue = getPreference(context);float newValue = returnPrefValue +
(float)inputToStore;
setPreference(context, newValue);
}
private void subtractMemoryStorage(Context context, double inputToStore){
float returnPrefValue = getPreference(context);
float newValue = returnPrefValue - (float)inputToStore;
setPreference(context, newValue);
}
private void clearMemoryStorage(Context context){
setPreference(context, 0);
}
private String getStoredPreferenceValue(Context context){
float returnedValue = getPreference(context);
return String.valueOf(returnedValue);
}
static public boolean setPreference(Context c, float value) {
SharedPreferences settings = c.getSharedPreferences(PREFS_NAME,
0);
settings = c.getSharedPreferences(PREFS_NAME, 0);
SharedPreferences.Editor editor = settings.edit();
editor.putFloat("key", value);
return editor.commit();
```

```
}
static public float getPreference(Context c) {
SharedPreferences settings = c.getSharedPreferences(PREFS_NAME,
0);
settings = c.getSharedPreferences(PREFS_NAME, 0);
float value = settings.getFloat("key", 0);
return value;
}
}
```

Calculator.java

```
package com.rrsaikat.calc;
import com.fathzer.soft.javaluator.DoubleEvaluator;
import com.fathzer.soft.javaluator.Function;
import com.fathzer.soft.javaluator.Parameters;
import java.util.ArrayList;
import java.util.Iterator;
/**
* Created by Rezwan on 03-06-18.
*/
public class Calculator
{
final Function sqrt = new Function("sqrt", 1);
final Function factorial = new Function("!", 1);
final Function cuberoot = new Function("crt", 1);
final Function combination = new Function("comb", 2);
final Function permutation = new Function("permu", 2);
Parameters params;
DoubleEvaluator evaluator;
private double previousSum = 0;
```

```
private double currentSum = 0;
private String currentDisplay = "";
//private String expressionUsedForParsing ="";
private boolean isRadians = false;
public Calculator()
{
addFunctions();
//Adds the functions to the evaluator
evaluator = new DoubleEvaluator(params)
{
@Override
protected Double evaluate(Function function, Iterator arguments,
Object evaluationContext)
{
if (function == sqrt)
return Math.sqrt((Double) arguments.next());
else if(function == cuberoot){
return Math.cbrt((Double) arguments.next());
}
else if(function == combination)
{
double numberInputs = 0;
ArrayList<Double> saveValue = new ArrayList<Double>();
while(arguments.hasNext())
{
numberInputs = (Double) arguments.next();
saveValue.add(numberInputs);
}
double firstArgument = saveValue.get(0);
double secondArgument = saveValue.get(1);
double denominator = getFactorial((int) firstArgument);
double nominator = getFactorial((int)secondArgument) *
(getFactorial((int)(firstArgument - secondArgument)));
return denominator / nominator;
}else if(function == permutation)
{
double numberInputs = 0;
ArrayList<Double> saveValue = new ArrayList<Double>();
while(arguments.hasNext())
{
numberInputs = (Double) arguments.next();
saveValue.add(numberInputs);
}
double firstArgument = saveValue.get(0);
double secondArgument = saveValue.get(1);
double denominator = getFactorial((int) firstArgument);
double nominator = (getFactorial((int)(firstArgument -
secondArgument)));
return denominator / nominator;
}
else if (function == factorial)
{
```

```
double result = 1;
double num = (Double) arguments.next();
for (int i = 2; i <= num; i++)
{
result = result * i;
}
return result;
} else
return super.evaluate(function, arguments, evaluationContext);
}
};
}
private int getFactorial(int n)
{
int result;
if(n==0 || n==1)
return 1;
result = getFactorial(n-1) * n;
return result;
}
public void addFunctions()
{
params = DoubleEvaluator.getDefaultParameters();
params.add(sqrt);
params.add(factorial);
params.add(cuberoot);
params.add(combination);
params.add(permutation);
}
public String getResult(String currentDisplay, String
expressionUsedForParsing)
{
//Tries to parse the information as it is entered, if the parser can't
handle it, the word error is shown on screen
try
{
System.out.println("Displayed Output " + expressionUsedForParsing);
currentSum =
evaluator.evaluate(fixExpression(expressionUsedForParsing));
currentSum = convertToRadians(currentSum);
currentDisplay = String.valueOf(currentSum);//previousSum = currentSum;
} catch (Exception e) {
currentDisplay = "Error";
}
return currentDisplay;
}
public double convertToRadians(double sum)
{
double newSum = sum;
if(isRadians == true)
newSum = Math.toRadians(sum);
return newSum;
```

```
}
//Used to show display to user
public String getCurrentDisplay() {
return currentDisplay;
}
//Handles fixing the expression before parsing. Adding parens, making sure
parens can multiply with each other,
public String fixExpression(String exp)
{
int openParens = 0;
int closeParens = 0;
char openP = '(';
char closeP = ')';
String expr = exp;
for (int i = 0; i < exp.length(); i++)
{
if (exp.charAt(i) == openP)
openParens++;
else if (exp.charAt(i) == closeP)
closeParens++;
}
while (openParens > 0)
{
expr += closeP;
openParens--;
}
while (closeParens > 0)
{
expr = openP + expr;
closeParens--;
}
expr = multiplicationForParens(expr);
return expr;
}
//Used to fix multiplication between parentheses
public String multiplicationForParens(String s)
{
String fixed = "";
for (int position = 0; position < s.length(); position++)
{
fixed += s.charAt(position);
if (position == s.length() - 1)
continue;
if (s.charAt(position) == ')' && s.charAt(position + 1) == '(')
fixed += '*';
if (s.charAt(position) == '(' && s.charAt(position + 1) == ')')
fixed += '1';}
return fixed;
}
}
```

Helpers.java

