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4914

SLIP 1
Q1.
A) Write an Android Program to demonstrate Activity life Cycle.

## MainActivity.java

```
package com.example.myactivity_lifecycle;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;

public class MainActivity extends AppCompatActivity {

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Log.d("lifecycle","onCreate invoked");
   }
   @Override
   protected void onStart() {
      super.onStart();
      Log.d("lifecycle","onStart invoked");
   }
   @Override
   protected void onResume() {
      super.onResume();
      Log.d("lifecycle","onResume invoked");
   }
   @Override
   protected void onPause() {
      super.onPause();
      Log.d("lifecycle","onPause invoked");
   }
   @Override
   protected void onStop() {
      super.onStop();
```

```
        Log.d("lifecycle","onStop invoked");
    }
    @Override
    protected void onRestart() {
        super.onRestart();
        Log.d("lifecycle","onRestart invoked");
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d("lifecycle","onDestroy invoked");
    }

}
```

B) Create table Customer (id, name, address, phno). Create Android Application for performing the following operation on the table. (usingsqlite database)
i) Insert New Customer Details.
ii) Show All the Customer Details.

## Activity_main.xml

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

   <EditText
      android:id="@+id/et1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Customer Name" />
   <EditText
      android:id="@+id/et2"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Address" />
   <EditText
      android:id="@+id/et3"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Customer Phone"/>
   <TableRow>
      <Button
         android:id="@+id/b1"
         android:layout_width="200dp"
         android:layout_height="50dp"
         android:text="Save"/>
      <Button
```

```
        android:id="@+id/b2"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:text="Show"/>
    </TableRow>
    <TableRow>
      <ListView
        android:id="@+id/lv"
        android:layout_height="wrap_content"
        android:layout_width="200dp"/>
    </TableRow>

</TableLayout>
```

## MainActivity.java

```
package com.example.mycustomer;

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.ListView;
import android.widget.Toast;

import java.util.List;

public class MainActivity extends AppCompatActivity {
    EditText et1,et2,et3;
    Button b1,b2;
    ListView lv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        et1=(EditText)findViewById(R.id.et1);
        et2=(EditText)findViewById(R.id.et2);
        et3=(EditText)findViewById(R.id.et3);
        b1=(Button)findViewById(R.id.b1);
        b2=(Button)findViewById(R.id.b2);
        lv=(ListView)findViewById(R.id.lv);

        mydb mdb=new mydb(this,"Customer.db",null,1);

        String name=et1.getText().toString();
        String addr=et2.getText().toString();
        String contact=et3.getText().toString();

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                long r=mdb.addDetails(name,addr,contact);
                if(r>0)
                    Toast.makeText(MainActivity.this, "Record saved successfully",
Toast.LENGTH_SHORT).show();
                else
                    Toast.makeText(MainActivity.this, "Record not saved",
Toast.LENGTH_SHORT).show();
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                List<Customer> l=mdb.getDetails();
                ArrayAdapter aa=new
ArrayAdapter<Customer>(getApplicationContext(),
android.R.layout.simple_list_item_1,l);
                lv.setAdapter(aa);
            }
        });
```

```
    }
}
```

## Customer.java

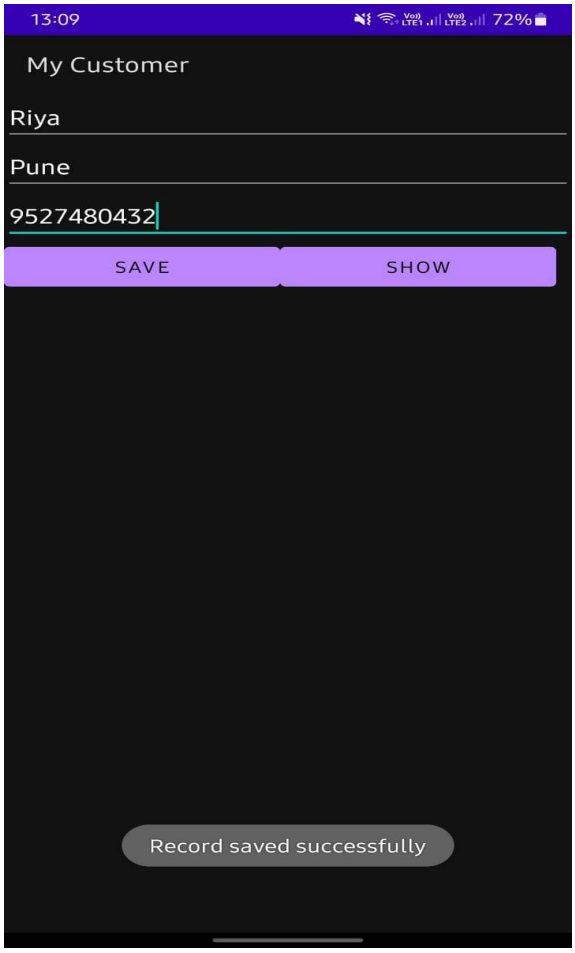
```
package com.example.mycustomer;

public class Customer {
    String cname,addr,contact;

    public Customer(String ccname, String caddr, String ccontact){
        ccname=this.cname;
        caddr=this.addr;
        ccontact=this.contact;
    }

    public String getCname() {
        return cname;
    }

    public String getAddr() {
        return addr;
    }

    public String getContact() {
        return contact;
    }
    @Override
    public String toString(){
        return cname+""+addr+""+contact;
    }
}
```

## Mydb.java

```
package com.example.mycustomer;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;

public class mydb extends SQLiteOpenHelper{
   String dbname="Customer.db";
   public mydb(Context c, String dbname, SQLiteDatabase.CursorFactory cf, int
version){
      super(c,dbname,cf,1);
   }
   @Override
   public void onCreate(SQLiteDatabase db){
      db.execSQL("Create table Customer(id integer primary key,name text,caddr
text,cphone text)");
   }
   @Override
   public void onUpgrade(SQLiteDatabase db, int oldv, int newv){
   }
   public long addDetails(String Custname,String Custaddr,String Custcontact){
      ContentValues cv=new ContentValues();
      cv.put("name",Custname);
      cv.put("caddr",Custaddr);
      cv.put("cphone",Custcontact);
      SQLiteDatabase db=this.getWritableDatabase();
      long ret=db.insert("Customer",null,cv);
      return ret;
   }
   public ArrayList<Customer>getDetails(){
      String sql="Select * from Customer";
      SQLiteDatabase db=this.getReadableDatabase();
      ArrayList<Customer> clist = new ArrayList<>();
```

```
        Cursor cf=db.rawQuery(sql,null);
        if(cf.getCount()>0){
           cf.moveToFirst();
           do{
              String name=cf.getString(cf.getColumnIndexOrThrow("name"));
              String addr=cf.getString(cf.getColumnIndexOrThrow("caddr"));
              String contact=cf.getString(cf.getColumnIndexOrThrow("cphone"));
              Customer c1=new Customer(name,addr,contact);
              clist.add(c1);
           }
           while (cf.moveToNext());
        }
        return clist;
     }
}
```

**OUTPUT:**



SLIP 2

Q1.

A) Create an Android Application that will change color of the screen and change the font size of text view using xml.

## Activity_main.xml

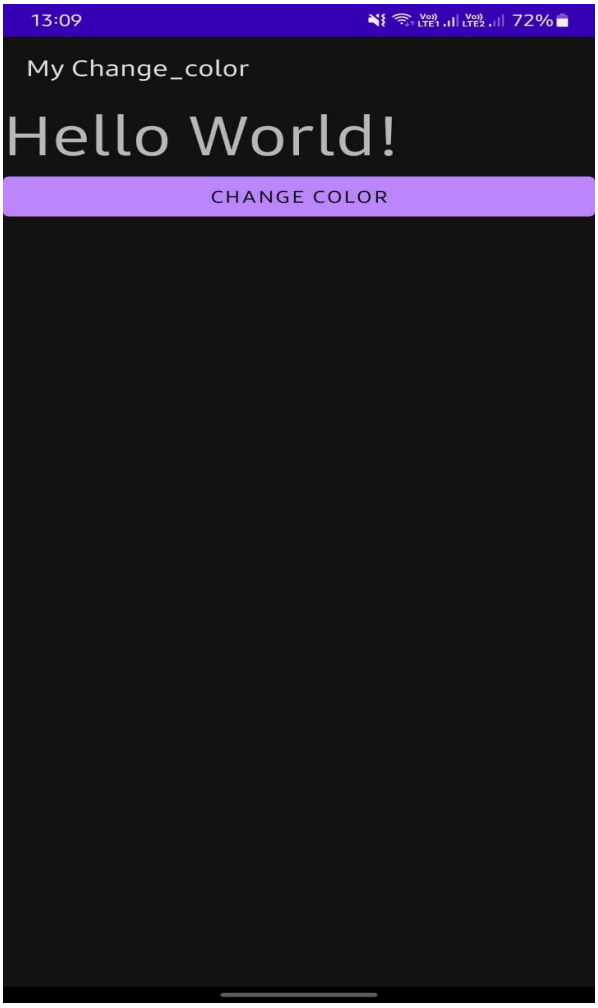
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
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

   <TextView
      android:id="@+id/tv"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Hello World!"
      android:textSize="50dp"/>
   <Button
      android:id="@+id/b"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Change Color"/>

</LinearLayout>
```

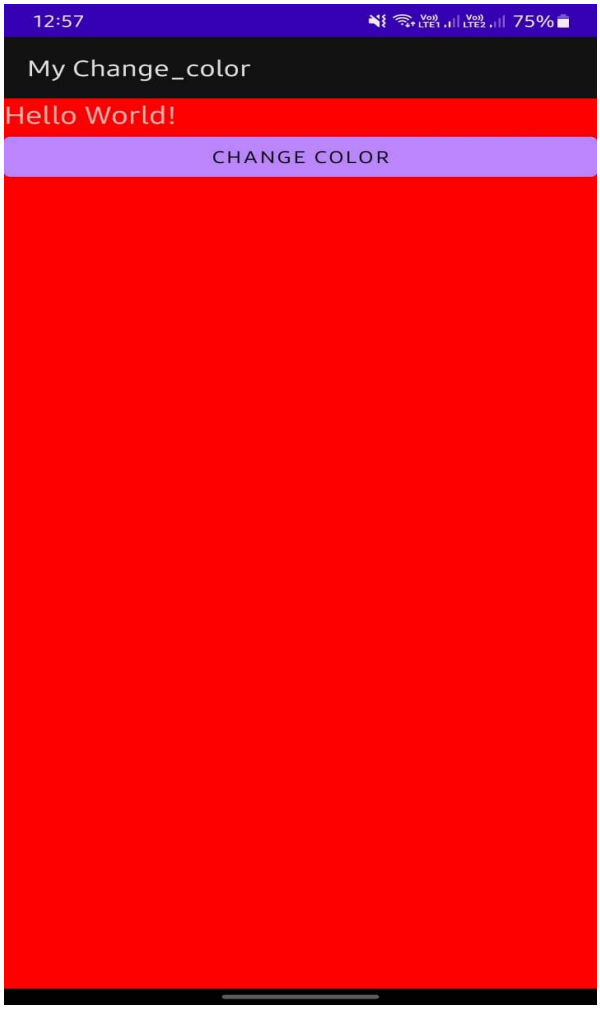
## MainActivity.java

```
package com.example.mychange_color;

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

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

public class MainActivity extends AppCompatActivity {
   TextView tv;
   Button b1;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      tv=(TextView)findViewById(R.id.tv);
      b1=(Button)findViewById(R.id.b);

      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            tv.setTextSize(20);
            changecolor(Color.RED);
         }
      });
   }
   public void changecolor(int c)
   {
      View v=this.getWindow().getDecorView();
      v.setBackgroundColor(c);
   }

}
```

**OUTPUT:**


13:09
72%
My Change_color
Hello World!
CHANGE COLOR


12:57
75%
My Change_color
Hello World!
CHANGE COLOR

SLIP 3

Q1.
A) Create an Android Application to accept two numbers and create two buttons (power and Average). Display the result on the next activity on Button click.

## Activity_main.xml

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

   <TableRow>

      <TextView
         android:id="@+id/n1"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:textSize="25dp"
         android:text="Number1" />

      <EditText
         android:id="@+id/num1"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:ems="15"
         android:hint="num1"/>

   </TableRow>

   <TableRow>

      <TextView
         android:id="@+id/N2"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Number2"
        android:textSize="25dp"
        tools:layout_editor_absoluteX="49dp"
        tools:layout_editor_absoluteY="134dp" />

    <EditText
        android:id="@+id/num2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="num2"
        android:ems="10"/>

</TableRow>

<TableRow>

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Power"
        android:layout_gravity="center"
        tools:layout_editor_absoluteX="138dp"
        tools:layout_editor_absoluteY="257dp" />

    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Average"
        android:layout_gravity="center"
        tools:layout_editor_absoluteX="138dp"
        tools:layout_editor_absoluteY="257dp" />

</TableRow>
```

</TableLayout>

## MainActivty.java

```
package com.example.mypoweravg;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
   EditText num1, num2;
   Button b1, b2;

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

      b1 = (Button) findViewById(R.id.b1);
      b2 = (Button) findViewById(R.id.b2);

      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            try {
               num1 = (EditText) findViewById(R.id.num1);
               num2 = (EditText) findViewById(R.id.num2);
               int n1 = Integer.parseInt(num1.getText().toString());
               int n2 = Integer.parseInt((num2.getText().toString()));
               int result = (int) Math.pow(n1, n2);
               Intent i = new Intent(getApplicationContext(), MainActivity2.class);
               i.putExtra("text", "Power=");
```

```
            i.putExtra("result", result);
            startActivity(i);
          } catch (NumberFormatException ne) {
            Log.e("Error", "Error");
          }
        }
      });

      b2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
          try {
            num1 = (EditText) findViewById(R.id.num1);
            num2 = (EditText) findViewById(R.id.num2);
            int n1 = Integer.parseInt(num1.getText().toString());
            int n2 = Integer.parseInt((num2.getText().toString()));
            double result = (n1 + n2) / 2;
            Intent i = new Intent(getApplicationContext(), MainActivity2.class);
            i.putExtra("text", "Average=");
            i.putExtra("result", result);
            startActivity(i);
          } catch (NumberFormatException ne) {
            Log.e("Error", "Error");
          }
        }
      });
    }
}
```

## Activty_main2.xml

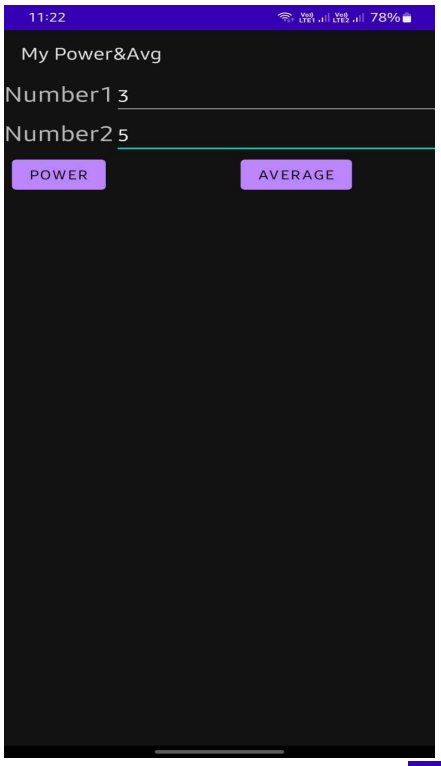
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity2">
```

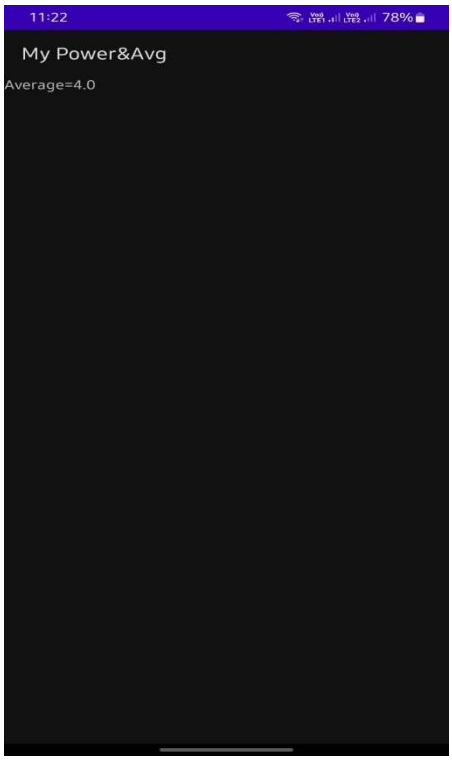
```
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/tv" />
</LinearLayout>
```

## MainActivity2.java

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

public class MainActivity2 extends AppCompatActivity {
    TextView tv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        tv = (TextView) findViewById(R.id.tv);
        Intent i = getIntent();
        Bundle extras = i.getExtras();
        String res = extras.getString("text");
        if(res.equals("Power=")){
            res+= extras.getInt("result");
            tv.setText(res);
        }
        else{
            res+=extras.getDouble("result");
            tv.setText(res);
        }

    }
}
```

## OUTPUT:


11:22
78%
My Power&Avg
Number1 3
Number2 5
POWER
AVERAGE


11:22
78%
My Power&Avg
Average=4.0


11:22
78%
My Power&Avg
Power=243

B) Create an Android Application to perform following string operation according to user selection of radio button.

## Activity_main.xml

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

   <TableRow>
      <TextView
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:text="Enter String"
         app:layout_constraintBottom_toBottomOf="parent"
         app:layout_constraintLeft_toLeftOf="parent"
         app:layout_constraintRight_toRightOf="parent"
         app:layout_constraintTop_toTopOf="parent" />

      <EditText
         android:id="@+id/input"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:hint="enter string"/>
   </TableRow>

   <TableRow>
      <RadioGroup
         android:id="@+id/rg"
         android:layout_width="match_parent"
         android:layout_height="wrap_content">
         <RadioButton
            android:id="@+id/r1"
            android:layout_width="150dp"
```