```
package com.rrsaikat.calc;
import android.content.Context;
import android.os.Bundle;
import android.widget.EditText;
import android.widget.Toast;

public class Helpers {
public static String division = "&divide;";
public static String inverseSin = "sin<sup>-1</sup>";
public static String inverseCos = "cos<sup>-1</sup>";
public static String inverseTan = "tan<sup>-1</sup>";
public static String exponential = "e<sup>x</sup>";
public static String tenPowerX = "10<sup>x</sup>";
public static String cubeSquare = "3&radic;";
public static String cubeRoot = "x<sup>3</sup>";
public static String yPowerX = "Y<sup>x</sup>";
public static String squareRoot = "&radic;";
public static String xSquare = "x<sup>2</sup>";
public static String pi = "&pi;";
public static void displayErrorMessage(Context context){
Toast.makeText(context, "Input field must not be zero",
Toast.LENGTH_LONG).show();
}
public static boolean isZero(EditText input){
if(Double.parseDouble(input.getText().toString()) == 0){
return true;
}
return false;
}
public static int getTopicId(Bundle bundle, String inputValue){
int id = 0;
if(bundle != null){
id = bundle.getInt(inputValue);
}
return id;
}
}
```

AndroiManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.rrsaikat.calc">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
```

```
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.DEFAULT" />
</intent-filter>
</activity>
<activity android:name=".LauncherActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

String.xml

```
<resources>
<string name="app_name">Calc++</string>
<string name="hello_world">Hello world!</string>
<string name="action_settings">Settings</string>
<string name="no_text"> </string>
<string name="rcl">RCL</string>
<string name="sto">STO</string>
<string name="m_minus">M-</string>
<string name="shift">SHIFT</string>
<string name="rad">RAD</string>
<string name="abs">ABS</string>
<string name="mr">MR</string>
<string name="ms">MS</string>
<string name="m_plus">M+</string>
<string name="inverse_sin">sin1</string>
<string name="inverse_cos">cos1</string>
<string name="inverse_tan">tan1</string>
<string name="expo">ex</string>
<string name="ten_power">10x</string>
<string name="rnd">rnd</string>
<string name="sin_sign">sin</string>
<string name="cos_sign">cos</string>
<string name="tan_sign">tan</string>
<string name="natural_log">ln</string>
<string name="log">log</string>
<string name="cube_root">3?</string>
<string name="cube">x3</string>
<string name="one_over_x">1/x</string><string name="x_power_y">Yx</string>
<string name="square_root">/</string>
<string name="x_square">x^2</string>
<string name="percent">%</string>
<string name="open_bracket">(</string>
<string name="close_bracket">)</string>
<string name="seven_button">7</string>
<string name="eight_button">8</string>
<string name="nine_button">9</string>
```

<string name="single_delete">DEL</string>
<string name="clear">AC</string>
<string name="factorial">n!</string>
<string name="combination">c(n,r)</string>
<string name="permutation">p(n,r)</string>
<string name="rate">Rate</string>
<string name="four_button">4</string>
<string name="five_button">5</string>
<string name="six_button">6</string>
<string name="multiplication">x</string>
<string name="division">/</string>
<string name="pi">ii</string>
<string name="e">e</string>
<string name="comma">,</string>
<string name="one_button">1</string>
<string name="two_button">2</string>
<string name="three_button">3</string>
<string name="addition">+</string>
<string name="subtraction">-</string>
<string name="zero_button">0</string>
<string name="dot">.</string>
<string name="exp">exp</string>
<string name="ans">Ans</string>
<string name="equal_sign">=</string>
<string name="x_value">x</string>
<string name="plus_minus">+/-</string>
<string name="plot">Plot</string>
<string name="asterisk">*</string>
</resources>

Practical No. 12

Java Android Program to Demonstrate Alert Dialog Box
Program:

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">
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/button"
android:text="Close app"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.alertbox;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity
{
Button closeButton;
AlertDialog.Builder builder;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
closeButton = (Button)findViewById(R.id.button);
builder = new AlertDialog.Builder(this);
closeButton.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
```

```
builder.setMessage(R.string.dialog_message).setTitle(R.string.dialog_title);
builder.setMessage("Do you want to close this application ?")
.setCancelable(false)
.setPositiveButton("Yes", new
DialogInterface.OnClickListener(){
public void onClick(DialogInterface dialog,
int id)
{
//Action for "Yes" Button
finish();
Toast.makeText(getApplicationContext(),"You choose yes action for
AlertBox",Toast.LENGTH_SHORT).show();
}
})
.setNegativeButton("No", new
DialogInterface.OnClickListener()
{
public void onClick(DialogInterface dialog,
int id)
{
//Action for "No" Button
dialog.cancel();
Toast.makeText(getApplicationContext(),"You choose no action for
AlertBox",Toast.LENGTH_SHORT).show();
}
});
//Creating Dialog Box
AlertDialog alert = builder.create();
alert.setTitle("Alert Message");
alert.show();
}
});
}
}
```

String.xml

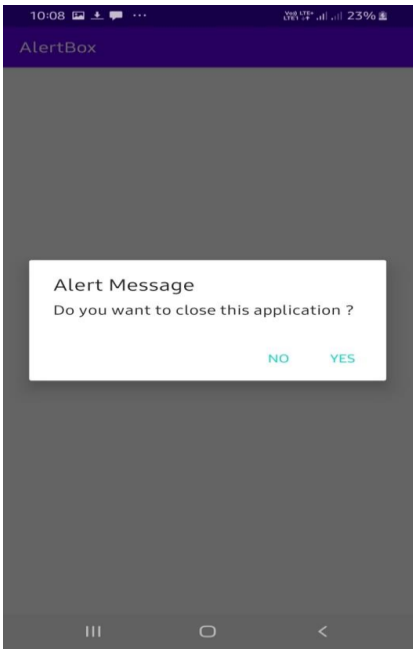
```
<resources>
<string name="app_name">AlertBox</string>
<string name="dialog_message">Welcome to Alert Dialog</string>
<string name="dialog_title">Shubham Alert Dialog</string>
</resources>
```

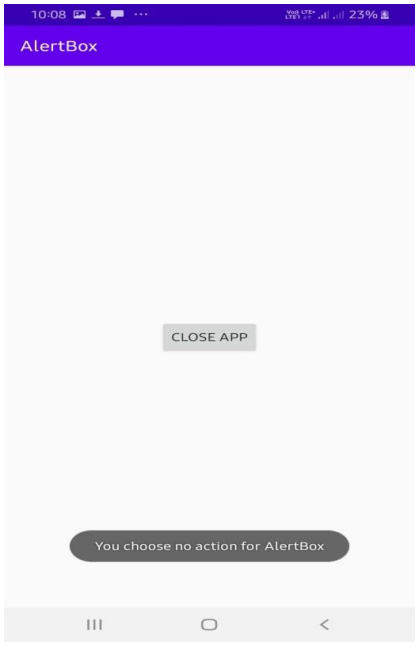
AndroidManifest.xml

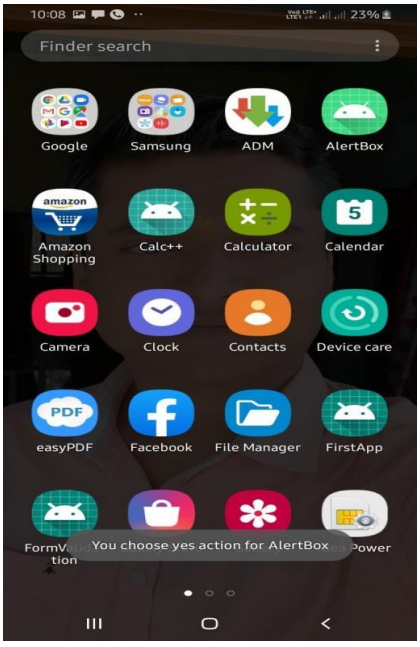
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.alertbox">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
```

```
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter></activity>
</application>
</manifest>
```

Output:







Practical No. 13

Java Android Program to Change the Image Displayed on the Screen

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
android:paddingBottom="10dp"
android:paddingLeft="10dp"
android:paddingRight="10dp"
android:paddingTop="10dp"
tools:context=".MainActivity" >
<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:paddingBottom="40px"
android:weightSum="2" >
<RadioGroup
android:id="@+id/rg1"
android:layout_width="wrap_content"
android:layout_height="match_parent"
android:layout_weight="1"
android:orientation="vertical" >
<RadioButton
android:id="@+id/radioButton1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentRight="true"
android:layout_alignParentTop="true"
android:layout_marginTop="20dp"
android:text="Image1" />
<RadioButton
android:id="@+id/radioButton2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignBaseline="@+id/radioButton1"
android:layout_alignBottom="@+id/radioButton1"
android:layout_alignParentLeft="true"
android:text="Image2" />
</RadioGroup>
<RadioGroup
android:id="@+id/rg2"
android:layout_width="wrap_content"
android:layout_height="match_parent"
android:layout_weight="1"
android:orientation="vertical" >
<RadioButton
android:id="@+id/radioButton3"
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="30dp"
android:text="Image3" /><RadioButton
android:id="@+id/radioButton4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignBaseline="@+id/radioButton3"
android:layout_alignBottom="@+id/radioButton3"
android:layout_alignParentRight="true"
android:text="Image4" />
</RadioGroup>
</LinearLayout>
<ImageView
android:id="@+id/imageView1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentBottom="true"
android:layout_alignParentRight="true"
android:layout_marginTop="50dp"
android:src="@drawable/ic_launcher" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.imagechange;
import android.app.Activity;
import android.graphics.Typeface;
import android.os.Bundle;
import android.renderscript.Type;
import android.view.Gravity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.RadioGroup;
import android.widget.RadioGroup.OnCheckedChangeListener;
import android.widget.TextView;
public class MainActivity extends Activity implements OnCheckedChangeListener
{
RadioGroup group1, group2;
Button gen;
ImageView img;
@Override
protected void onCreate(Bundle savedInstanceState)
{
// TODO Auto-generated method stub
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
group1 = (RadioGroup) findViewById(R.id.rg1);
group1.setOnCheckedChangeListener((OnCheckedChangeListener) this);
```