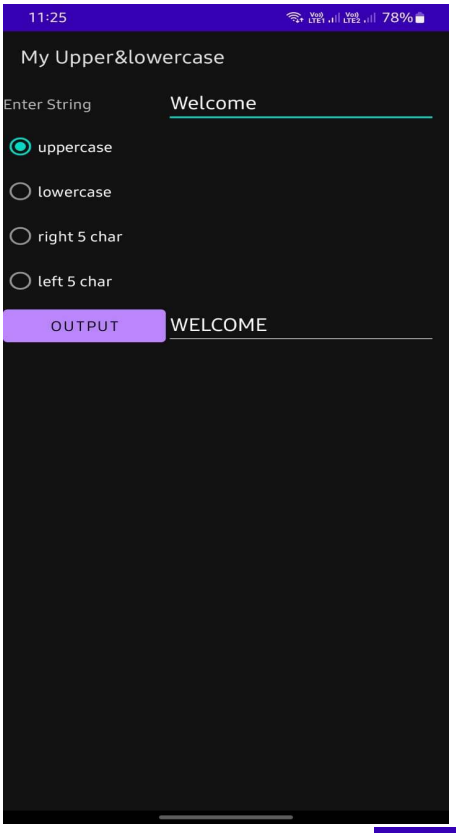
```
            android:layout_height="50dp"
            android:text="uppercase"/>

        <RadioButton
            android:id="@+id/r2"
            android:layout_width="150dp"
            android:layout_height="50dp"
            android:text="lowercase"/>

        <RadioButton
            android:id="@+id/r3"
            android:layout_width="150dp"
            android:layout_height="50dp"
            android:text="right 5 char"/>

        <RadioButton
            android:id="@+id/r4"
            android:layout_width="150dp"
            android:layout_height="50dp"
            android:text="left 5 char"/>
    </RadioGroup>
  </TableRow>
  <TableRow>
    <Button
        android:id="@+id/btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="output" />

    <EditText
        android:id="@+id/output"
        android:layout_width="250dp"
        android:layout_height="wrap_content"/>


  </TableRow>
</TableLayout>
```

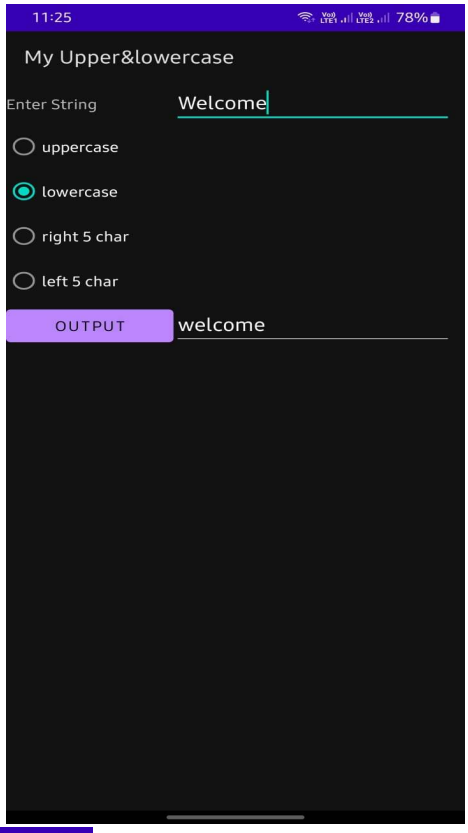
**MainActivity.java**

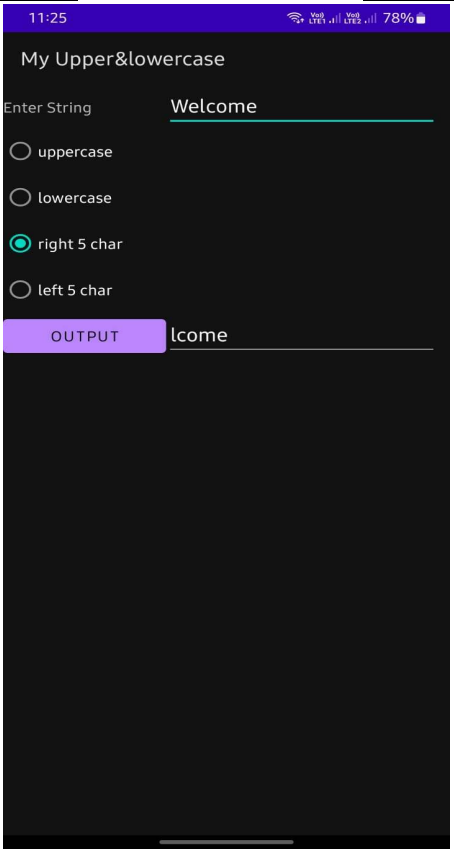
```
package com.example.myupperlowercase;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioGroup;

import java.util.Locale;

public class MainActivity extends AppCompatActivity {
   EditText input,output;
   Button btn;
   RadioGroup rg;
   String inpstr, outstr, sub;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      input=(EditText)findViewById(R.id.input);
      output=(EditText)findViewById(R.id.output);
      rg=(RadioGroup)findViewById(R.id.rg);
      btn=(Button)findViewById(R.id.btn);

      btn.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            int id=rg.getCheckedRadioButtonId();

            switch (id){
               case R.id.r1:inpstr=input.getText().toString();
                  outstr=inpstr.toUpperCase();
```

```
                output.setText(outstr);
                break;
            case R.id.r2:inpstr=input.getText().toString();
                outstr=inpstr.toLowerCase();
                output.setText(outstr);
                break;
            case R.id.r3:inpstr=input.getText().toString();
                sub=inpstr.substring(inpstr.length()-5,inpstr.length());
                output.setText(sub);
                break;
            case R.id.r4:inpstr=input.getText().toString();
            sub="";
            sub=inpstr.substring(0,5);
            break;
          }
        }
      });
  }
}
```

# OUTPUT:


11:25
78%
My Upper&lowercase
Enter String
Welcome
uppercase
lowercase
right 5 char
left 5 char
OUTPUT
WELCOME


11:25
78%
My Upper&lowercase
Enter String
Welcome
uppercase
lowercase
right 5 char
left 5 char
OUTPUT
welcome


11:25
78%
My Upper&lowercase
Enter String
Welcome
uppercase
lowercase
right 5 char
left 5 char
OUTPUT
lcome

SLIP 4

Q1.

A) Create a Simple Android Application Which Send —Hello‖ message from one activity to another with help of Button (Use Intent).

## Activitymain.xml

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

   <EditText
      android:id="@+id/send_text_id"
      android:layout_width="300dp"
      android:layout_height="wrap_content"
      android:textSize="25dp"
      android:hint="Input"
      android:textStyle="bold"
      android:layout_marginTop="20dp"
      android:layout_marginLeft="40dp"/>
   <Button
      android:id="@+id/send_button_id"
      android:layout_width="wrap_content"
      android:layout_height="40dp"
      android:text="send"
      android:textStyle="bold"
      android:layout_marginTop="150dp"
      android:layout_marginLeft="150dp"/>

</RelativeLayout>
```

## Mainactivity.java

```
package com.example.myhello_intent;

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

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

public class MainActivity extends AppCompatActivity {
   Button send_button;
   EditText send_text;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      send_button = (Button)findViewById(R.id.send_button_id);
      send_text = (EditText)findViewById(R.id.send_text_id);
      send_button.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v)
         {

            String str = send_text.getText().toString();

            Intent intent = new Intent(getApplicationContext(), SecondActivity.class);

            intent.putExtra("message_key", str);

            startActivity(intent);
         }
      });
   }
}
```

## Activitysecond.xml

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

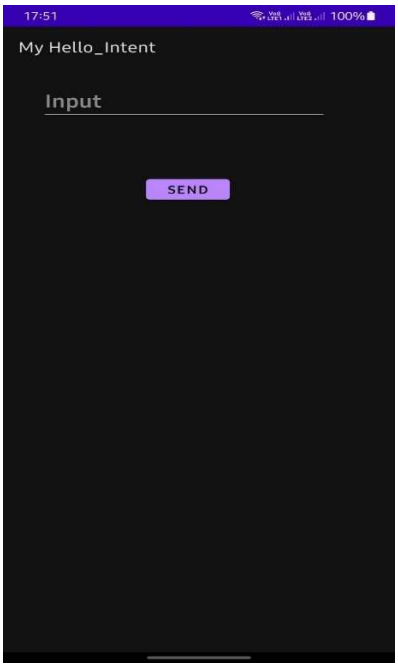
```
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".SecondActivity">
    <TextView
        android:id="@+id/received_value_id"
        android:layout_width="300dp"
        android:layout_height="50dp"
        android:textStyle="bold"
        android:textSize="40dp"
        android:layout_marginTop="20dp"
        android:layout_marginLeft="40dp"/>

</RelativeLayout>
```

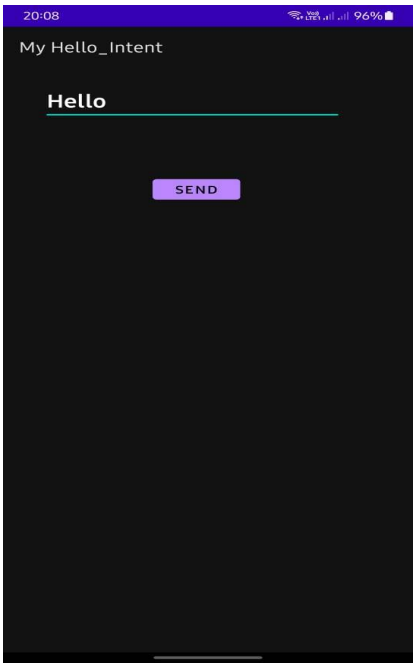
## SecondActivity.java

```
package com.example.myhello_intent;

import androidx.appcompat.app.AppCompatActivity;

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

public class SecondActivity extends AppCompatActivity {

    TextView receiver_msg;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second_activity);
        receiver_msg = (TextView)findViewById(R.id.received_value_id);

        Intent intent = getIntent();
```

```
        String str = intent.getStringExtra("message_key");

        receiver_msg.setText(str);
    }
}
```

**OUTPUT:**




SLIP 5

Q1.
A) Write an Android Program to Change the Image Displayed on the Screen.

## Activity_main.xml

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

   <ImageSwitcher
      android:layout_width="match_parent"
      android:layout_height="500dp"
      android:id="@+id/is"
      tools:ignore="MissingConstraints" />


   <Button
      android:id="@+id/bt"
      android:layout_width="100dp"
      android:layout_height="75dp"
      android:text="img slider"/>

</LinearLayout>
```

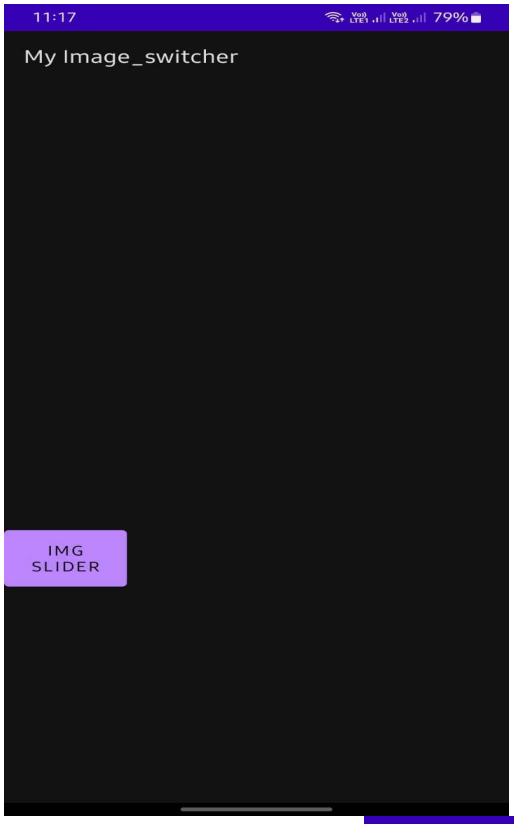
## MainActivity.java

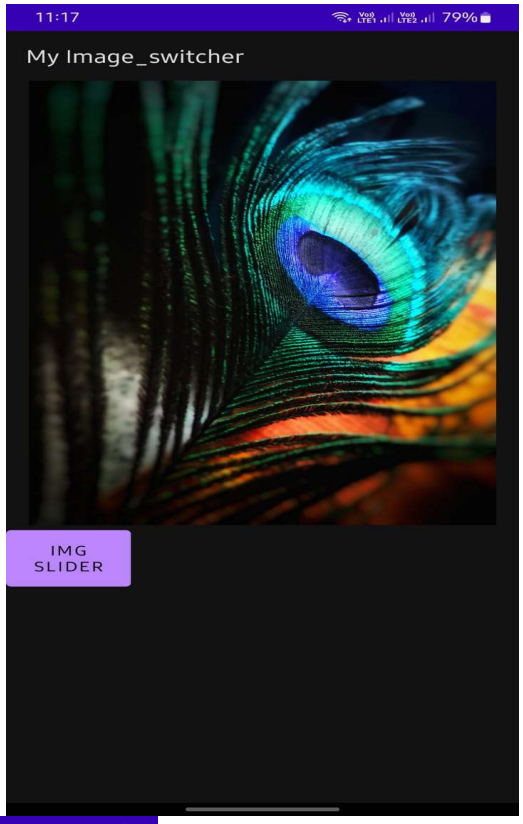
```
package com.example.myimage_switcher;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.view.animation.Animation;
```

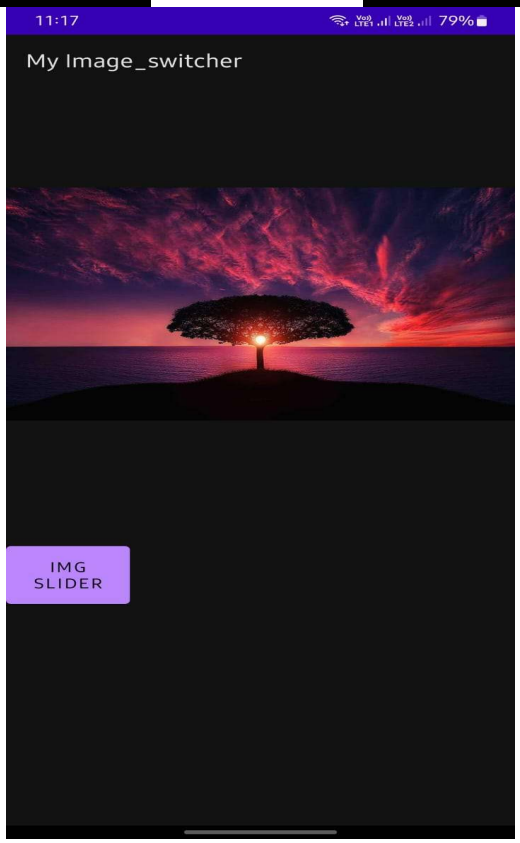
```
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageSwitcher;
import android.widget.ImageView;
import android.widget.LinearLayout;
import android.widget.Toast;
import android.widget.ViewSwitcher;

public class MainActivity extends AppCompatActivity {
   private ImageSwitcher is;
   int imgs[]={R.drawable.img, R.drawable.img_1,R.drawable.img_2};
   int cnt=imgs.length;
   int currindex=-1;

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

      ImageSwitcher is=(ImageSwitcher) findViewById(R.id.is);
      Button bt=(Button) findViewById(R.id.bt);
      is.setFactory(new ViewSwitcher.ViewFactory() {
         @Override
         public View makeView() {
            ImageView iv=new ImageView(getApplicationContext());
            iv.setScaleType(ImageView.ScaleType.FIT_CENTER);
            iv.setLayoutParams(new
ImageSwitcher.LayoutParams(LinearLayout.LayoutParams.WRAP_CONTENT,
LinearLayout.LayoutParams.WRAP_CONTENT));
            return iv;
         }
      });
      Animation in=
AnimationUtils.loadAnimation(this,android.R.anim.slide_in_left);
      Animation out=
AnimationUtils.loadAnimation(this,android.R.anim.slide_out_right);
      is.setInAnimation(in);
```

```
        is.setInAnimation(out);

        bt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                currindex++;
                if(currindex==cnt)
                    currindex=0;
                is.setImageResource(imgs[currindex]);


            }
        });

    }
}
```

## OUTPUT:


11:17
79%
My Image_switcher
IMG
SLIDER


11:17
79%
My Image_switcher
IMG
SLIDER


11:17
79%
My Image_switcher
IMG
SLIDER

SLIP 6
Q1.
A) Write an Android code to complete the following Array/List operations
1. Union 2. Intersection.