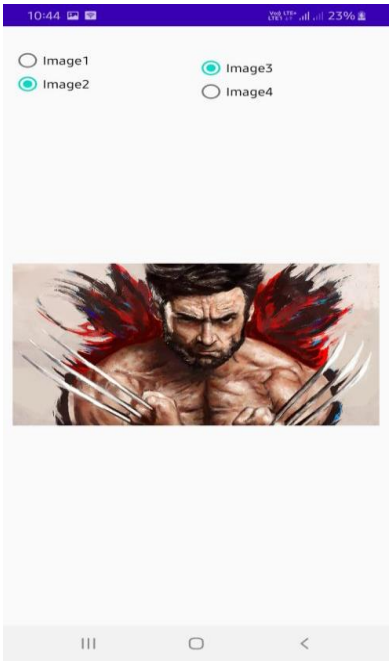
```
group2 = (RadioGroup) findViewById(R.id.rg2);
group2.setOnCheckedChangeListener((OnCheckedChangeListener) this);img = (ImageView)
findViewById(R.id.imageView1);
// oncheckedChanged function
}
@Override
public void onCheckedChanged(RadioGroup group, int checkedId)
{
// TODO Auto-generated method stub
switch (checkedId)
{
case R.id.radioButton1:
img.setImageResource(R.drawable.image4);
break;
case R.id.radioButton2:
img.setImageResource(R.drawable.image5);
break;
case R.id.radioButton3:
img.setImageResource(R.drawable.image6);
break;
case R.id.radioButton4:
img.setImageResource(R.drawable.image7);
break;
default:
break;
}
}
}
```

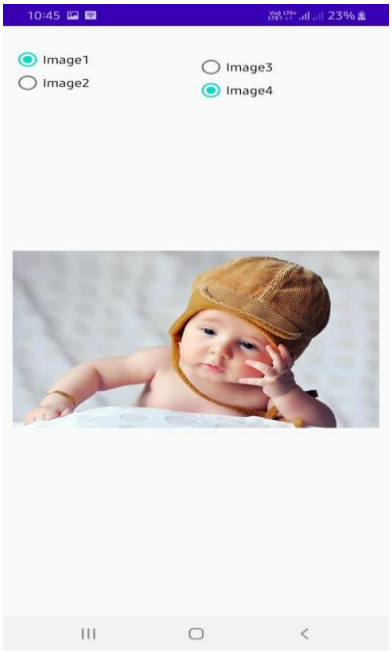
AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.imagechange">
<application
android:allowBackup="true"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:


10:44
23%
Image1
Image2
Image3
Image4


10:44
23%
Image1
Image2
Image3
Image4


10:45
23%
Image1
Image2
Image3
Image4

Practical No 14

Java Android Program to Demonstrate the Menu Application
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<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=".MainActivity">


</RelativeLayout>
```

MainActivity.java

```
import android.os.Bundle;

import android.view.Menu;

import android.view.MenuItem;

import android.widget.Toast;


import androidx.appcompat.app.AppCompatActivity;


public class MainActivity extends AppCompatActivity {


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }


    @Override
```

```
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.main_menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.action_add:
                Toast.makeText(this, "Add clicked", Toast.LENGTH_SHORT).show();
                return true;
            case R.id.action_delete:
                Toast.makeText(this, "Delete clicked", Toast.LENGTH_SHORT).show();
                return true;
            case R.id.action_settings:
                Toast.makeText(this, "Settings clicked", Toast.LENGTH_SHORT).show();
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }
}
```

main_menu.xml

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

```
    <item
        android:id="@+id/action_add"
        android:icon="@drawable/ic_add"
        android:title="Add"
        app:showAsAction="always" />

    <item
        android:id="@+id/action_delete"
        android:icon="@drawable/ic_delete"
        android:title="Delete"
        app:showAsAction="always" />

    <item
        android:id="@+id/action_settings"
        android:icon="@drawable/ic_settings"
        android:title="Settings"
        app:showAsAction="always" />

</menu>
```

Practical No. 15

Java Android Program to Demonstrate List View Activity with all operations (Insert, delete, Search).
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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=".MainActivity">

    <EditText
        android:id="@+id/newItemEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter new item"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/newItemEditText"
        android:layout_marginTop="8dp"
        android:onClick="addItem"
        android:text="Add Item"/>

    <EditText
        android:id="@+id/deleteItemEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/newItemEditText"
        android:layout_marginTop="16dp"
        android:hint="Enter item to delete"/>

    <Button
        android:layout_width="wrap-content"
        android:layout_height="wrap-content"
        android:layout_below="@id/deleteItemEditText"
        android:layout_marginTop="8dp"
        android:onClick="deleteItem"
        android:text="Delete Item"/>

    <EditText
        android:id="@+id/searchEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/deleteItemEditText"
        android:layout_marginTop="16dp"
        android:hint="Search"/>
```

```
    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/searchEditText"
        android:layout_marginTop="16dp"/>

</RelativeLayout>
```

MainActivity.java

```
mport android.os.Bundle;
import android.text.Editable;
import android.text.TextWatcher;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.ListView;

import androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    private ArrayList<String> dataList;
    private ArrayAdapter<String> adapter;
    private EditText searchEditText;

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

        // Initialize data
        dataList = new ArrayList<>();
        dataList.add("Item 1");
        dataList.add("Item 2");
        dataList.add("Item 3");

        // Set up ListView and Adapter
        ListView listView = findViewById(R.id.listView);
        adapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1, dataList);
        listView.setAdapter(adapter);

        // Set up Search functionality
        searchEditText = findViewById(R.id.searchEditText);
        searchEditText.addTextChangedListener(new TextWatcher() {
            @Override
            public void beforeTextChanged(CharSequence charSequence, int i, int i1, int i2) {}
```

```
        @Override
        public void onTextChanged(CharSequence charSequence, int i, int i1, int i2) {
            filterList(charSequence.toString());
        }

        @Override
        public void afterTextChanged(Editable editable) {}
    });
}

private void filterList(String query) {
    ArrayList<String> filteredList = new ArrayList<>();
    for (String item : dataList) {
        if (item.toLowerCase().contains(query.toLowerCase())) {
            filteredList.add(item);
        }
    }
    adapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1, filteredList);
    ListView listView = findViewById(R.id.listView);
    listView.setAdapter(adapter);
}

public void addItem(View view) {
    EditText newItemEditText = findViewById(R.id.newItemEditText);
    String newItem = newItemEditText.getText().toString();
    dataList.add(newItem);
    adapter.notifyDataSetChanged();
    newItemEditText.setText("");
}

public void deleteItem(View view) {
    EditText deleteItemEditText = findViewById(R.id.deleteItemEditText);
    String deleteItem = deleteItemEditText.getText().toString();
    dataList.remove(deleteItem);
    adapter.notifyDataSetChanged();
    deleteItemEditText.setText("");
}
}
```

Practical No. 16

Java Android Program to Display SMS from the Phone Numbers, which are in Your Contacts
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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=".MainActivity">

    <ListView
        android:id="@+id/smsListView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:divider="@android:color/darker_gray"
        android:dividerHeight="1dp"
        android:padding="16dp" />

</RelativeLayout>
```

MainActivity.java

```
import android.Manifest;
import android.content.ContentResolver;
import android.content.pm.PackageManager;
import android.database.Cursor;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.provider.Telephony;
import android.widget.ArrayAdapter;
import android.widget.ListView;

import androidx.annotation.NonNull;
import androidx.annotation.RequiresApi;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    private static final int PERMISSIONS_REQUEST_READ_SMS = 1;
    private static final int PERMISSIONS_REQUEST_READ_CONTACTS = 2;
```

```
    private ListView smsListView;
    private ArrayAdapter<String> adapter;
    private ArrayList<String> smsList;

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

        smsListView = findViewById(R.id.smsListView);
        smsList = new ArrayList<>();
        adapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1, smsList);
        smsListView.setAdapter(adapter);

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
            requestReadSmsPermission();
        } else {
            loadSmsData();
        }
    }

    @RequiresApi(api = Build.VERSION_CODES.M)
    private void requestReadSmsPermission() {
        if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ_SMS)
                != PackageManager.PERMISSION_GRANTED) {
            ActivityCompat.requestPermissions(this, new String[]{Manifest.permission.READ_SMS},
                    PERMISSIONS_REQUEST_READ_SMS);
        } else {
            requestReadContactsPermission();
        }
    }

    @RequiresApi(api = Build.VERSION_CODES.M)
    private void requestReadContactsPermission() {
        if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ_CONTACTS)
                != PackageManager.PERMISSION_GRANTED) {
            ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.READ_CONTACTS},
                    PERMISSIONS_REQUEST_READ_CONTACTS);
        } else {
            loadSmsData();
        }
    }

    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
@NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);

        if (requestCode == PERMISSIONS_REQUEST_READ_SMS) {
```

```
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                requestReadContactsPermission();
            }
        } else if (requestCode == PERMISSIONS_REQUEST_READ_CONTACTS) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                loadSmsData();
            }
        }
    }

    private void loadSmsData() {
        Uri uri = Uri.parse("content://sms/inbox");
        String[] projection = {"_id", "address", "body"};

        ContentResolver contentResolver = getContentResolver();
        Cursor cursor = contentResolver.query(uri, projection, null, null, null);

        if (cursor != null && cursor.moveToFirst()) {
            do {
                String address = cursor.getString(cursor.getColumnIndex("address"));
                String body = cursor.getString(cursor.getColumnIndex("body"));

                if (isContactNumber(address)) {
                    smsList.add(address + ": " + body);
                }
            } while (cursor.moveToNext());

            adapter.notifyDataSetChanged();
            cursor.close();
        }
    }

    private boolean isContactNumber(String phoneNumber) {
        Uri uri = Uri.withAppendedPath(ContactsContract.PhoneLookup.CONTENT_FILTER_URI,
Uri.encode(phoneNumber));
        String[] projection = {ContactsContract.PhoneLookup.DISPLAY_NAME};

        ContentResolver contentResolver = getContentResolver();
        Cursor cursor = contentResolver.query(uri, projection, null, null, null);

        if (cursor != null && cursor.moveToFirst()) {
            cursor.close();
            return true;
        } else {
            return false;
        }
    }
}
```

Practical No. 17

Java Android Program to send email with attachment.
Program:

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:gravity="center"
android:padding="20dp"
tools:context=".MainActivity">
<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:padding="10dp"
android:background="@drawable/bg_round">
<TextView
android:layout_width="50dp"
android:layout_height="wrap_content"
android:text="To"
android:textSize="20sp"
android:gravity="center"/>
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/et_to"
android:background="@android:color/transparent"/>
</LinearLayout>
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/et_subject"
android:hint="Subject"
android:padding="10dp"
android:layout_marginTop="10dp"
android:background="@drawable/bg_round"/>
<EditText
android:layout_width="match_parent"
android:layout_height="0dp"
android:layout_weight="1"
android:id="@+id/et_message"
android:hint="Message"
android:padding="10dp"
android:gravity="top"
android:layout_marginTop="10dp"
android:background="@drawable/bg_round"/>
<Button
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/bt_send"
android:text="send"android:textSize="25sp"
android:textColor="@color/colorAccent"
android:padding="10dp"
android:layout_marginTop="10dp"
android:background="@drawable/bg_round"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.sendemail;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity
{
EditText etTo,etSubject,etMessage;
Button btSend;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
etTo = findViewById(R.id.et_to);
etSubject = findViewById(R.id.et_subject);
etMessage = findViewById(R.id.et_message);
btSend = findViewById(R.id.bt_send);
btSend.setOnClickListener(new View.OnClickListener()
{
@Override
public void onClick(View v)
{
Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse("mailto:"
+ etTo.getText().toString()));
intent.putExtra(Intent.EXTRA_SUBJECT,etSubject.getText().toString());
intent.putExtra(Intent.EXTRA_TEXT,etMessage.getText().toString());
startActivity(intent);
}
});
}
}
```