## Activity_main.xml

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

   <TableRow
      android:orientation="horizontal">
      <TextView
         android:layout_width="wrap_content"
         android:layout_height="100dp"
         android:text="List1" />

      <EditText
         android:layout_height="50dp"
         android:layout_width="100dp"
         android:id="@+id/l1"/>
   </TableRow>

   <TableRow
      android:orientation="horizontal">
      <TextView
         android:layout_width="wrap_content"
         android:layout_height="100dp"
         android:text="List2" />

      <EditText
         android:layout_height="50dp"
         android:layout_width="100dp"
```

```
        android:id="@+id/l2"/>
    </TableRow>

    <TableRow
        android:orientation="vertical">

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

            <RadioButton
                android:id="@+id/rd1"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Union" />
            <RadioButton
                android:id="@+id/rd2"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Intersection" />
        </RadioGroup>

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


</TableLayout>
```

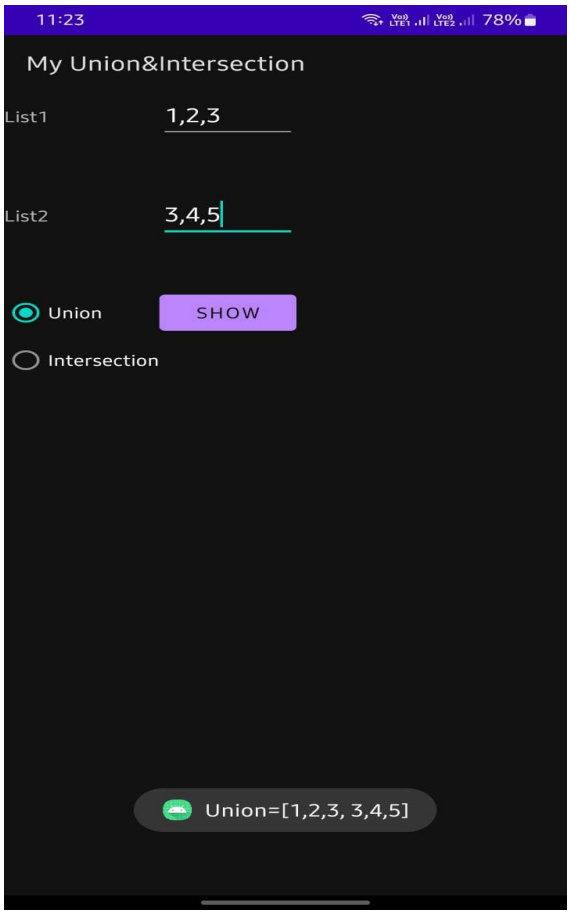
## MainActivity.java

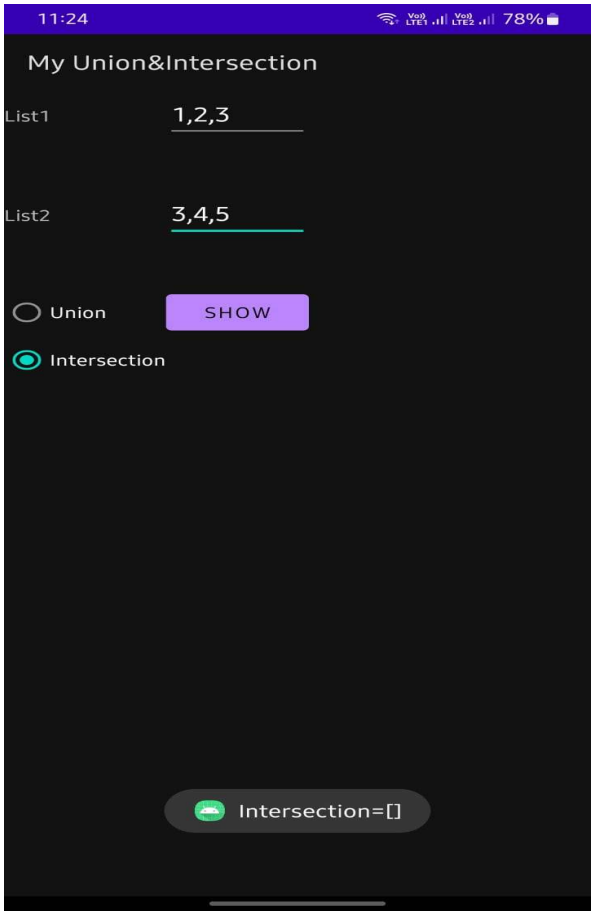
```
package com.example.myunionintersection;

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

```
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

import java.util.ArrayList;
import java.util.Collections;

public class MainActivity extends AppCompatActivity {
   EditText list1, list2;
   String str1="", str2="";
   RadioGroup rg;
   RadioButton rd1, rd2;
   Button btn;
   ArrayList<String> l1, l2;


   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      rg = (RadioGroup) findViewById(R.id.rg);
      btn = (Button) findViewById(R.id.btn);

      btn.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            list1 = (EditText) findViewById(R.id.l1);
            list2 =(EditText) findViewById(R.id.l2);
            str1 = list1.getText().toString();
            str2 = list2.getText().toString();

            //String[] strl1 = str1.split(",");
```

```
            //String[] strl2 = str2.split(",");
            l1 = new ArrayList<String>(Collections.singleton(str1));
            l2 = new ArrayList<String>(Collections.singleton(str2));

            int id = rg.getCheckedRadioButtonId();
            switch(id){
               case R.id.rd1:l1.addAll(l2);
                  Toast.makeText(MainActivity.this, "Union=" + l1.toString(),
Toast.LENGTH_SHORT).show();
                  break;
               case R.id.rd2:l1.retainAll(l2);
                  Toast.makeText(MainActivity.this, "Intersection=" + l1.toString(),
Toast.LENGTH_SHORT).show();
                  break;
               default:
                  Toast.makeText(MainActivity.this, "Please select radio button",
Toast.LENGTH_SHORT).show();
            }
         }
      });

   }
}
```

## OUTPUT:


11:23
78%
My Union&Intersection
List1
1,2,3
List2
3,4,5
Union
SHOW
Intersection
Union=[1,2,3, 3,4,5]


11:24
78%
My Union&Intersection
List1
1,2,3
List2
3,4,5
Union
SHOW
Intersection
Intersection=[]

B) Java Android Program to demonstrate login form with validation.

## ActivityMain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="@color/teal_700"
   tools:context=".MainActivity">
   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:orientation="vertical"
      android:layout_marginLeft="16dp"
      android:layout_marginRight="16dp"
      android:layout_centerInParent="true">
      <EditText
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:hint="Enter Email"
         android:id="@+id/et1"/>
      <EditText
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:hint="Enter Password"
         android:id="@+id/et2"
         android:inputType="textPassword"
         />
      <Button
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:text="Login"
         android:background="#3f76ff"
         android:textColor="#fff"
         android:id="@+id/b"/>
```

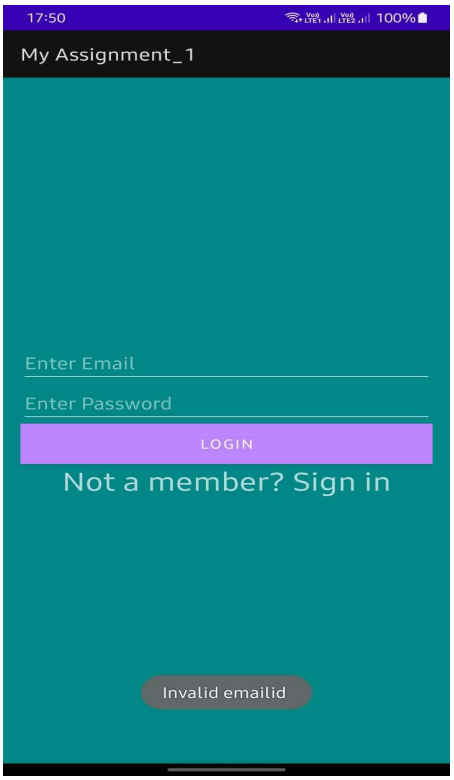
```
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Not a member? Sign in"
        android:textAlignment="center"
        android:textSize="30dp"/>

  </LinearLayout>
</RelativeLayout>
```

## MainActivity.java

```
package com.example.myassignment_1;

import androidx.appcompat.app.AppCompatActivity;

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

import com.basgeekball.awesomevalidation.AwesomeValidation;
import com.basgeekball.awesomevalidation.ValidationStyle;

public class MainActivity extends AppCompatActivity {

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    EditText et1 = (EditText) findViewById(R.id.et1);
    EditText et2 = (EditText) findViewById(R.id.et2);
    Button b = (Button) findViewById(R.id.b);
    AwesomeValidation av = new AwesomeValidation(ValidationStyle.BASIC);
    b.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
```

```
            {
               String e1 = et1.getText().toString();
               String e2 = et1.getText().toString();
               av.addValidation(et1, "^[A-Za-z\\s]{1,}[\\.]{0,1}[A-Za-z\\s]{0,}$",
"invalid");
               av.addValidation(et2, "\"[a-z0-9._%+-]+@[a-z0-9.-]+\\.[a-z]{2,4}$\"",
"wrong pass");


      if(e1.equals("")||e2.equals(""))

         {
            Toast toast = Toast.makeText(getApplicationContext(), "Invalid emailid ",
Toast.LENGTH_SHORT);
            toast.setMargin(50, 50);
            toast.show();
         }
      else
         {
            if (et1.equals("abc@gmail.com")) {
               if (et2.equals("abc12356")) {
                  av.validate();
                  {
                     Toast toast = Toast.makeText(getApplicationContext(), "Invalid
pass ", Toast.LENGTH_SHORT);
                     toast.setMargin(50, 50);
                     toast.show();
                  }
               }
            }
         }
      }
   }
});}}
```

**OUTPUT:**


17:50
100%
My Assignment_1
Enter Email
Enter Password
LOGIN
Not a member? Sign in
Invalid emailid

SLIP 7
Q1.
B) By using Spinner, Buttons. Write a Android program to draw following GUI.

## Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <TableRow>
      <TextView
         android:id="@+id/tv"
         android:layout_width="200dp"
         android:layout_height="50dp"
         android:text="Enter Item:"
         android:textSize="30dp"/>
      <EditText
         android:id="@+id/et"
         android:layout_width="200dp"
         android:layout_height="50dp"
         android:textSize="30dp"/>
   </TableRow>
   <TableRow>
      <Button
         android:id="@+id/b1"
         android:layout_width="200dp"
         android:layout_height="80dp"
         android:textSize="15dp"
         android:text="Add to list"/>

      <Button
         android:id="@+id/b2"
         android:layout_width="200dp"
         android:layout_height="80dp"
```

```
        android:text="Remove from list"
        android:textSize="15dp" />
    </TableRow>
    <TableRow>
      <TextView
        android:id="@+id/tv1"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:text="See response below"
        android:textSize="20dp"/>
    </TableRow>
    <TableRow>
      <Spinner
        android:id="@+id/sp"
        android:layout_width="200dp"
        android:layout_height="50dp"/>
    </TableRow>

</TableLayout>
```

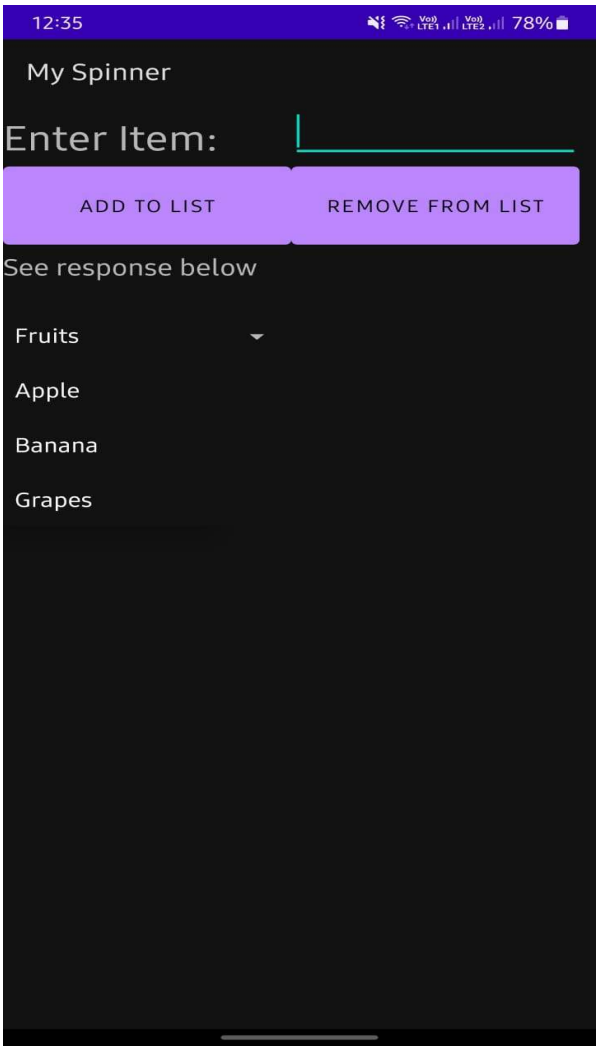
## MainActivity.java

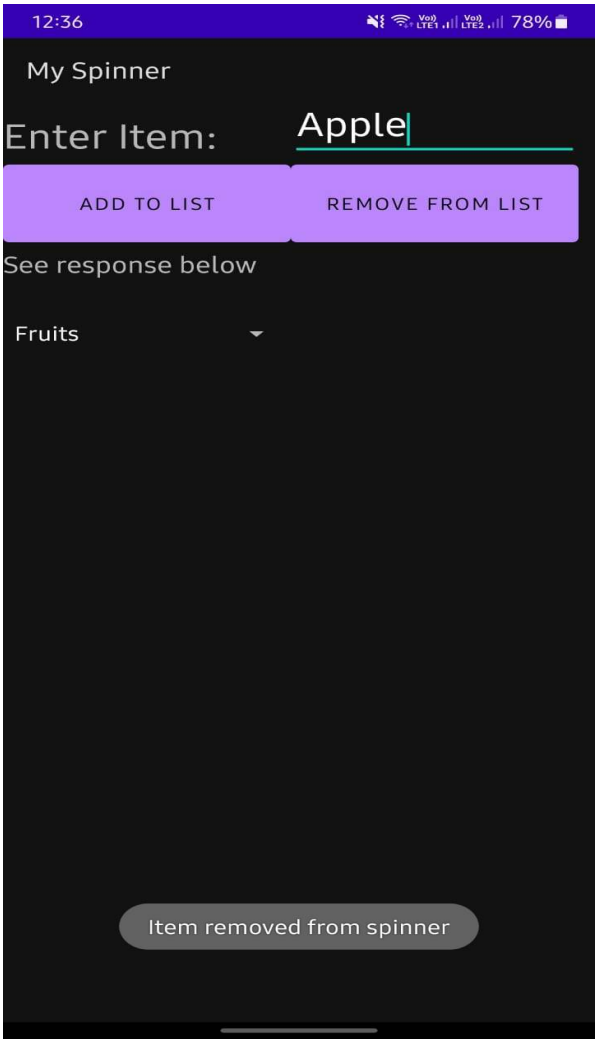
```
package com.example.myspinner;

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;
```

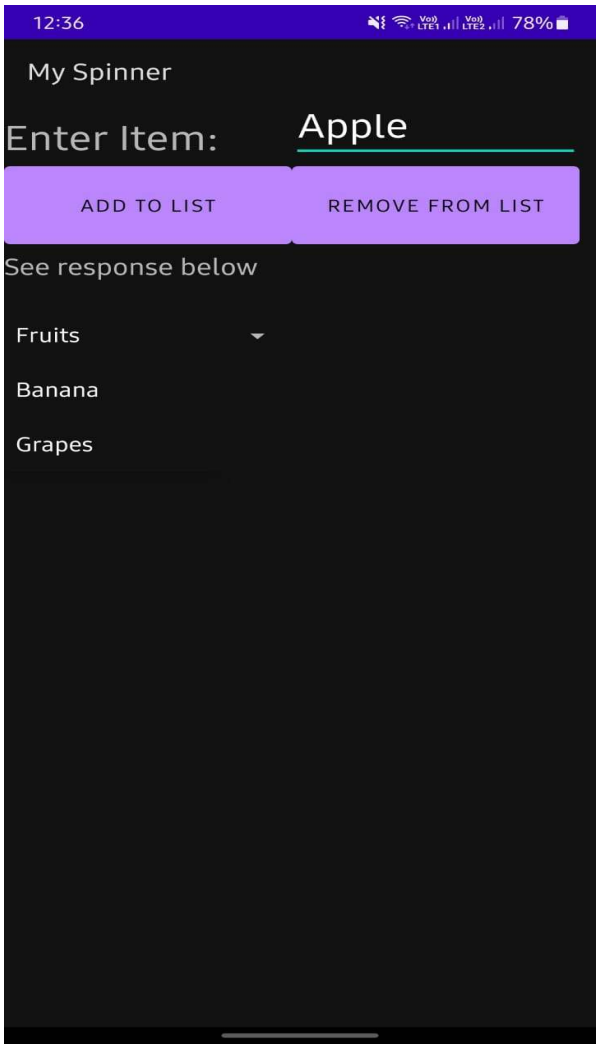
```
public class MainActivity extends AppCompatActivity {
   Button b1,b2;
   EditText et;
   Spinner spinner;
   String data[]={"Fruits"};
   ArrayList list=new ArrayList(Arrays.asList(data));

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      b1=(Button)findViewById(R.id.b1);
      b2=(Button)findViewById(R.id.b2);
      et=(EditText)findViewById(R.id.et);
      spinner=(Spinner)findViewById(R.id.sp);
      ArrayAdapter adapter=new ArrayAdapter(this,
androidx.appcompat.R.layout.support_simple_spinner_dropdown_item,list);
      spinner.setAdapter(adapter);

      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            String s=et.getText().toString();
            list.add(s);
            adapter.notifyDataSetChanged();
            spinner.setAdapter(adapter);
            Toast.makeText(getApplicationContext(), "Item added to spinner",
Toast.LENGTH_SHORT).show();
         }
      });
      b2.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            String s=et.getText().toString();
            list.remove(s);
            adapter.notifyDataSetChanged();
```

```
            spinner.setAdapter(adapter);
            Toast.makeText(getApplicationContext(), "Item removed from spinner",
Toast.LENGTH_SHORT).show();
        }
    });

  }
}
```

**OUTPUT:**


12:36
78%
My Spinner
Enter Item:
Apple
ADD TO LIST
REMOVE FROM LIST
See response below
Fruits
Item removed from spinner


12:36
78%
My Spinner
Enter Item:
Apple
ADD TO LIST
REMOVE FROM LIST
See response below
Fruits
Banana
Grapes

SLIP 8
Q1.
A) Write an Android program to read 5 numbers and print the sum of all.

## Activity_main.xml

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

   <TableRow
      android:layout_height="wrap_content"
      android:layout_width="wrap_content"
      android:orientation="horizontal">

      <TextView
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:text="List"/>
      <EditText
         android:layout_height="50dp"
         android:layout_width="200dp"
         android:id="@+id/l"
         android:hint="Enter 5 numbers"/>
   </TableRow>


   <TableRow
      android:layout_height="wrap_content"
      android:layout_width="wrap_content"
      android:orientation="horizontal">

      <Button
         android:layout_width="wrap_content"
```

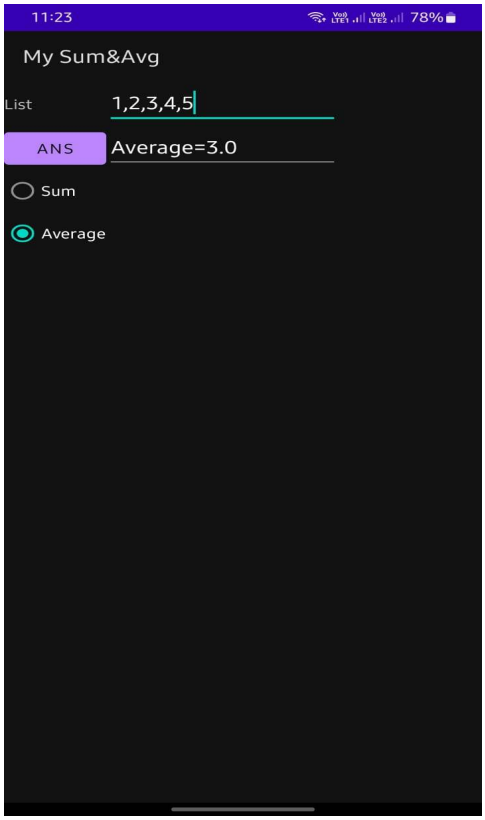
```
        android:layout_height="wrap_content"
        android:text="Ans"
        android:id="@+id/ans"/>
    <EditText
        android:layout_height="50dp"
        android:layout_width="200dp"
        android:id="@+id/et" />
  </TableRow>

  <TableRow
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:orientation="vertical">

    <RadioGroup
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/rg">
        <RadioButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Sum"
            android:id="@+id/rd1"
            />

        <RadioButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Average"
            android:id="@+id/rd2"
            />
    </RadioGroup>
  </TableRow>

</TableLayout>
```

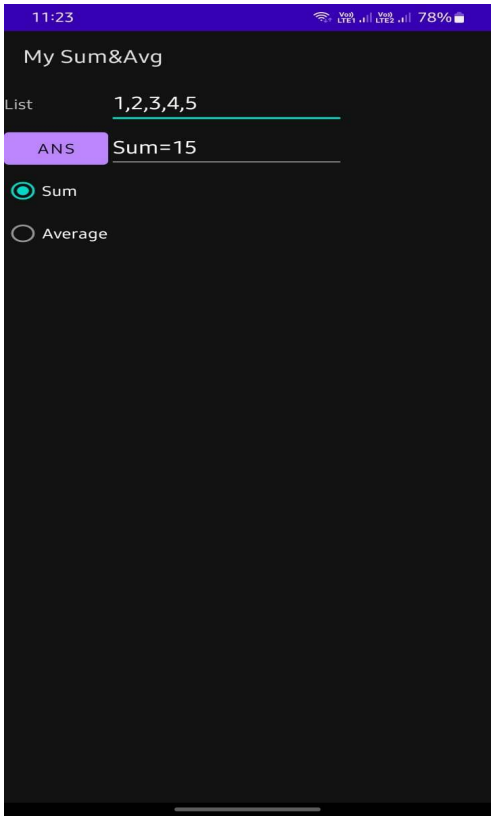
## MainActivity.java

```
package com.example.mysumavg;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
   RadioGroup rg;
   Button ans;
   EditText l, et;

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

      rg=(RadioGroup)findViewById(R.id.rg);
      ans=(Button) findViewById(R.id.ans);
      et = (EditText) findViewById(R.id.et);

      ans.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            l= (EditText) findViewById(R.id.l);
            String str = l.getText().toString();
            String[] arr = str.split(",");
            int id = rg.getCheckedRadioButtonId();

            switch (id){
               case R.id.rd1:int sum=0;
                  try{
```

```
                    for (int i=0; i<arr.length; i++){
                        sum+= Integer.parseInt(arr[i]);
                        et.setText("Sum="+sum);
                    }
                }
                catch (NumberFormatException ne){
                    Log.e("Except", "NE except");
                }
                break;
            case R.id.rd2: float avg;
                sum=0;
                try{
                    for (int i=0; i<arr.length; i++){
                        sum+= Integer.parseInt(arr[i]);

                    }
                    avg=sum/arr.length;
                    et.setText("Average="+avg);
                }
                catch (NumberFormatException ne){
                    Log.e("Except", "NE except");
                }
                break;

            default:
                Toast.makeText(MainActivity.this, "Please select radio button",
Toast.LENGTH_SHORT).show();
            }
        }
    });

  }
}
```

## OUTPUT:


11:23
78%
My Sum&Avg
List
1,2,3,4,5
ANS
Average=3.0
Sum
Average


11:23
78%
My Sum&Avg
List
1,2,3,4,5
ANS
Sum=15
Sum
Average

B) Create a Notification in Android and display the notification message on second activity.

## Activity_main.xml

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

   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="ANDROID NOTIFICATION"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintLeft_toLeftOf="parent"
      app:layout_constraintRight_toRightOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.091"

android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"/>

   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/button"
      android:layout_marginBottom="112dp"
      android:layout_marginEnd="8dp"
      android:layout_marginStart="8dp"
      android:text="Notify"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent" />
</LinearLayout>
```

## MainActivity.java

```
package com.example.mynotification;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
   Button button;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      button = findViewById(R.id.button);
      button.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            addNotification();
         }
      });
   }

   private void addNotification() {
      NotificationCompat.Builder builder =
            new NotificationCompat.Builder(this)
                  .setSmallIcon(R.drawable.img) //set icon for notification
                  .setContentTitle("Notifications Example") //set title of notification
                  .setContentText("This is a notification message")//this is notification
message
                  .setAutoCancel(true) // makes auto cancel of notification
```

```
                .setPriority(NotificationCompat.PRIORITY_DEFAULT); //set priority
of notification


      Intent notificationIntent = new Intent(this, NotificationView.class);
      notificationIntent.addFlags(Intent.FLAG_ACTIVITY_CLEAR_TOP);
      //notification message will get at NotificationView
      notificationIntent.putExtra("message", "This is a notification message");

      PendingIntent pendingIntent = PendingIntent.getActivity(this, 0,
notificationIntent,
            PendingIntent.FLAG_UPDATE_CURRENT);
      builder.setContentIntent(pendingIntent);

      // Add as notification
      NotificationManager manager = (NotificationManager)
getSystemService(Context.NOTIFICATION_SERVICE);
      manager.notify(0, builder.build());
   }
}
```

## Activity_notification_view.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   tools:context=".NotificationView">
   <TextView
      android:id="@+id/textView2"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:gravity="center"
      android:text="your detail of notification..."

android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium" />
```

```
   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginBottom="8dp"
      android:layout_marginEnd="8dp"
      android:layout_marginStart="8dp"
      android:layout_marginTop="8dp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintHorizontal_bias="0.096"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/textView2"
      app:layout_constraintVertical_bias="0.206"

android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"/>

</LinearLayout>
```

## NotificationView.java

```
package com.example.mynotification;

import androidx.appcompat.app.AppCompatActivity;

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

public class NotificationView extends AppCompatActivity {
   TextView textView;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_notification_view);
      textView = findViewById(R.id.textView);
      //getting the notification message
      String message=getIntent().getStringExtra("message");
      textView.setText(message);
```

```
    }
}
```

## String.xml

```
<resources>
    <string name="app_name">AndroidNotification</string>
    <string name="notification_activity">NotificationView</string>
</resources>
```

SLIP 9
Q1.
B) Write an Android Application to demonstrate Alert Dialog Box.

## Activitymain.xml

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

   <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" />

</LinearLayout>
```

## Mainactivity.java

```
package com.example.myalert_dialouge_box;

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;
```

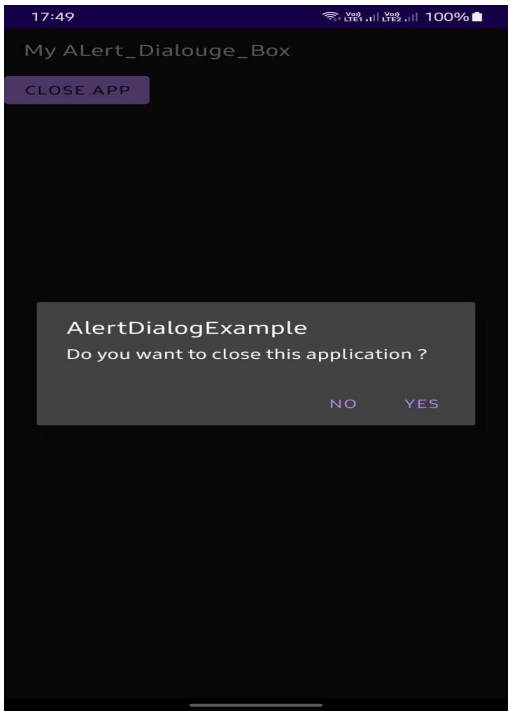
```
public class MainActivity extends AppCompatActivity {
   Button closeButton;
   AlertDialog.Builder builder;

   @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) {
                        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) {

                        dialog.cancel();
                        Toast.makeText(getApplicationContext(),"you choose no action
for alertbox",
                              Toast.LENGTH_SHORT).show();
                     }
                  });
```

```
            AlertDialog alert = builder.create();

            alert.setTitle("AlertDialogExample");
            alert.show();
        }
    });
  }
}
```

**String.xml**

```
<resources>
   <string name="app_name">My ALert_Dialouge_Box</string>
   <string name="dialog_message">Welcome to Alert Dialog</string>
   <string name="dialog_title">Javatpoint Alert Dialog</string>

</resources>
```

**OUTPUT:**

SLIP 10
Q1.
A) Create an Android Application to display satellite view of current location using Google Map.

## MainActivity.java

```
package com.example.mygooglemap;

import androidx.fragment.app.FragmentActivity;

import android.os.Bundle;
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 com.example.mygooglemap.databinding.ActivityMapsBinding;
public class MapsActivity extends FragmentActivity implements
OnMapReadyCallback {

   private GoogleMap mMap;
   private ActivityMapsBinding binding;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      binding = ActivityMapsBinding.inflate(getLayoutInflater());
      setContentView(binding.getRoot());

      // 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);
   }
   /**
```

```
     * Manipulates the map once available.
     * This callback is triggered when the map is ready to be used.
     * This is where we can add markers or lines, add listeners or move the camera.
In this case,
     * we just add a marker near Sydney, Australia.
     * If Google Play services is not installed on the device, the user will be
prompted to install
     * it inside the SupportMapFragment. This method will only be triggered once
the user has
     * installed Google Play services and returned to the app.
     */
    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;

        // Add a marker in Sydney and move the camera
        LatLng sydney = new LatLng(-34, 151);
        mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in
Sydney"));
        mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));
        mMap.setMapType(mMap.MAP_TYPE_SATELLITE);
    }
}
```

## AndroidManifest.xml

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

```
        TODO: Before you run your application, you need a Google Maps API key.

        To get one, follow the directions here:

          https://developers.google.com/maps/documentation/android-sdk/get-
api-key

        Once you have your API key (it starts with "AIza"), define a new property in
your
        project's local.properties file (e.g. MAPS_API_KEY=Aiza...), and replace the
        "YOUR_API_KEY" string in this file with "${MAPS_API_KEY}".
    -->
    <meta-data
      android:name="com.google.android.geo.API_KEY"
      android:value="MAPS_API_KEY" />
    <activity
      android:name=".MapsActivity"
      android:exported="true"
      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>
```

## Local.properties

```
## This file is automatically generated by Android Studio.
# Do not modify this file -- YOUR CHANGES WILL BE ERASED!
# This file should *NOT* be checked into Version Control Systems,
# as it contains information specific to your local configuration.
# Location of the SDK. This is only used by Gradle.
# For customization when using a Version Control System, please read the
# header note.
sdk.dir=C\:\\Users\\ADMIN\\AppData\\Local\\Android\\Sdk
MAPS_API_KEY=AIzaSyDjPstkPhW4mCenL5AkV_t-yQsXwyQRFoY
```

**OUTPUT:**

B) Construct an Android Application to display the images using ImageSwitcher.

## Activity_main.xml

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

   <ImageSwitcher
      android:layout_width="match_parent"
      android:layout_height="500dp"
      android:id="@+id/is"
      tools:ignore="MissingConstraints" />


   <Button
      android:id="@+id/bt"
      android:layout_width="100dp"
      android:layout_height="75dp"
      android:text="img slider"/>

</LinearLayout>
```

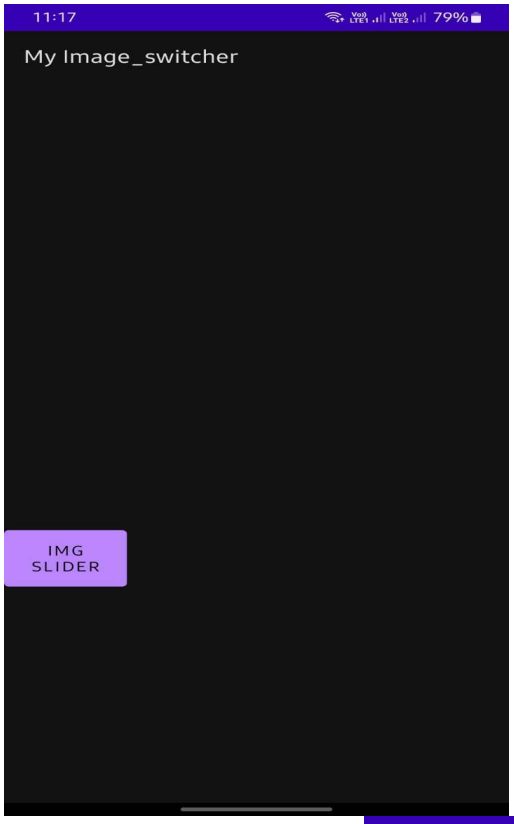
## MainActivity.java

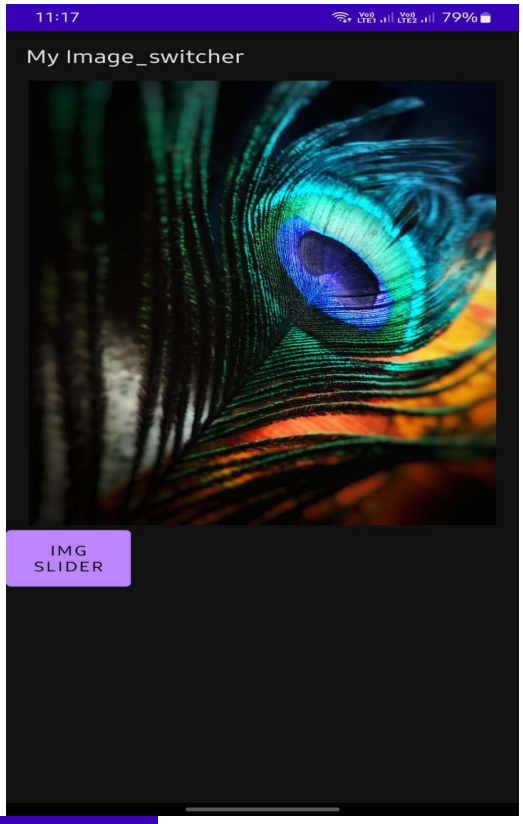
```
package com.example.myimage_switcher;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.view.animation.Animation;
```

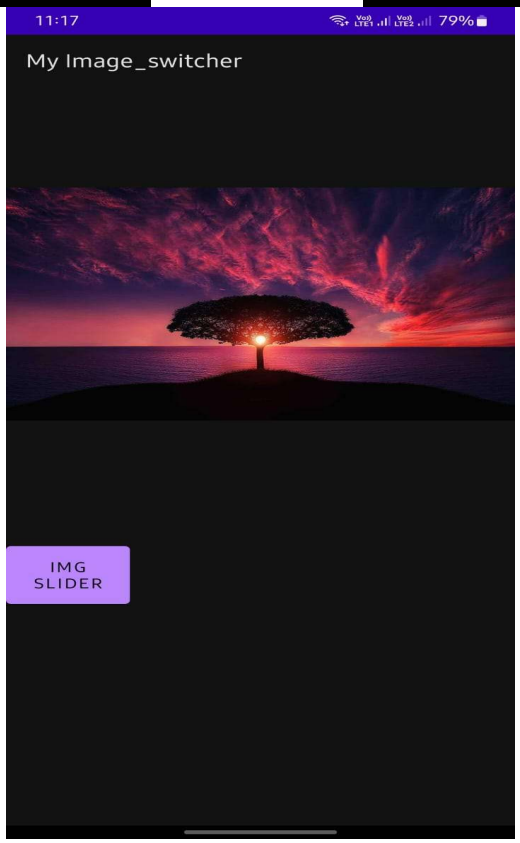
```
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageSwitcher;
import android.widget.ImageView;
import android.widget.LinearLayout;
import android.widget.Toast;
import android.widget.ViewSwitcher;

public class MainActivity extends AppCompatActivity {
   private ImageSwitcher is;
   int imgs[]={R.drawable.img, R.drawable.img_1,R.drawable.img_2};
   int cnt=imgs.length;
   int currindex=-1;