bg_round.xml

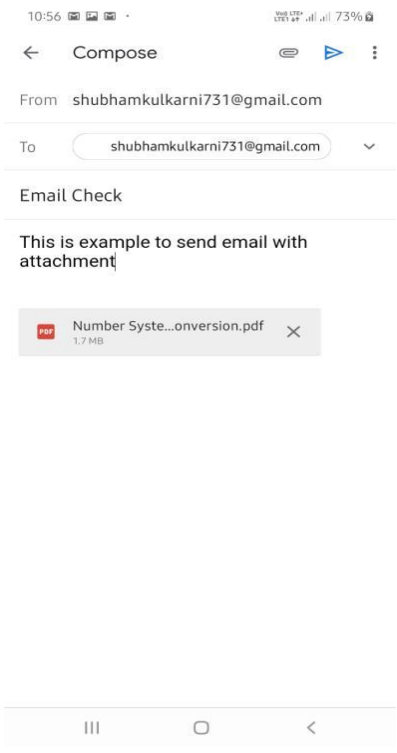
```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
android:shape="rectangle">
```

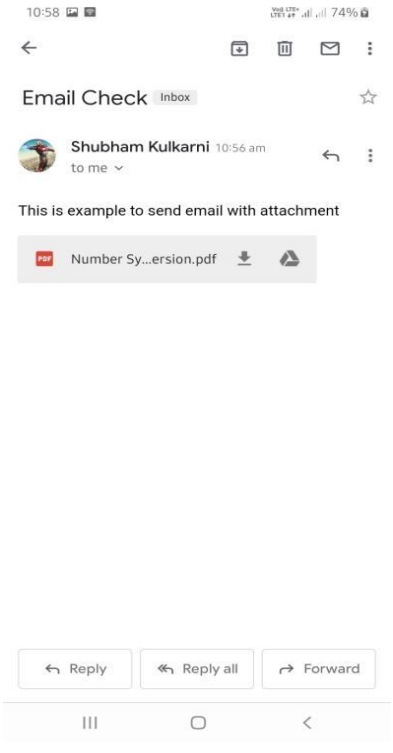
<solid android:color="@android:color/transparent"/>
<corners android:radius="10dp"/>
<stroke android:width="2dp" android:color="@android:color/darker_gray"/>
</shape>

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.sendemail">
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:





Practical No.18

Create an Android application which will ask the user to input his name and a message, display the two items concatenated in a label, and change the format of the label using radio buttons and check boxes for selection, the user can make the label text bold, underlined or italic and change its color .include buttons to display the message in the label, clear the text boxes and label and then exit.
Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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=".MainActivity">

    <EditText
        android:id="@+id/nameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your name"
        android:layout_marginTop="16dp"/>

    <EditText
        android:id="@+id/messageEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/nameEditText"
        android:layout_marginTop="8dp"
        android:hint="Enter your message"/>

    <RadioGroup
        android:id="@+id/formatRadioGroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/messageEditText"
        android:layout_marginTop="8dp"
        android:orientation="horizontal">

        <RadioButton
            android:id="@+id/boldRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Bold"/>

        <RadioButton
            android:id="@+id/italicRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Italic"/>
```

```
        <RadioButton
            android:id="@+id/underlineRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Underline"/>
    </RadioGroup>

    <CheckBox
        android:id="@+id/colorCheckBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/formatRadioGroup"
        android:layout_marginTop="8dp"
        android:text="Change Text Color"/>

    <Button
        android:id="@+id/displayButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/colorCheckBox"
        android:layout_marginTop="16dp"
        android:text="Display Message"/>

    <Button
        android:id="@+id/clearButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/displayButton"
        android:layout_marginTop="8dp"
        android:text="Clear Fields"/>

    <Button
        android:id="@+id/exitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/clearButton"
        android:layout_marginTop="8dp"
        android:text="Exit"/>

    <TextView
        android:id="@+id/displayLabel"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/exitButton"
        android:layout_marginTop="16dp"
        android:textSize="18sp"/>

</RelativeLayout>
```

MainActivity.java

```
import android.graphics.Color;
```

```
import android.os.Bundle;
import android.text.Spannable;
import android.text.SpannableString;
import android.text.style.StyleSpan;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText nameEditText, messageEditText;
    private TextView displayLabel;
    private RadioGroup formatRadioGroup;
    private CheckBox colorCheckBox;

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

        nameEditText = findViewById(R.id.nameEditText);
        messageEditText = findViewById(R.id.messageEditText);
        displayLabel = findViewById(R.id.displayLabel);
        formatRadioGroup = findViewById(R.id.formatRadioGroup);
        colorCheckBox = findViewById(R.id.colorCheckBox);

        Button displayButton = findViewById(R.id.displayButton);
        Button clearButton = findViewById(R.id.clearButton);
        Button exitButton = findViewById(R.id.exitButton);

        displayButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                displayMessage();
            }
        });

        clearButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                clearFields();
            }
        });

        exitButton.setOnClickListener(new View.OnClickListener() {
            @Override
```