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

      ImageSwitcher is=(ImageSwitcher) findViewById(R.id.is);
      Button bt=(Button) findViewById(R.id.bt);
      is.setFactory(new ViewSwitcher.ViewFactory() {
         @Override
         public View makeView() {
            ImageView iv=new ImageView(getApplicationContext());
            iv.setScaleType(ImageView.ScaleType.FIT_CENTER);
            iv.setLayoutParams(new
ImageSwitcher.LayoutParams(LinearLayout.LayoutParams.WRAP_CONTENT,
LinearLayout.LayoutParams.WRAP_CONTENT));
            return iv;
         }
      });
      Animation in=
AnimationUtils.loadAnimation(this,android.R.anim.slide_in_left);
      Animation out=
AnimationUtils.loadAnimation(this,android.R.anim.slide_out_right);
      is.setInAnimation(in);
```

```
        is.setInAnimation(out);

        bt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                currindex++;
                if(currindex==cnt)
                    currindex=0;
                is.setImageResource(imgs[currindex]);


            }
        });
    }
}
```

## OUTPUT:


11:17
79%
My Image_switcher
IMG
SLIDER


11:17
79%
My Image_switcher
IMG
SLIDER


11:17
79%
My Image_switcher
IMG
SLIDER

SLIP 11
Q1.
B) Construct an Android Application to accept a number and calculate Factorial and Sum of Digits of a given number using Menu.

## Activity_main.xml

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

   <EditText
      android:layout_marginTop="200dp"
      android:layout_marginLeft="50dp"
      android:layout_width="200dp"
      android:layout_height="50dp"
      android:id="@+id/et"
      android:hint="Enter a number"/>

</LinearLayout>
```

## menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
      <item android:id="@+id/fact"
         android:title="Factorial" />

      <item android:id="@+id/sum"
         android:title="Sum" />
</menu>
```

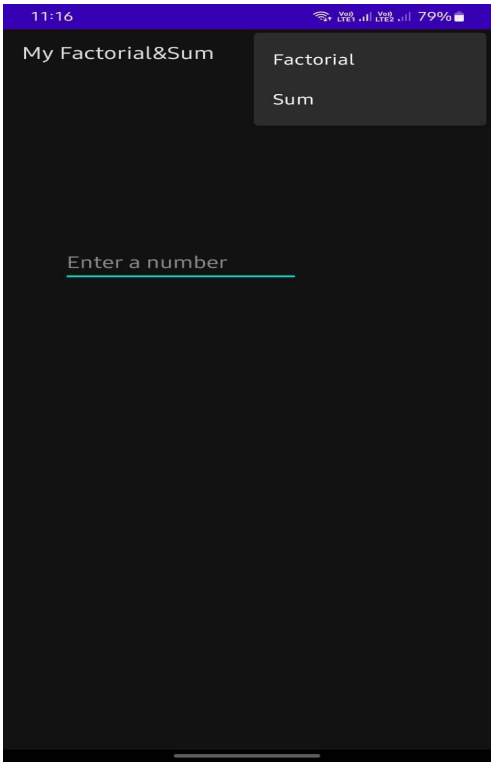
## MainActivity.java

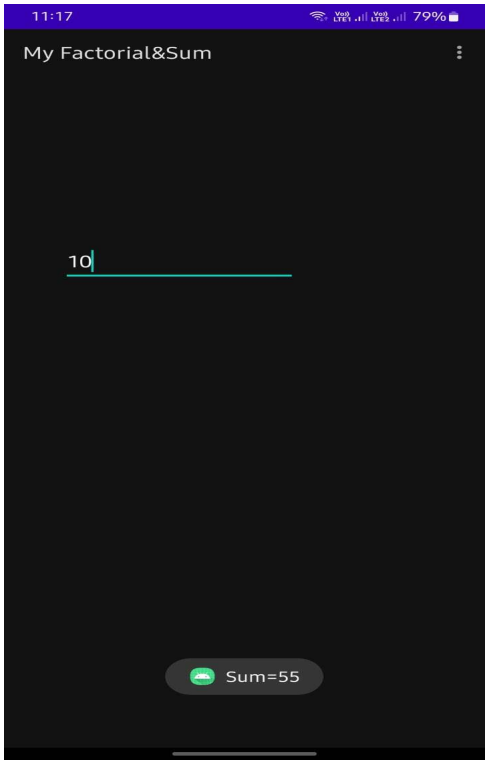
```
package com.example.myfactorialsum;
```

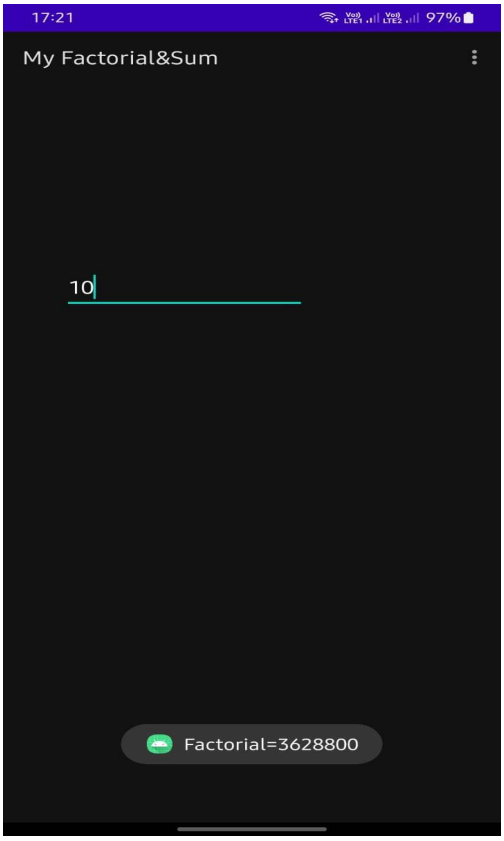
```
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
   int num;
   String value;
   EditText et;

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

   @Override
   public boolean onCreateOptionsMenu(Menu menu) {
      //return super.onCreateOptionsMenu(menu);
      MenuInflater mi = getMenuInflater();
      mi.inflate(R.menu.menu, menu);
      return  true;
   }

   @Override
   public boolean onOptionsItemSelected(@NonNull MenuItem item) {
      //return super.onOptionsItemSelected(item);
      et=(EditText) findViewById(R.id.et);

      value= et.getText().toString();
```

```
      if(!value.isEmpty()){
         try{
            num = Integer.parseInt(value);
            int id;
            id= item.getItemId();
            int t=num;
            switch(id){
               case R.id.fact:int fact=1;
                  while(t>0){
                     fact*=t;
                     t--;
                  }
                  Toast.makeText(this, "Factorial="+fact,
Toast.LENGTH_SHORT).show();
                  break;
               case R.id.sum:int sum=0;
                  while(t>0){
                     sum=sum+t;
                     t--;
                  }
                  Toast.makeText(this, "Sum="+sum, Toast.LENGTH_SHORT).show();
                  break;
            }

         }
         catch (NumberFormatException ne){
            Log.e("Error", ""+ne.getMessage());
         }
      }
      return true;
   }
}
```

## OUTPUT:


11:16
79%
My Factorial&Sum
Factorial
Sum
Enter a number


11:17
79%
My Factorial&Sum
10
Sum=55


17:21
97%
My Factorial&Sum
10
Factorial=3628800

SLIP 12
Q1.
A) Write an Android program to perform Zoom In, Zoom Out operation and display Satellite view, on Google Map.

## MainActivity.java

```
package com.example.mygooglemap;

import androidx.fragment.app.FragmentActivity;

import android.os.Bundle;
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 com.example.mygooglemap.databinding.ActivityMapsBinding;
public class MapsActivity extends FragmentActivity implements
OnMapReadyCallback {

   private GoogleMap mMap;
   private ActivityMapsBinding binding;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      binding = ActivityMapsBinding.inflate(getLayoutInflater());
      setContentView(binding.getRoot());

      // 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);
   }
   /**
```

```
     * Manipulates the map once available.
     * This callback is triggered when the map is ready to be used.
     * This is where we can add markers or lines, add listeners or move the camera.
In this case,
     * we just add a marker near Sydney, Australia.
     * If Google Play services is not installed on the device, the user will be
prompted to install
     * it inside the SupportMapFragment. This method will only be triggered once
the user has
     * installed Google Play services and returned to the app.
     */
    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;

        // Add a marker in Sydney and move the camera
        LatLng sydney = new LatLng(-34, 151);
        mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in
Sydney"));
        mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));
        mMap.setMapType(mMap.MAP_TYPE_SATELLITE);
    }
}
```

## AndroidManifest.xml

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

```
        TODO: Before you run your application, you need a Google Maps API key.

        To get one, follow the directions here:

          https://developers.google.com/maps/documentation/android-sdk/get-
api-key

        Once you have your API key (it starts with "AIza"), define a new property in
your
        project's local.properties file (e.g. MAPS_API_KEY=Aiza...), and replace the
        "YOUR_API_KEY" string in this file with "${MAPS_API_KEY}".
    -->
    <meta-data
      android:name="com.google.android.geo.API_KEY"
      android:value="MAPS_API_KEY" />
    <activity
      android:name=".MapsActivity"
      android:exported="true"
      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>
```

## Local.properties

```
## This file is automatically generated by Android Studio.
# Do not modify this file -- YOUR CHANGES WILL BE ERASED!
# This file should *NOT* be checked into Version Control Systems,
# as it contains information specific to your local configuration.
# Location of the SDK. This is only used by Gradle.
# For customization when using a Version Control System, please read the
# header note.
sdk.dir=C\:\\Users\\ADMIN\\AppData\\Local\\Android\\Sdk
MAPS_API_KEY=AIzaSyDjPstkPhW4mCenL5AkV_t-yQsXwyQRFoY
```

**OUTPUT:**

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

## Activity_main.xml

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

   <TableRow>

      <TextView
         android:id="@+id/name"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:textSize="25dp"
         android:text="Name" />

      <EditText
         android:id="@+id/PlayerName"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:ems="15"
         android:hint="Name"/>

   </TableRow>

   <TableRow>

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

```
        android:text="Points"
        android:textSize="25dp"
        tools:layout_editor_absoluteX="49dp"
        tools:layout_editor_absoluteY="134dp" />

    <EditText
        android:id="@+id/Playerpoint"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="point"
        android:ems="10"/>

  </TableRow>

  <TableRow>

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send"
        android:layout_gravity="center"
        tools:layout_editor_absoluteX="138dp"
        tools:layout_editor_absoluteY="257dp" />

  </TableRow>

</TableLayout>
```

## MainActivty.java

```
package com.example.myplayer;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
```

```
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
   EditText Playername,Playerpoint;
   Button send;
   String name;
   int points;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Playername = findViewById(R.id.PlayerName);
      Playerpoint = findViewById(R.id.Playerpoint);
      send = findViewById(R.id.button);

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

   public void sendData()
   {
      name = Playername.getText().toString().trim();
      points = Integer.parseInt(Playerpoint.getText().toString().trim());

      Intent i = new Intent(MainActivity.this,SecondActivity.class);

      i.putExtra(SecondActivity.PlayerName,name);
      i.putExtra(SecondActivity.Points,points);

      startActivity(i);
   }
```

```
}
```

## Activity_second.xml

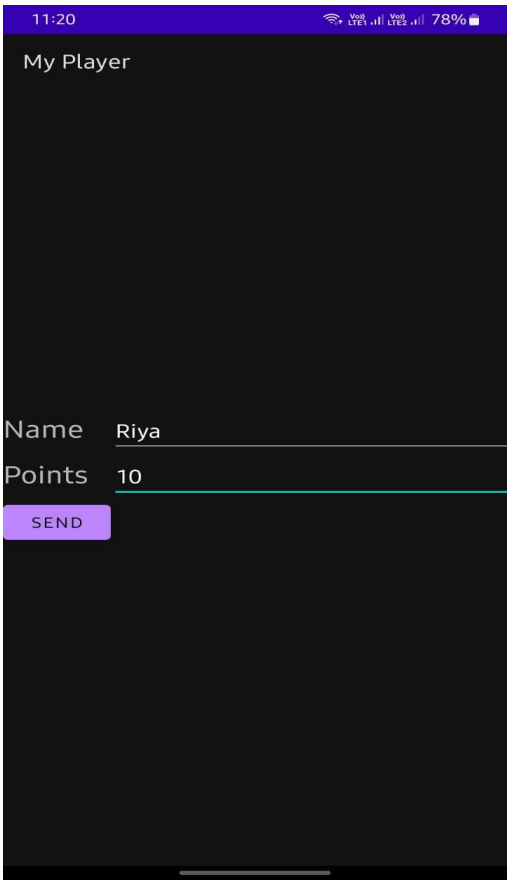
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
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

   <TextView
      android:id="@+id/pname"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="TextView"
      tools:layout_editor_absoluteX="160dp"
      tools:layout_editor_absoluteY="16dp" />

   <TextView
      android:id="@+id/point"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginTop="20dp"
      android:text="TextView"
      tools:layout_editor_absoluteX="160dp" />
</LinearLayout>
```

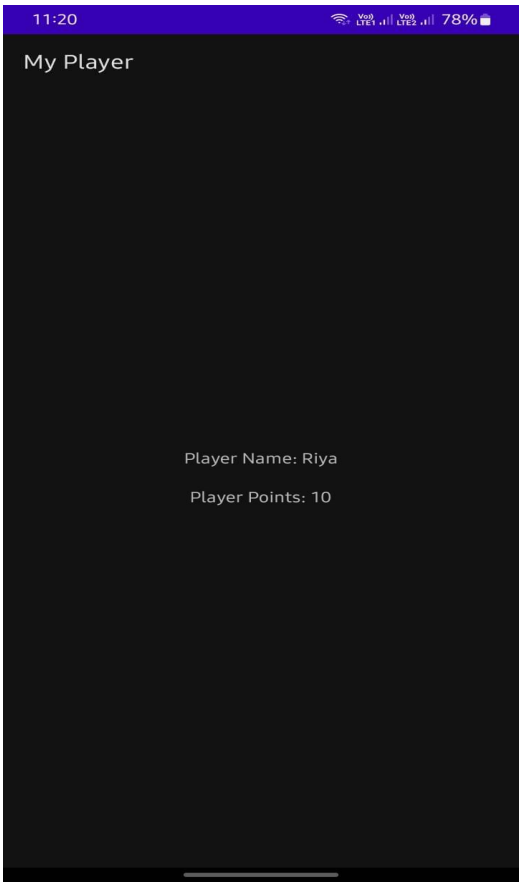
## SecondActivity.java

```
package com.example.myplayer;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
```

```
import android.widget.TextView;

public class SecondActivity extends AppCompatActivity {
   public static final String PlayerName = "PlayerName";
   public static final String Points = "Points";
   private TextView pname,ppoint;
   private String name;
   private int point;

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

      pname = findViewById(R.id.pname);
      ppoint = findViewById(R.id.point);

      Intent i = getIntent();
      name = i.getStringExtra(PlayerName);
      point = i.getIntExtra(Points,0);

      pname.setText("Player Name: "+name);
      ppoint.setText("Player Points: "+point);
   }
}
```

## OUTPUT:


11:20
78%
My Player
Name
Riya
Points
10
SEND


11:20
78%
My Player
Player Name: Riya
Player Points: 10

SLIP 13
Q1.B) Create table Company (id, name, address, phno). Create Android Application for performing the following operation on the table.(using sqlite database)
i) Insert New Company Details.
ii) Show All the Company Details.

## Activity_main.xml

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


   <TableRow>
      <EditText
         android:layout_height="50dp"
         android:layout_width="100dp"
         android:id="@+id/et1"
         android:hint="name"/>
   </TableRow>
   <TableRow>
      <EditText
         android:layout_height="50dp"
         android:layout_width="200dp"
         android:id="@+id/et2"
         android:hint="address"/>
   </TableRow>
   <TableRow>
      <EditText
         android:layout_height="50dp"
         android:layout_width="100dp"
         android:id="@+id/et3"
         android:hint="contact"/>
```

```
  </TableRow>
  <TableRow>

    <Button
      android:layout_height="50dp"
      android:layout_width="100dp"
      android:text="SAVE"
      android:id="@+id/b1"/>
  </TableRow>
  <TableRow>
    <Button
      android:layout_height="50dp"
      android:layout_width="100dp"
      android:text="SHOW"
      android:id="@+id/b2"/>
  </TableRow>

  <TableRow>

    <ListView
      android:layout_height="wrap_content"
      android:layout_width="wrap_content"
      android:id="@+id/lv"/>
  </TableRow>


</TableLayout>
```

## MainActivity.java

```
package com.example.mycompany;

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.ListView;
import android.widget.Toast;

import java.util.Collections;
import java.util.List;

public class MainActivity extends AppCompatActivity {
   EditText et1, et2, et3;
   Button b1, b2;
   ListView lv;

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

      et1 = (EditText) findViewById(R.id.et1);
      et2 = (EditText) findViewById(R.id.et2);
      et3 = (EditText) findViewById(R.id.et3);
      b1  = (Button) findViewById(R.id.b1);
      b2  = (Button) findViewById(R.id.b2);
      lv  = (ListView) findViewById(R.id.lv);
      MyDB mydb = new MyDB(this, "company.db", null, 1);
      String name = et1.getText().toString();
      String addr = et2.getText().toString();
      String contact = et3.getText().toString();

      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            long r = mydb.addDetails(name, addr, contact);
            if(r>0){
               Toast.makeText(MainActivity.this, "Values inserted successfully",
Toast.LENGTH_SHORT).show();
            }
            else{
```

```
                Toast.makeText(MainActivity.this, "Error in inserting values",
Toast.LENGTH_SHORT).show();
            }
        }
    });

    b2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            List<Company> l = mydb.getDetails();

Toast.makeText(getApplicationContext(),l.toString(),Toast.LENGTH_LONG).show()
;
            ArrayAdapter aa = new
ArrayAdapter<Company>(getApplicationContext(),
android.R.layout.simple_list_item_1);
            lv.setAdapter(aa);
        }
    });
  }
}
```

## Company.java

```
package com.example.mycompany;

import android.util.Log;

public class Company {
  String cname, addr, contact;
  public Company(String ccname, String caddr, String ccontact){
    this.cname = ccname;
    this.addr = caddr;
    this.contact = ccontact;
  }

  public String getCname(){
    return  this.cname;
```

```
    }

    public String getAddr(){
        return this.addr;
    }

    public String getContact(){
        return  this.contact;
    }

    @Override public String toString(){

        String val = this.cname + " " + this.addr + " " + this.contact;
        Log.d("Customer=",val);
        return  val;
    }
}
```

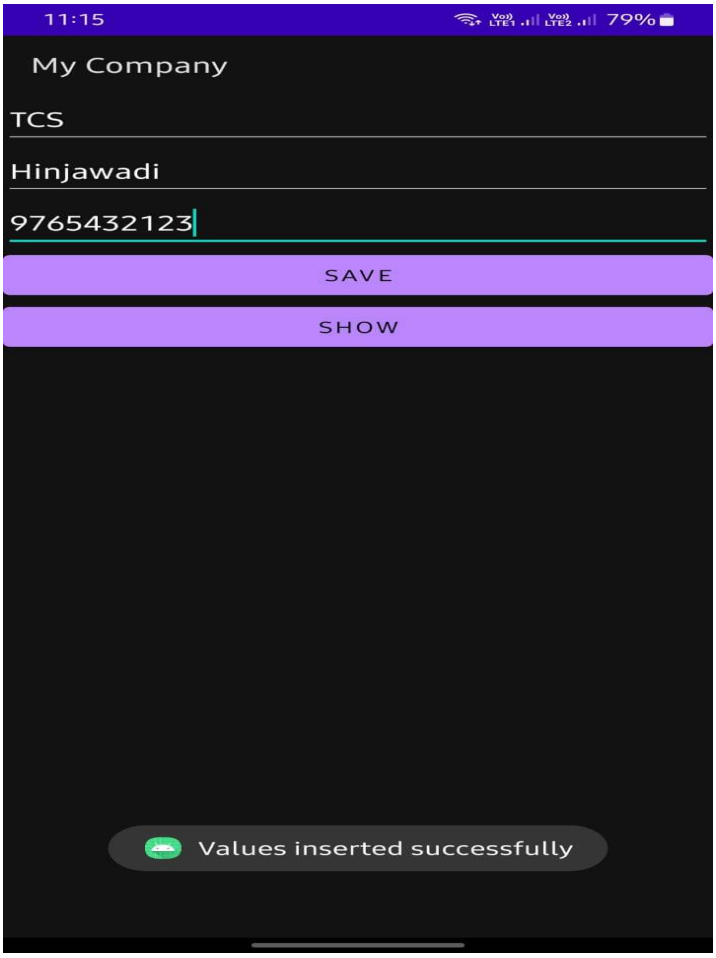
## MyDB.java

```
package com.example.mycompany;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.util.Log;

import java.util.ArrayList;

class MyDB extends SQLiteOpenHelper {
    String dbname = "company";
    public MyDB(Context c, String dbname, SQLiteDatabase.CursorFactory cf, int
version){
        super(c, dbname, cf, version);
    }
```

```
@Override public  void onCreate(SQLiteDatabase db){
   db.execSQL("create table company(cname text, caddr text, cphone text)");
}

@Override
public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

}

public long addDetails(String name, String addr, String contact){
   ContentValues cv = new ContentValues();
   cv.put("cname", name);
   cv.put("caddr", addr);
   cv.put("cphone", contact);
   SQLiteDatabase db = this.getWritableDatabase();
   long ret = db.insert("company", null, cv);
   return ret;
}

public ArrayList<Company> getDetails(){
   String sql = "select * from customer";
   SQLiteDatabase db = this.getReadableDatabase();
   ArrayList<Company> clist =new ArrayList();
   Cursor c = db.rawQuery(sql, null);
   if(c.getCount()>0){
      c.moveToFirst();
      do{
         String name = c.getString(c.getColumnIndexOrThrow("cname"));
         String addr= c.getString(c.getColumnIndexOrThrow("caddr"));
         String contact = c.getString(c.getColumnIndexOrThrow("cphone"));
         String val = name + " " + addr + " " + contact;

         Company c1 = new Company(name, addr, contact);
         Log.d("Company=",c1.toString());
         clist.add(c1);
      }while(c.moveToNext());
```

```
        }
        return clist;
    }

}
```

**OUTPUT:**



SLIP 14
Q1.
A) Construct an Android app that toggles a light bulb on and off when the user clicks on toggle button.

## Activity_main.xml

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

   <ToggleButton
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:id="@+id/toggle"
      android:textOff="power off"
      android:textOn="power on"
      android:drawableStart="@drawable/selector"
      android:layout_marginTop="40dp"/>

   <ImageView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:id="@+id/imageView"
      android:layout_marginTop="20dp"/>


</LinearLayout>
```

## Selector.xml

```
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
   <item android:state_checked="true" android:drawable="@drawable/img_1"/>
```

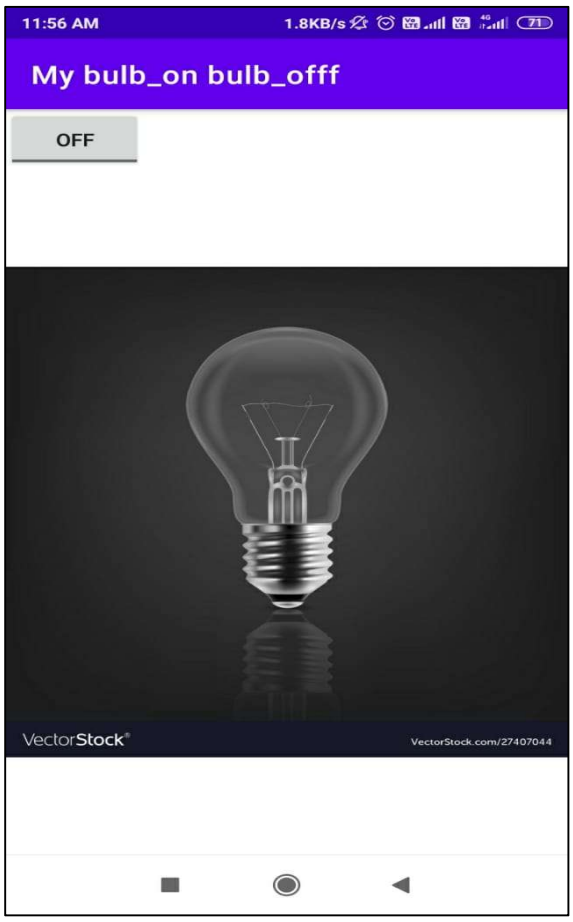
```
   <item android:state_checked="false" android:drawable="@drawable/img"/>
</selector>
```

## MainActivity.java

```
package com.example.mybulb;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.ToggleButton;
public class MainActivity extends AppCompatActivity {
   ToggleButton toggleButton;
   ImageView imageView;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      toggleButton=findViewById(R.id.toggle);
      imageView=findViewById(R.id.imageView);


imageView.setImageDrawable(getResources().getDrawable(R.drawable.img));


      toggleButton.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            if (toggleButton.isChecked()) {

imageView.setImageDrawable(getResources().getDrawable(R.drawable.img));
            }
            else {

imageView.setImageDrawable(getResources().getDrawable(R.drawable.img_1));
            }
```

```
        }
    });
  }
}
```

**OUTPUT:**


11:56 AM
1.8KB/s
My bulb_on bulb_offf
OFF
VectorStock®
VectorStock.com/27407044


11:56 AM
2.0KB/s
My bulb_on bulb_offf
ON

B) Construct an Android application to accept a number and calculate Armstrong and Perfect number of a given number using Menu.

## 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"
   tools:context=".MainActivity">
   <EditText
      android:layout_marginTop="200dp"
      android:layout_marginLeft="50dp"
      android:layout_width="200dp"
      android:layout_height="50dp"
      android:id="@+id/et"
      android:hint="Enter a number"/>
</LinearLayout>
```

## MainActivity.java

```
package com.example.myarmstrongperfect;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
   int num;
   String value;
   EditText et;
```

```
  @Override
  protected void onCreate(Bundle savedInstanceState) {
     super.onCreate(savedInstanceState);
     setContentView(R.layout.activity_main);
  }
  @Override
  public boolean onCreateOptionsMenu(Menu menu) {
     //return super.onCreateOptionsMenu(menu);
     MenuInflater mi = getMenuInflater();
     mi.inflate(R.menu.mymenu, menu);
     return  true;
  }
  @Override
  public boolean onOptionsItemSelected(@NonNull MenuItem item) {
     //return super.onOptionsItemSelected(item);
     et=(EditText) findViewById(R.id.et);
     value= et.getText().toString();
     if(!value.isEmpty()){
        try{
           num = Integer.parseInt(value);
           int id;
           id= item.getItemId();
           int t=num;
           switch(id){
              case R.id.perfect:int ans=0;
                 int div=1;
                 while(div<t){
                    if (t%div==0)
                       ans=ans + div;
                    div++;
                 }
                 if(ans==num)
                    Toast.makeText(getApplicationContext(), "Number "+ num+ " is
perfect", Toast.LENGTH_SHORT).show();
                 else
                    Toast.makeText(getApplicationContext(), "Number "+ num+ " is
not perfect", Toast.LENGTH_SHORT).show();
```

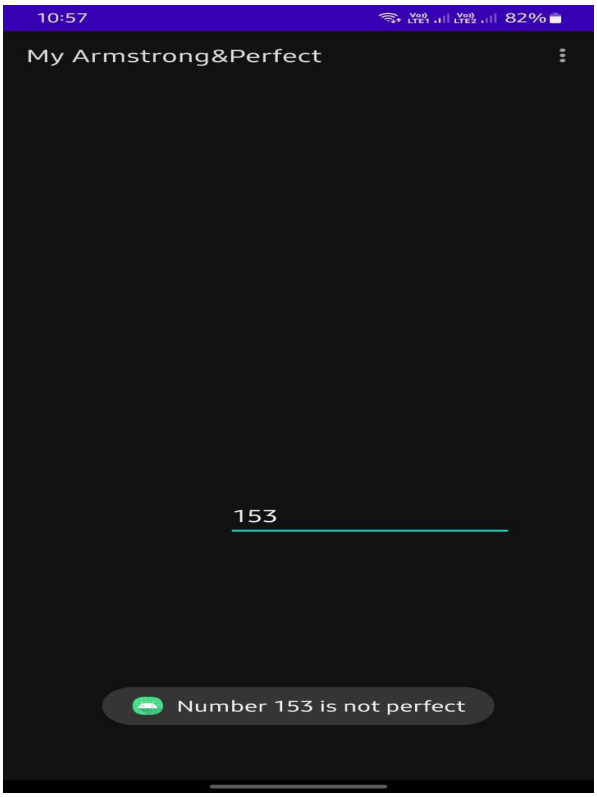
```
                break;
            case R.id.arms:ans=0;
                while(t>0){
                    int rem = t%10;
                    ans += Math.pow(rem, 3);
                    t=t/10;
                }
                if(ans==num)
                    Toast.makeText(this, "Number "+ num + " is an armstrong
number", Toast.LENGTH_SHORT).show();
                else
                    Toast.makeText(this, "Number "+ num + " is not an armstrong
number", Toast.LENGTH_SHORT).show();
                break;
            }

        }
        catch (NumberFormatException ne){
            Log.e("Error", ""+ne.getMessage());
        }
    }
    return true;
  }
}
```

## Mymenu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
  <item android:id="@+id/perfect"
    android:title="Perfect" />

  <item android:id="@+id/arms"
    android:title="Armstrong" />
</menu>
```

## OUTPUT:


10:57
82%
My Armstrong&Perfec
Perfect
Armstrong
Enter a number


10:57
82%
My Armstrong&Perfect
153
Number 153 is not perfect


17:46
96%
My Armstrong&Perfect
153
Number 153 is an armstrong number

SLIP 15

Q1.

A) Write an Android code to merge given two Array/List

## Activity_main.xml

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

   <TableRow >

      <TextView

         android:layout_width="match_parent"
         android:layout_height="100dp"
         android:text="list 1"
         android:textAlignment="center" />

      <EditText
         android:id="@+id/et1"
         android:layout_width="375dp"
         android:layout_height="match_parent"

         android:textAlignment="center" />
   </TableRow>

   <TableRow >

      <TextView

         android:layout_width="100dp"
         android:layout_height="50dp"
         android:text="list 2"
         android:textAlignment="center" />
```

```
    <EditText
        android:id="@+id/et3"
        android:layout_width="match_parent"
        android:layout_height="100dp"

        android:textAlignment="center" />
  </TableRow>
  <TableRow >

    <TextView

        android:layout_width="100dp"
        android:layout_height="50dp"
        android:text="list 3"
        android:textAlignment="center" />
    <EditText
        android:id="@+id/et2"
        android:layout_width="match_parent"
        android:layout_height="100dp"

        android:textAlignment="center" />
  </TableRow>
<Button
  android:id="@+id/btn"
  android:layout_height="50dp"
  android:layout_width="20dp"
  android:hint="merge"/>

</TableLayout>
```

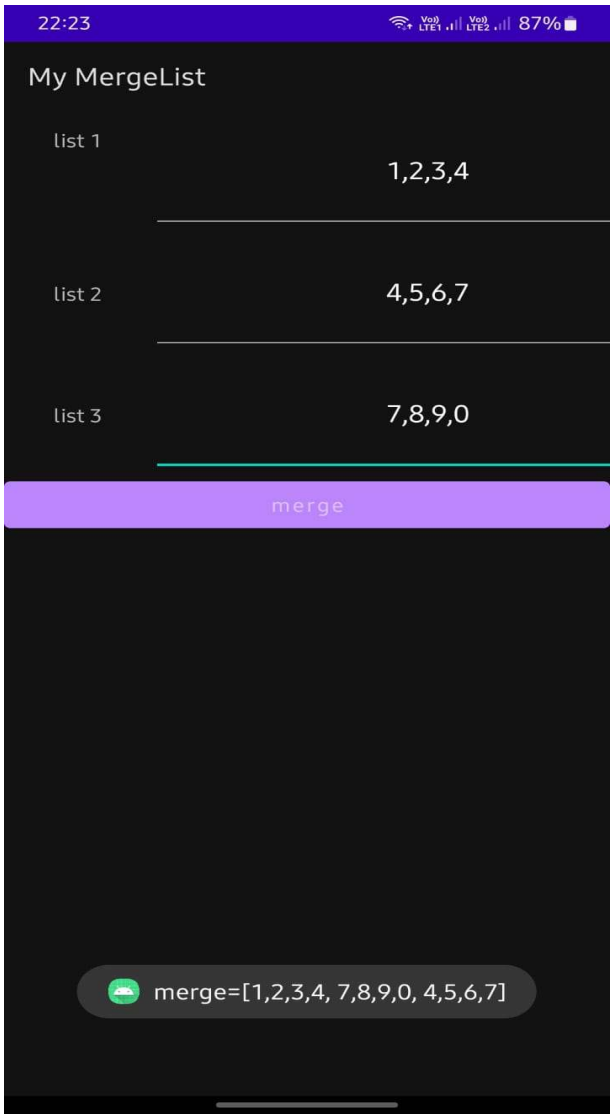
## MainActivity.java

```
package com.example.merge_list;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
```

```
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioGroup;
import android.widget.Toast;

import java.util.ArrayList;
import java.util.Collections;
import java.util.List;

public class MainActivity extends AppCompatActivity {
   EditText et1, et2,et3;
   Button btn;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      btn = (Button) findViewById(R.id.btn);
      btn.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            et1 = (EditText) findViewById(R.id.et1);
            et2 = (EditText) findViewById(R.id.et2);
            et3 = (EditText) findViewById(R.id.et3);


            String ss1 = et1.getText().toString();
            String ss2 = et2.getText().toString();
            String ss3 = et3.getText().toString();

            List<String> l1 = new ArrayList<String>(Collections.singleton(ss1));
            List<String> l2 = new ArrayList<String>(Collections.singleton(ss2));
            List<String> l3 = new ArrayList<String>(Collections.singleton(ss3));

            List<String> l = new ArrayList<String>();
            l1.addAll(l2);
            l1.addAll(l3);
```