```
            public void onClick(View view) {
                finish();
            }
        });
    }

    private void displayMessage() {
        String name = nameEditText.getText().toString();
        String message = messageEditText.getText().toString();

        int selectedFormatId = formatRadioGroup.getCheckedRadioButtonId();
        RadioButton selectedFormatRadioButton = findViewById(selectedFormatId);
        int style = TypefaceHelper.getStyle(selectedFormatRadioButton.getText().toString());

        SpannableString spannableString = new SpannableString(name + ": " + message);
        spannableString.setSpan(new StyleSpan(style), 0, name.length(),
Spannable.SPAN_EXCLUSIVE_EXCLUSIVE);

        if (colorCheckBox.isChecked()) {
            spannableString.setSpan(new android.text.style.ForegroundColorSpan(Color.BLUE),
                    0, spannableString.length(), Spannable.SPAN_EXCLUSIVE_EXCLUSIVE);
        }

        displayLabel.setText(spannableString);
    }

    private void clearFields() {
        nameEditText.getText().clear();
        messageEditText.getText().clear();
        displayLabel.setText("");
        formatRadioGroup.clearCheck();
        colorCheckBox.setChecked(false);
    }
}
```

TypefaceHelper.java

```
import android.graphics.Typeface;

public class TypefaceHelper {

    public static int getStyle(String format) {
        switch (format.toLowerCase()) {
            case "bold":
                return Typeface.BOLD;
            case "italic":
                return Typeface.ITALIC;
            case "underline":
                return android.graphics.Typeface.UNDERLINE;
            default:
```

```
            return Typeface.NORMAL;
        }
    }
}
```

Practical No.19

Write a program to search a specific location on Google Map.
Program:

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">
<fragment
android:layout_width="match_parent"
android:layout_height="match_parent"
android:id="@+id/google_map"
android:name="com.google.android.gms.maps.SupportMapFragment"/>
<SearchView
android:layout_width="match_parent"
android:layout_height="wrap_content"android:id="@+id/sv_location"
android:queryHint="Search..."
android:iconifiedByDefault="false"
android:layout_margin="10dp"
android:elevation="5dp"
android:background="@drawable/bg_round"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

bg_round.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
android:shape="rectangle">
<solid android:color="@android:color/white"></solid>
<stroke android:width="3dp"
android:color="@android:color/holo_green_light"></stroke>
<corners android:radius="8dp"/>
</shape>
```

string.xml

```
<resources>
<string name="app_name">GoogleMapSearch</string>
<string name="map_key" translatable="false">AIzaSyB_qsP8AOP_P0MdlPz-
48TDaJYjTP3vbjo</string>
</resources>
```

AndroidManifest.xml

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

```
package="com.example.googlemapsearch">
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
<uses-permission android:name="android.permission.INTERNET"/>
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">
<meta-data android:name="com.google.android.geo.API_KEY"
android:value="@string/map_key"/>
<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

MainActivity.java

```
package com.example.googlemapsearch;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentActivity;
import android.location.Address;
import android.location.Geocoder;
import android.os.Bundle;
import android.widget.SearchView;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
import java.io.IOException;
import java.util.List;
public class MainActivity extends FragmentActivity implements OnMapReadyCallback
{GoogleMap map;
SupportMapFragment mapFragment;
SearchView searchView;
@Override
protected void onCreate(Bundle savedInstanceState)
{super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
searchView = findViewById(R.id.sv_location);
mapFragment = (SupportMapFragment)
getSupportFragmentManager().findFragmentById(R.id.google_map);
searchView.setOnQueryTextListener(new SearchView.OnQueryTextListener()
{@Override
public boolean onQueryTextSubmit(String query)
```

```
{String location = searchView.getQuery().toString();
List<Address> addressList = null;
if(location != null || !location.equals(""))
{Geocoder geocoder = new Geocoder(MainActivity.this);
try{
addressList = geocoder.getFromLocationName(location,1);}
catch (IOException e)
{
e.printStackTrace();}
Address address = addressList.get(0);
LatLng latLng = new
LatLng(address.getLatitude(),address.getLongitude());map.addMarker(new
MarkerOptions().position(latLng).title(location));
map.animateCamera(CameraUpdateFactory.newLatLngZoom(latLng,10));
}
return false;}
@Override
public boolean onQueryTextChange(String newText){
return false;
}});
mapFragment.getMapAsync(this);}
@Override
public void onMapReady(GoogleMap googleMap){
map = googleMap;}}
```

Output:

Practical No.20

Write a program to perform Zoom In, Zoom Out operation and display Satellite view,Terrain view of current location on Google Map.
Program:

google_maps_api.xml

```
<resources>
<string name="google_maps_key" templateMergeStrategy="preserve"
translatable="false">AIzaSyAtRtZ3eW8hCmRZQwmJpqjyx3gq8HQ_Il8</string>
</resources>
```

activity_maps.xml

```
<?xml version="1.0" encoding="utf-8"?>
<fragment xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:map="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/map"
android:name="com.google.android.gms.maps.SupportMapFragment"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MapsActivity" />
```

MapsActivity.java

```
package com.example.locationfinder;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;import
com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
public class MapsActivity extends AppCompatActivity implements OnMapReadyCallback
{
private GoogleMap mMap;
@Override
protected void onCreate(Bundle savedInstanceState)
{
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_maps);
// Obtain the SupportMapFragment and get notified when the map is ready to
be used.
SupportMapFragment mapFragment = (SupportMapFragment)
getSupportFragmentManager()
```