```
            Toast.makeText(MainActivity.this, "merge=" + l1.toString(),
Toast.LENGTH_SHORT).show();
        }
    });
  }
}
```

**OUTPUT:**



B) Write an Android Application to send Email.

## Activity_main.xml

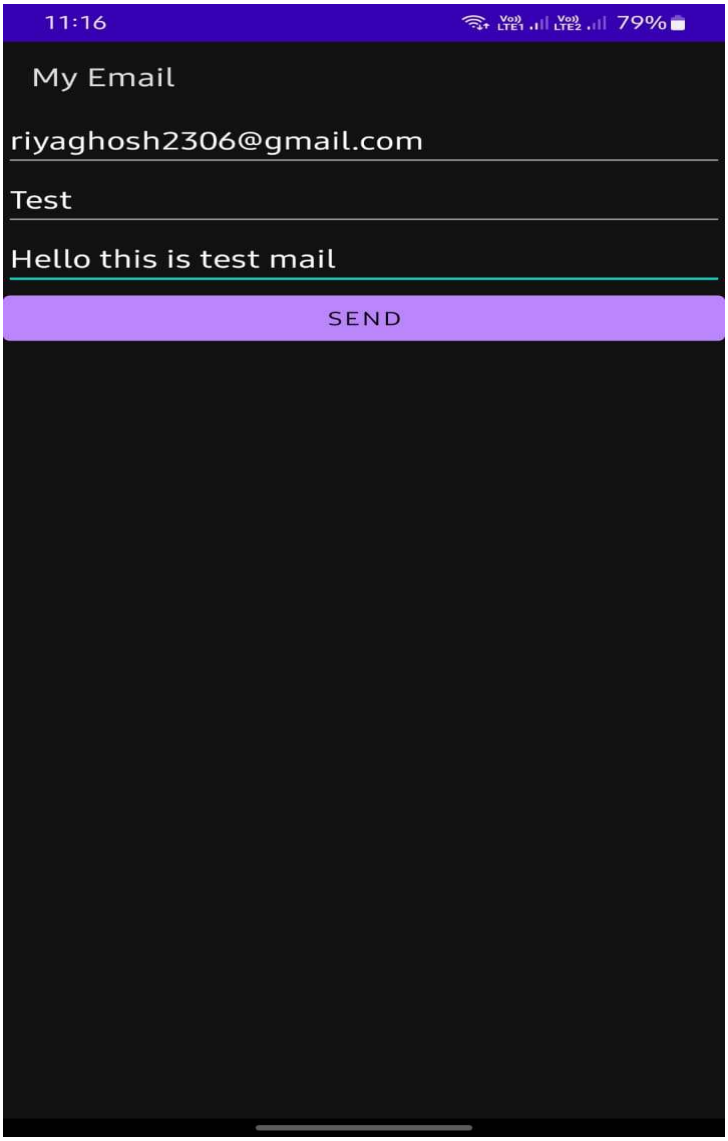
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
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

   <EditText
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:id="@+id/to"
      android:hint="to"/>
   <EditText
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:id="@+id/sub"
      android:hint="sub"/>
   <EditText
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:id="@+id/msg"
      android:hint="msg"/>
   <Button
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:id="@+id/send"
      android:text="Send"/>
</LinearLayout>
```

## MainActivity.java

```
package com.example.myemail;

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,etmessage,etsubject;
   Button btsend;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      etto=findViewById(R.id.to);
      etmessage=findViewById(R.id.msg);
      etsubject=findViewById(R.id.sub);
      btsend=findViewById(R.id.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);

         }
      });
   }
}
```

**OUTPUT:**


11:16
79%
My Email
riyaghosh2306@gmail.com
Test
Hello this is test mail
SEND

SLIP 16

Q1.A) Create a Simple Android Application Which Send —Hello‖ message from one activity to another with help of Button (Use Intent).

## Activitymain.xml

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

   <EditText
      android:id="@+id/send_text_id"
      android:layout_width="300dp"
      android:layout_height="wrap_content"
      android:textSize="25dp"
      android:hint="Input"
      android:textStyle="bold"
      android:layout_marginTop="20dp"
      android:layout_marginLeft="40dp"/>
   <Button
      android:id="@+id/send_button_id"
      android:layout_width="wrap_content"
      android:layout_height="40dp"
      android:text="send"
      android:textStyle="bold"
      android:layout_marginTop="150dp"
      android:layout_marginLeft="150dp"/>

</RelativeLayout>
```

## Mainactivity.java

```
package com.example.myhello_intent;

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

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

public class MainActivity extends AppCompatActivity {
   Button send_button;
   EditText send_text;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      send_button = (Button)findViewById(R.id.send_button_id);
      send_text = (EditText)findViewById(R.id.send_text_id);
      send_button.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v)
         {

            String str = send_text.getText().toString();

            Intent intent = new Intent(getApplicationContext(), SecondActivity.class);

            intent.putExtra("message_key", str);

            startActivity(intent);
         }
      });
   }
}
```

## Activitysecond.xml

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

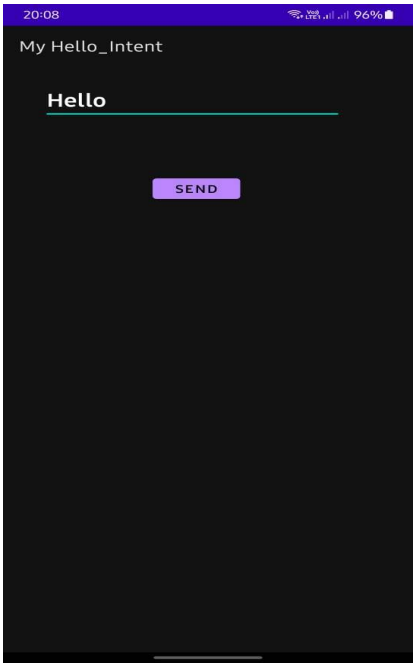
```
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".SecondActivity">
    <TextView
        android:id="@+id/received_value_id"
        android:layout_width="300dp"
        android:layout_height="50dp"
        android:textStyle="bold"
        android:textSize="40dp"
        android:layout_marginTop="20dp"
        android:layout_marginLeft="40dp"/>

</RelativeLayout>
```

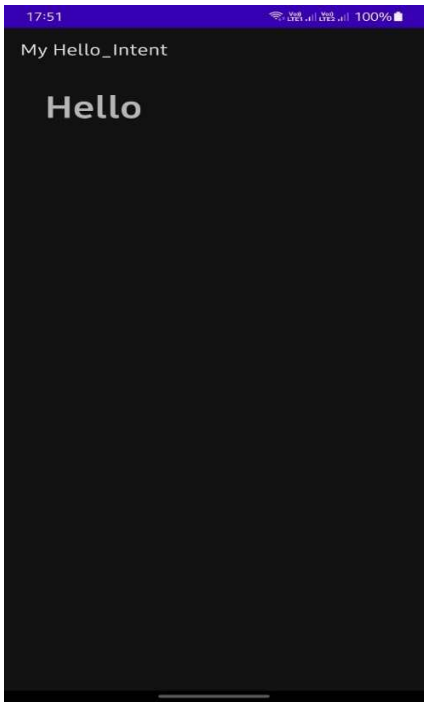
## SecondActivity.java

```
package com.example.myhello_intent;

import androidx.appcompat.app.AppCompatActivity;

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

public class SecondActivity extends AppCompatActivity {

    TextView receiver_msg;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second_activity);
        receiver_msg = (TextView)findViewById(R.id.received_value_id);

        Intent intent = getIntent();

        String str = intent.getStringExtra("message_key");
```

```
        receiver_msg.setText(str);
    }
}
```

**OUTPUT:**

B) 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.

## Activity_main.xml

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

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

   <TableRow>
      <EditText
         android:id="@+id/msg"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:hint="Massage" />
   </TableRow>

   <TableRow>
      <TextView
         android:id="@+id/con"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:text="Concatinate display here" />
```

```
</TableRow>

<TableRow>
  <RadioButton
    android:id="@+id/font"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Font"/>
</TableRow>

<TableRow>
  <RadioButton
    android:id="@+id/style"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Style"/>
</TableRow>

<TableRow>
  <CheckBox
    android:id="@+id/bold"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Bold"/>
</TableRow>

<TableRow>
  <CheckBox
    android:id="@+id/italic"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Italic"/>
</TableRow>

<TableRow>
  <CheckBox
    android:id="@+id/underline"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Underline"/>
    </TableRow>

    <TableRow>
      <RadioButton
        android:id="@+id/color"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Change Color"/>
    </TableRow>

    <TableRow>
      <Button
        android:id="@+id/display"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Display" />
    </TableRow>

    <TableRow>
      <Button
        android:id="@+id/clear"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Clear" />
    </TableRow>

    <TableRow>
      <Button
        android:id="@+id/exit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Exit" />
    </TableRow>
</TableLayout>
```

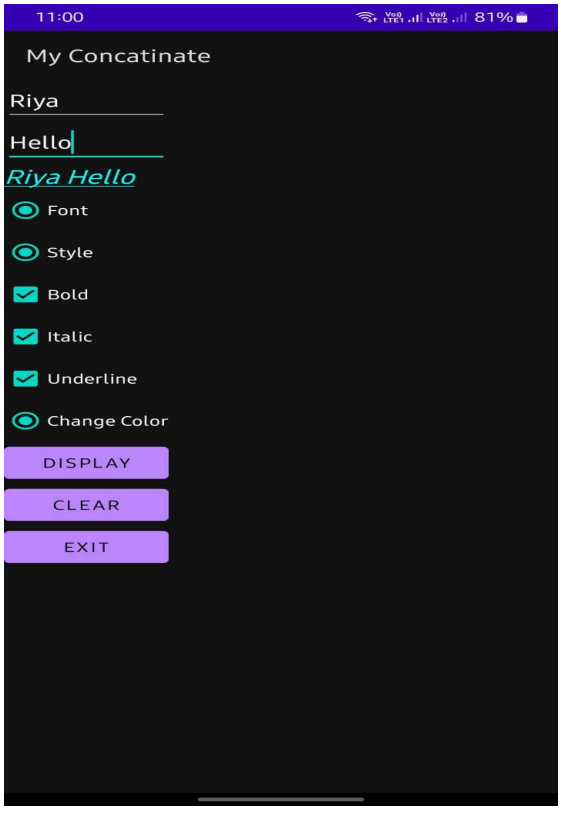
## MainActivity.java

```
package com.example.myconcatinate;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.Typeface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
   EditText name,msg;
   TextView con;
   Button display,clear,exit;
   RadioButton font,style,color;
   CheckBox bold,italic,underline;

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

      name=(EditText) findViewById(R.id.name);
      msg=(EditText) findViewById(R.id.msg);
      con=(TextView) findViewById(R.id.con);
      display = (Button) findViewById(R.id.display);
      clear = (Button) findViewById(R.id.clear);
      exit = (Button) findViewById(R.id.exit);
      font = (RadioButton) findViewById(R.id.font);
      style = (RadioButton) findViewById(R.id.style);
```

```
color = (RadioButton) findViewById(R.id.color);
bold = (CheckBox) findViewById(R.id.bold);
italic = (CheckBox) findViewById(R.id.italic);
underline = (CheckBox) findViewById(R.id.underline);

display.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View view) {
      String c=name.getText().toString()+" "+msg.getText().toString();
      con.setText(c);
      con.setTypeface(null, Typeface.BOLD);
      con.setTextSize(20);
   }
});

clear.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View view) {
      name.setText(" ");
      msg.setText(" ");
   }
});

italic.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View view) {
      con.setTypeface(null, Typeface.ITALIC);
   }
});
bold.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View view) {
      con.setTypeface(null, Typeface.BOLD);
   }
});
underline.setOnClickListener(new View.OnClickListener() {
   @Override
```

```
        public void onClick(View view) {
            con.setPaintFlags(con.getPaintFlags() | Paint.UNDERLINE_TEXT_FLAG);
        }
    });
    exit.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {

        }
    });

    color.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            con.setTextColor(Color.CYAN);
        }
    });
  }
}
```

**OUTPUT:**



SLIP 18
Q1.
A) Write an Android Program to Demonstrate Date Picker Dialog in Android.

## Activity_main.xml

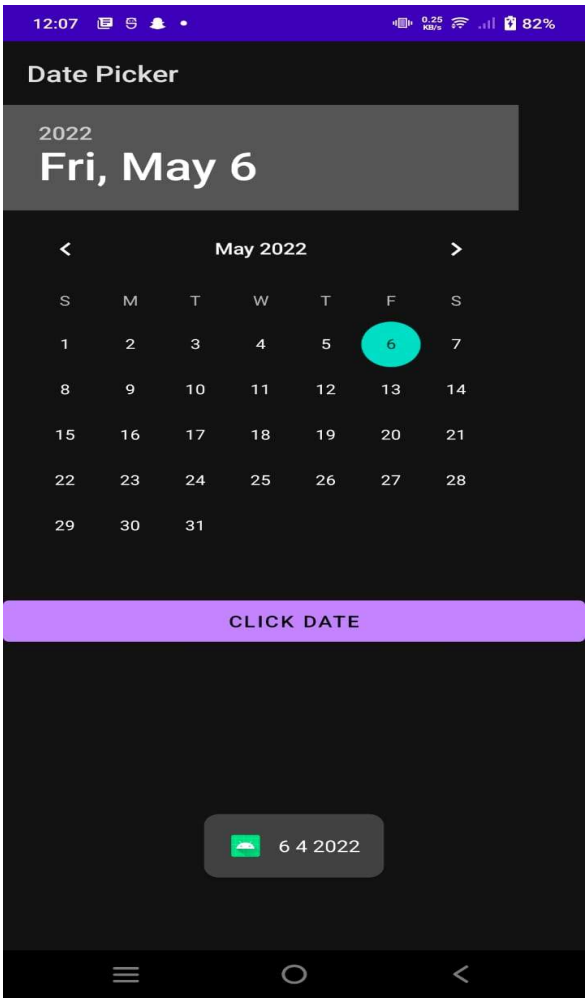
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
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

   <DatePicker
      android:id="@+id/dp"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content" />
   <Button
      android:id="@+id/b"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="click date"
      android:onClick="myclick"/>

</LinearLayout>
```

## MainActivity.java

```
package com.example.datepicker;

import androidx.appcompat.app.AppCompatActivity;

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

```
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        DatePicker dp=(DatePicker) findViewById(R.id.dp);

                String d=dp.getDayOfMonth()+" "+dp.getMonth()+" "+dp.getYear();
                Toast.makeText(getApplicationContext(), d,
Toast.LENGTH_LONG).show();


        }
    }
```

**OUTPUT:**



SLIP 19
Q1.
A) Create an Android application that will change color of the screen and change the font size of text view using xml.

## Activity_main.xml

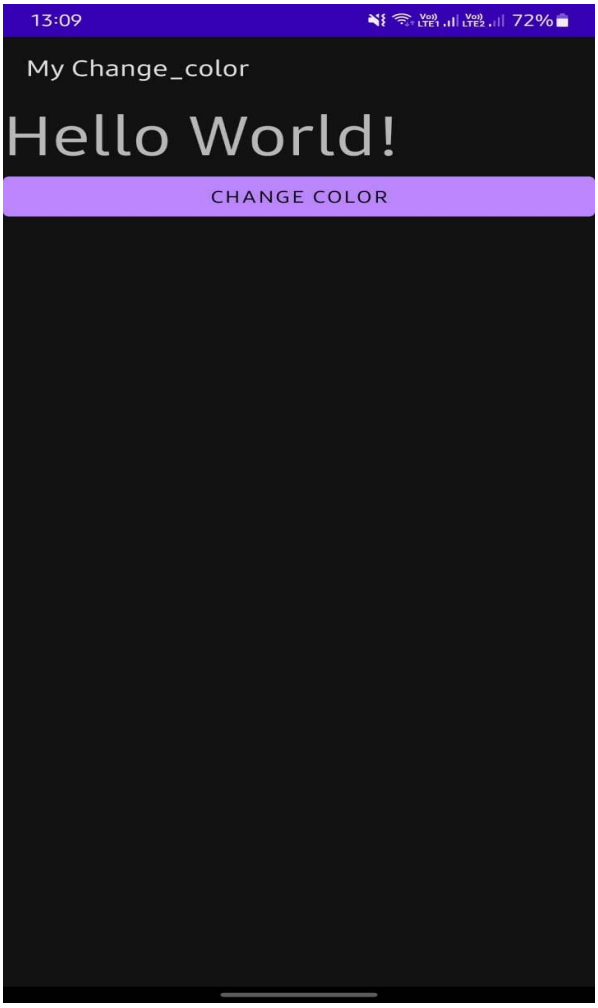
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
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

   <TextView
      android:id="@+id/tv"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Hello World!"
      android:textSize="50dp"/>
   <Button
      android:id="@+id/b"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Change Color"/>

</LinearLayout>
```

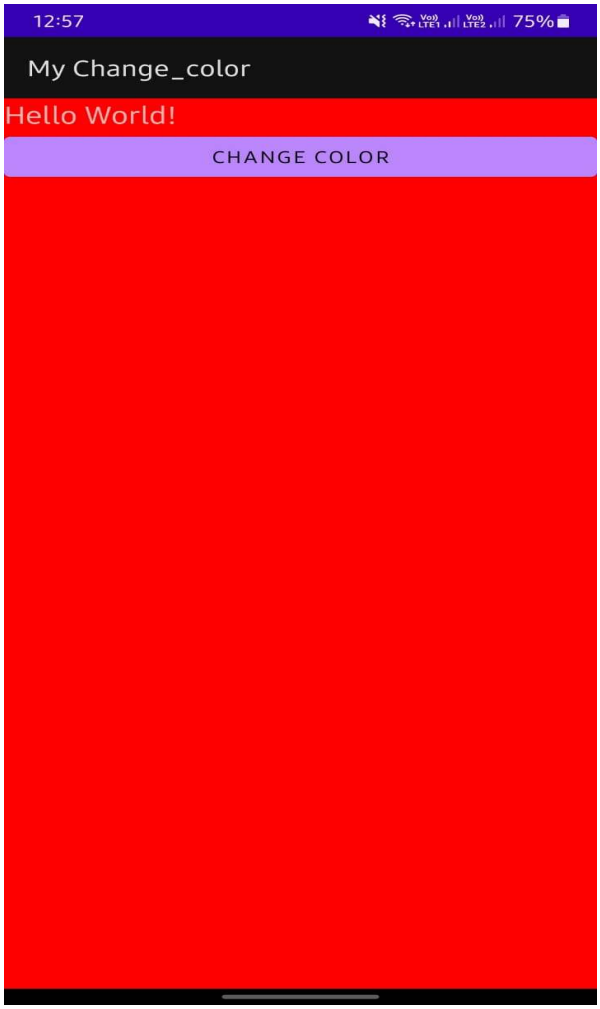
## MainActivity.java

```
package com.example.mychange_color;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
```

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

public class MainActivity extends AppCompatActivity {
   TextView tv;
   Button b1;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      tv=(TextView)findViewById(R.id.tv);
      b1=(Button)findViewById(R.id.b);

      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            tv.setTextSize(20);
            changecolor(Color.RED);
         }
      });
   }
   public void changecolor(int c)
   {
      View v=this.getWindow().getDecorView();
      v.setBackgroundColor(c);
   }

}
```

**OUTPUT:**


13:09
72%
My Change_color
Hello World!
CHANGE COLOR


12:57
75%
My Change_color
Hello World!
CHANGE COLOR

B) Create table Project(id,name,dept,city). Create Application to perform the following operations.(usingsqlite database)
i) Add records. ii) Display all the records.

## Activity_main.xml

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

   <EditText
      android:layout_width="match_parent"
      android:layout_height="50dp"
      android:id="@+id/pid"
      android:hint="Enter project id" />

   <EditText
      android:layout_width="match_parent"
      android:layout_height="50dp"
      android:id="@+id/name"
      android:hint="Enter project name" />

   <EditText
      android:layout_width="match_parent"
      android:layout_height="50dp"
      android:id="@+id/dept"
      android:hint="Enter project department" />

   <EditText
      android:layout_width="match_parent"
      android:layout_height="50dp"
      android:id="@+id/city"
      android:hint="Enter project city" />

   <Button
```

```
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:id="@+id/insert"
        android:text="INSERT" />

    <Button
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:id="@+id/save"
        android:text="SHOW" />

    <ListView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/lv" />
</LinearLayout>
```

## MainActivity.java

```
package com.example.database_project;

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.ListView;
import android.widget.Toast;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    Button insert, show;
    ListView lv;
    EditText et1, et2, et3, et4;
    @Override
```

```
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    insert = (Button) findViewById(R.id.insert);
    show = (Button) findViewById(R.id.save);
    ProjectDB projdb = new ProjectDB(this, "Project.db", null, 1);
    insert.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
        et1 = (EditText) findViewById(R.id.pid);
        et2 = (EditText) findViewById(R.id.name);
        et3 = (EditText) findViewById(R.id.dept);
        et4 = (EditText) findViewById(R.id.city);

        String pid = et1.getText().toString();
        String pname =et2.getText().toString();
        String dept = et3.getText().toString();
        String city = et4.getText().toString();

        long r= projdb.addDetails(pid, pname, dept, city);
        if(r>0){
          Toast.makeText(MainActivity.this, "Values inserted successfully",
Toast.LENGTH_SHORT).show();
        }
      }
    });

    show.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
        lv = (ListView) findViewById(R.id.lv);
        ArrayList<Project> l = projdb.getDetails();
        ArrayAdapter aa = new ArrayAdapter(getApplicationContext(),
android.R.layout.simple_list_item_1, l);
        lv.setAdapter(aa);
      }
    });
```

```
    }
}
```

## Projectdb.java

```
package com.example.database_project;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import java.util.ArrayList;

public class ProjectDB extends SQLiteOpenHelper {
    public ProjectDB(Context c, String dbname, SQLiteDatabase.CursorFactory cf,
int v){
        super(c, dbname, cf, v);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table project(pid varchar(30), pname text, dept text, city
text)");
    }

    long addDetails(String pid, String pname, String dept, String city){
        ContentValues cv = new ContentValues();
        cv.put("pid", pid);
        cv.put("pname", pname);
        cv.put("dept", dept);
        cv.put("city", city);
        SQLiteDatabase db = getWritableDatabase();
        long ret = db.insert("project", null, cv);
        return ret;
    }

    ArrayList<Project> getDetails(){
```

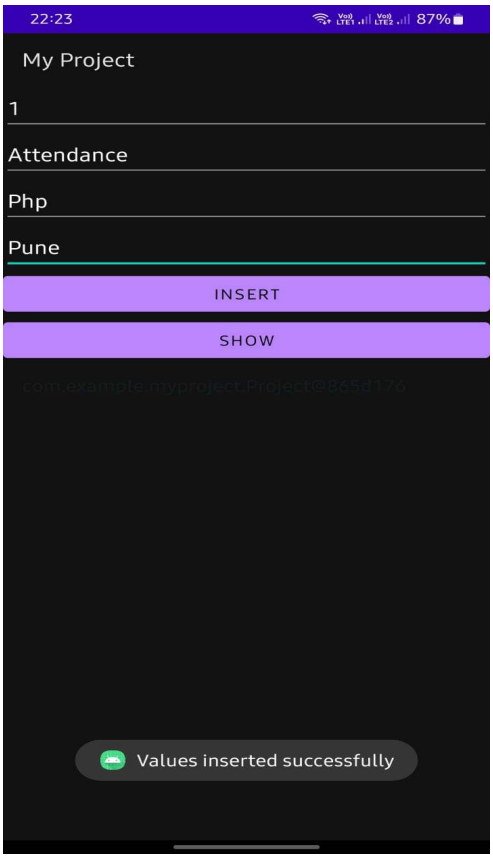
```
        String sql = "select * from project";
        SQLiteDatabase db = getReadableDatabase();
        ArrayList<Project> plist = new ArrayList<Project>();
        Cursor c = db.rawQuery(sql, null);
        if(c.getCount()>0){
            c.moveToFirst();
            do{
                String pid = c.getString(0);
                String pname = c.getString(1);
                String dept = c.getString(2);
                String city = c.getString(3);

                Project p1 = new Project(pid, pname, dept, city);
                plist.add(p1);
            }while(c.moveToNext());
        }
        return  plist;
    }
    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

    }
}
```

## Project.java

```
package com.example.database_project;

public class Project {
    String pid, pname, dept, city;

    public Project(String pid, String name, String dept, String city){
        this.pid = pid;
        this.pname = name;
        this.dept = dept;
        this.city = city;
    }
```

```
    public  String getPid(){
       return  this.pid;
    }

    public String getPname(){
       return  this.pname;
    }

    public String getDept(){
       return  this.dept;
    }
    public String getCity(){
       return  this.city;
    }
}
```

**OUTPUT:**



SLIP 20

Q1.A ) Write an Android 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.

## Activity_main.xml

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

   <EditText
      android:layout_width="150dp"
      android:layout_height="50dp"
      android:id="@+id/et1"
      android:hint="enter first number" />

   <EditText
      android:layout_width="150dp"
      android:layout_height="50dp"
      android:id="@+id/et2"
      android:hint="enter second number" />

   <TextView
      android:layout_width="150dp"
      android:layout_height="50dp"
      android:id="@+id/tv" />

   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="SHOW"
      android:id="@+id/b" />
```

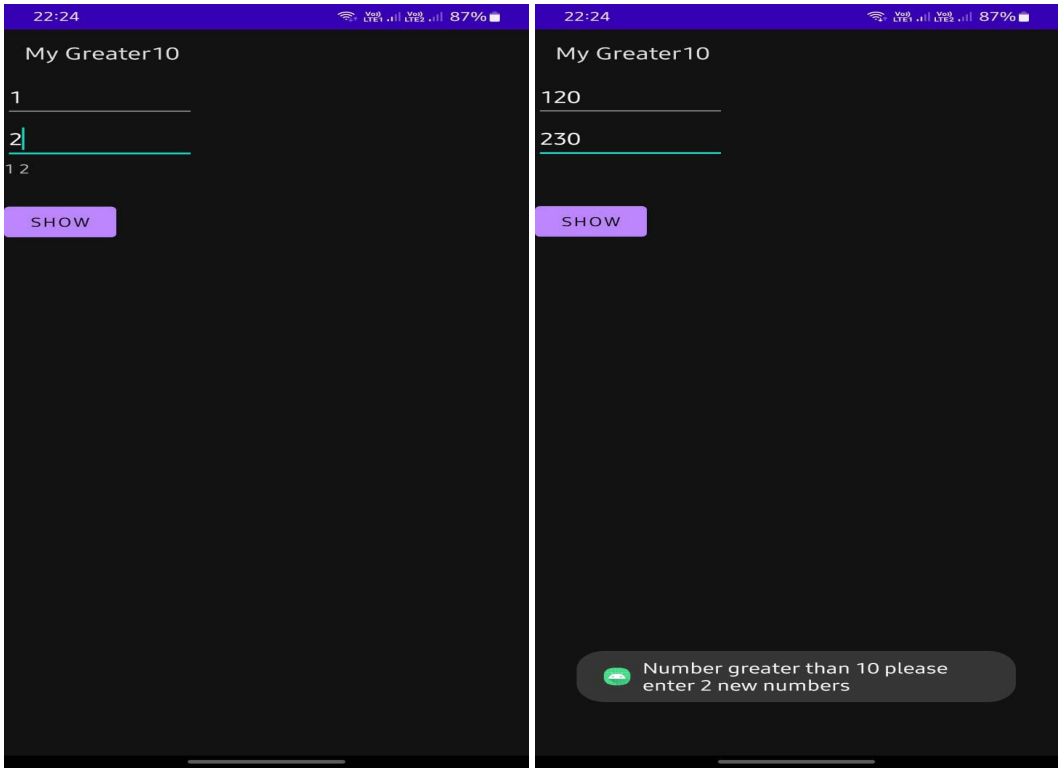
```
</LinearLayout>
```

## MainActivity.java

```
package com.example.compare;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
   Button b;
   TextView tv;
   EditText et1, et2;
   int n1, n2;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      b = (Button) findViewById(R.id.b);
      tv = (TextView) findViewById(R.id.tv);

      b.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            et1 = (EditText) findViewById(R.id.et1);
            et2 = (EditText) findViewById(R.id.et2);
            String num1 = et1.getText().toString();
            String num2= et2.getText().toString();

            try{
```

```
            n1 = Integer.parseInt(num1);
            n2 = Integer.parseInt(num2);

            if(n1>10 && n2>10){
               Toast.makeText(MainActivity.this, "Number greater than 10 please
enter 2 new numbers", Toast.LENGTH_SHORT).show();
            }
            else{
               tv.setText(num1 + " " + num2);
            }
         }
         catch (NumberFormatException ne){
            Log.d("error", "error");
         }
      }
   });
  }
}
```

**OUTPUT:**



B) Create the simple calculator shown below also perform appropriate operation.

## ActivityMain.xml

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

   <EditText
        android:id="@+id/et"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
      android:textSize="50dp"/>

   <TableRow>

      <Button
        android:id="@+id/b7"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:textSize="30dp"
        android:text="7" />

      <Button
        android:id="@+id/b8"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="8" />

      <Button
```

```
        android:id="@+id/b9"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="9" />

    <Button
        android:id="@+id/bDivide"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="50dp"
        android:layout_toRightOf="@+id/txtScreen"
        android:textSize="30dp"
        android:text="/" />
</TableRow>

    <TableRow>
        <Button
            android:id="@+id/b4"
            android:layout_width="80dp"
            android:layout_height="wrap_content"
            android:layout_marginLeft="20dp"
            android:textSize="30dp"
            android:text="4"/>
        <Button
            android:id="@+id/b5"
            android:layout_width="80dp"
            android:layout_height="wrap_content"
            android:layout_marginLeft="10dp"
            android:textSize="30dp"
            android:text="5" />
        <Button
            android:id="@+id/b6"
            android:layout_width="80dp"
            android:layout_height="wrap_content"
```

```
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="6" />
    <Button
        android:id="@+id/bMultiply"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="50dp"
        android:layout_toRightOf="@+id/btnDivide"
        android:textSize="30dp"
        android:text="*" />
</TableRow>

<TableRow>
    <Button
        android:id="@+id/b1"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:textSize="30dp"
        android:text="1" />
    <Button
        android:id="@+id/b2"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="2" />
    <Button
        android:id="@+id/b3"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="3" />
    <Button
```

```
        android:id="@+id/bSubtract"
        android:layout_width="90dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="50dp"
        android:layout_toRightOf="@+id/btnMultiply"
        android:textSize="30dp"
        android:text="-" />
    </TableRow>

    <TableRow>
      <Button
        android:id="@+id/bDot"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:textSize="30dp"
        android:text="." />
      <Button
        android:id="@+id/b0"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="0" />
      <Button
        android:id="@+id/bClear"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:textSize="30dp"
        android:text="C" />
      <Button
        android:id="@+id/bAdd"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
```

```
            android:layout_marginRight="50dp"
            android:layout_toRightOf="@+id/btnSubtract"
            android:textSize="30dp"
            android:text="+" />
        </TableRow>

        <Button
           android:id="@+id/bEqual"
           android:layout_width="400dp"
           android:layout_height="wrap_content"
           android:layout_marginTop="30dp"
           android:layout_marginLeft="20dp"
           android:layout_marginRight="10dp"
           android:textSize="30dp"
           android:text="=" />
</TableLayout>
```

## MainActivity.java

```
package com.example.mycalculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.text.Editable;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
   Button
b7,b8,b9,bdivide,b4,b5,b6,bmultiply,b1,b2,b3,bsubstract,b0,bdot,bclear,badd,be
qual;
   EditText et;
   Editable strn1;
   String strn2;
   int fdivide=0;
   int fadd=0;
```

```
int fsubstract=0;
int fmultiply=0;

@Override
protected void onCreate(Bundle savedInstanceState) {
   super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
   b7=(Button)findViewById(R.id.b7);
   b8=(Button)findViewById(R.id.b8);
   b9=(Button)findViewById(R.id.b9);
   bdivide=(Button)findViewById(R.id.bDivide);
   b4=(Button)findViewById(R.id.b4);
   b5=(Button)findViewById(R.id.b5);
   b6=(Button)findViewById(R.id.b6);
   bmultiply=(Button)findViewById(R.id.bMultiply);
   b1=(Button)findViewById(R.id.b1);
   b2=(Button)findViewById(R.id.b2);
   b3=(Button)findViewById(R.id.b3);
   bsubstract=(Button)findViewById(R.id.bSubtract);
   b0=(Button)findViewById(R.id.b0);
   bdot=(Button)findViewById(R.id.bDot);
   bclear=(Button)findViewById(R.id.bClear);
   badd=(Button)findViewById(R.id.bAdd);
   bequal=(Button)findViewById(R.id.bEqual);
   et=(EditText)findViewById(R.id.et);
   b7.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
         String s=et.getText()+" "+b7.getText();
         et.setText(s);
      }
   });
   b8.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
         String s=et.getText()+" "+b8.getText();
         et.setText(s);
```

```
    }
});
b9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String s=et.getText()+" "+b9.getText();
        et.setText(s);
    }
});
b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String s=et.getText()+" "+b4.getText();
        et.setText(s);
    }
});
b5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String s=et.getText()+" "+b5.getText();
        et.setText(s);
    }
});
b6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String s=et.getText()+" "+b6.getText();
        et.setText(s);
    }
});
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String s=et.getText()+" "+b1.getText();
        et.setText(s);
    }
});
```

```
b2.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      String s=et.getText()+" "+b2.getText();
      et.setText(s);
   }
});
b3.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      String s=et.getText()+" "+b3.getText();
      et.setText(s);
   }
});
b0.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      String s=et.getText()+" "+b0.getText();
      et.setText(s);
   }
});
bdot.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      String s=et.getText()+" "+bdot.getText();
      et.setText(s);
   }
});
bclear.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      et.setText(" ");
   }
});
bdivide.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
```

```
        strn1=et.getText();
        et.setText(" ");
        fdivide=1;
    }
});
badd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        strn1=et.getText();
        et.setText(" ");
        fadd=1;
    }
});
bsubstract.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        strn1=et.getText();
        et.setText(" ");
        fsubstract=1;
    }
});
bmultiply.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        strn1=et.getText();
        et.setText(" ");
        fmultiply=1;
    }
});
bequal.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        float n=0;
        strn2 = et.getText().toString();
        float n1=Float.parseFloat(String.valueOf(strn1));
        float n2=Float.parseFloat(String.valueOf(strn2));
        if (fadd==1)
```

```
            {
               n=n1+n2;
            }
            if (fsubstract==1)
            {
               n=n1-n2;
            }
            if (fdivide==1)
            {
               n=n1/n2;
            }
            if (fmultiply==1)
            {
               n=n1*n2;
            }
            et.setText(" "+n);
         }
      });
   }
}
```

**OUTPUT:**