```
.findFragmentById(R.id.map);
mapFragment.getMapAsync(this);
}

@Override
public void onMapReady(GoogleMap googleMap)
{
mMap = googleMap;
// Add a marker in Sydney and move the camera
LatLng MyHouse = new LatLng(19.476814, 74.578380);
mMap.addMarker(new MarkerOptions().position(MyHouse).title("Marker in Guha
to MyHouse"));
mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(MyHouse,10F));
}
@Override
public boolean onCreateOptionsMenu(Menu menu)
{
MenuInflater inflater = getMenuInflater();
inflater.inflate(R.menu.map_options, menu);
return true;
}
@Override
public boolean onOptionsItemSelected(MenuItem item)
{// Change the map type based on the user's selection.
switch (item.getItemId())
{
case R.id.normal_map:
mMap.setMapType(GoogleMap.MAP_TYPE_NORMAL);
return true;
case R.id.hybrid_map:
mMap.setMapType(GoogleMap.MAP_TYPE_HYBRID);
return true;
case R.id.satellite_map:
mMap.setMapType(GoogleMap.MAP_TYPE_SATELLITE);
return true;
case R.id.terrain_map:
mMap.setMapType(GoogleMap.MAP_TYPE_TERRAIN);
return true;
default:
return super.onOptionsItemSelected(item);
}
}
}
```

menu
map_options.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto">
<item android:id="@+id/normal_map"
android:title="@string/normal_map"
app:showAsAction="never"/>
```

```
<item android:id="@+id/hybrid_map"
android:title="@string/hybrid_map"
app:showAsAction="never"/>
<item android:id="@+id/satellite_map"
android:title="@string/satellite_map"
app:showAsAction="never"/>
<item android:id="@+id/terrain_map"
android:title="@string/terrain_map"
app:showAsAction="never"/>
</menu>
```

string.xml

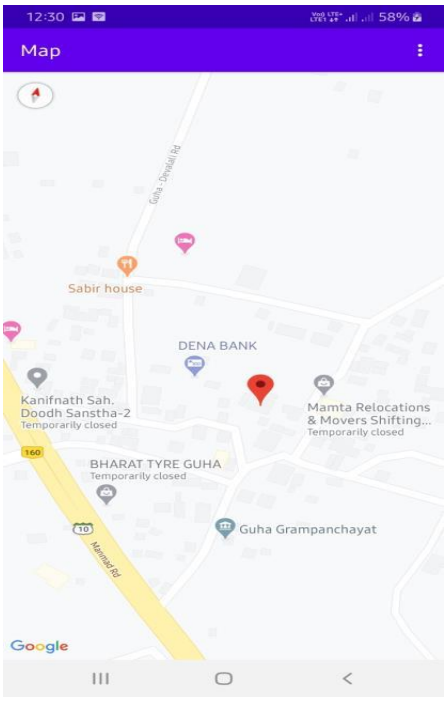
```
<resources>
<string name="app_name">LocationFinder</string>
<string name="title_activity_maps">Map</string>
<string name="normal_map">Normal Map</string>
<string name="hybrid_map">Hybrid Map</string>
<string name="satellite_map">Satellite Map</string>
<string name="terrain_map">Terrain Map</string>
</resources>
```

AndroidManifest.xml

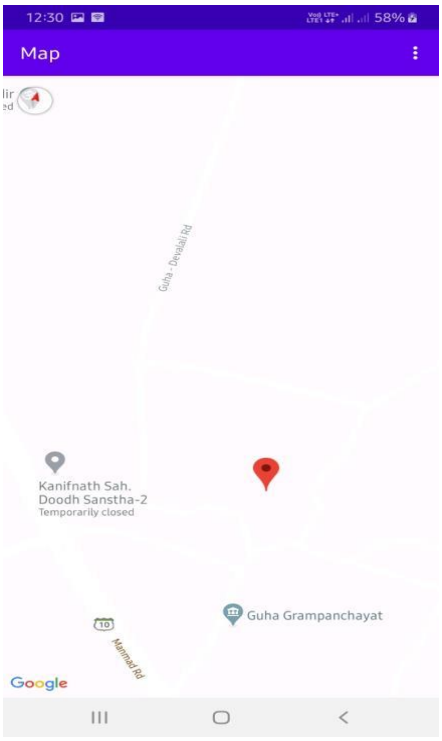
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.locationfinder">
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:roundIcon="@mipmap/ic_launcher_round"
android:supportsRtl="true"
android:theme="@style/AppTheme">

<meta-data
android:name="com.google.android.geo.API_KEY"
android:value="@string/google_maps_key" />
<activity
android:name=".MapsActivity"
android:label="@string/title_activity_maps">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:


12:29
58%
Map
Yeola
Bharam
Andarsul
Jarul
Kolpewadi
Vaijapur
Kopargaon
Pathare
Ladgaon
Shirdi
Puntamba
Rahata
Shrirampur
Bel Pim
Loni
Satral
Deolali
Pravara
Rahuri
Baragaon
Nandur
Sakur
Vambori
Dehre
Takli
Dhokeshwar
Nagapur
Bhalawani
Google


12:30
58%
Map
Guha - Shirdi Rd
Sabir house
DENA BANK
Kanifnath Sah.
Doodh Sanstha-2
Temporarily closed
Mamta Relocations
& Movers Shifting...
Temporarily closed
BHARAT TYRE GUHA
Temporarily closed
Guha Grampanchayat
Manmad Rd
Google


12:30
58%
Map
Google


12:30
58%
Map
Guha - Devakki Rd
Kanifnath Sah.
Doodh Sanstha-2
Temporarily closed
Guha Grampanchayat
Manmad Rd
Google