

Q1) Write a program for execution of android Life cycle

```
package com.example.lifecycle;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;
public class MainActivity extends AppCompatActivity {
    String msg = "Android : ";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(msg, "The onCreate() event");
    }
    /** Called when the activity is about to become
    visible. */
    @Override
    protected void onStart() {
        super.onStart();
        Log.d(msg, "The onStart() event");
    }
    /** Called when the activity has become visible. */
    @Override
    protected void onResume() {
        super.onResume();
        Log.d(msg, "The onResume() event");
    }
    /** Called when another activity is taking focus. */
    @Override
    protected void onPause() {
        super.onPause();
        Log.d(msg, "The onPause() event");
    }
    /** Called when the activity is no longer visible.
    */
    @Override
    protected void onStop() {
        super.onStop();
```

```
    Log.d(msg, "The onStop() event");
}
/** Called just before the activity is destroyed. */
@Override
public void onDestroy() {
    super.onDestroy();
    Log.d(msg, "The onDestroy() event");
}
}
```

- Q2) Create table Customer (id, name, address, phno). Create Application for Performing the following operation on the table.  
 (using sqlite database)
- Insert New CustomerDetails.
  - Show All the CustomerDetails

### Step 1: activity\_main.xml

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

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/etid"
        android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true"
        android:hint="Enter ID"
        />
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/etName"
        android:layout_below="@+id/etid"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignRight="@+id/etid"
        android:layout_alignEnd="@+id/etid"
        android:hint="Enter Name"
        />
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/etadd"
        android:layout_below="@+id/etName"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignRight="@+id/etName"
        android:layout_alignEnd="@+id/etName"
        android:hint="Enter Address"
        />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_"
        android:id="@+id/etphno"
        android:layout_below="@+id/etadd"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignRight="@+id/etadd"
        android:layout_alignEnd="@+id/etadd"
        android:hint="Enter Phone no"
        />
```

```

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Insert"

    android:onClick="addcustomer"
    android:id="@+id/btnSave"
    android:layout_centerVertical="true"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_marginLeft="41dp"
    android:layout_marginStart="41dp" />

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

    android:onClick="showcustomer"
    android:text="Show"
    android:id="@+id/btnShow"
    android:layout_centerVertical="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true" />

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

    android:onClick="findcustomer"
    android:text="Search"
    android:id="@+id/btnSearch"
    android:layout_centerVertical="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true" />

</RelativeLayout>

```

```

public class Customer {

    // fields

    private int CID;
    private String CName;
    private String Caddress;
    private String Cphno;

    // constructors
    public Customer(){}
    public Customer (int id, String name , String addr , String ph) {
        this.CID = id;
    }
}

```

```
this.CName = name;
this.Caddress= addr;
this.Cphno =
}
// properties
public void setID(int id) {
this.CID = id;
}
public int getID() {
return this.CID
}
public void setName(String name) {
this.CName = name;
}
public String getName() {
return this.CName;
}
public void setaddr(String addr) {
this.Caddress = addr;
}
public String getaddr() {
return this.Caddress;
}
public void setphno(String ph) {
this.Cphno = ph;
}
public String getphno() {
return this.Cphno;
}
}
```

```
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
```

```
import android.content.Context;
import android.content.ContentValues;
import android.database.Cursor;
```

```
public class MyDBHandler extends SQLiteOpenHelper {

    //information of database
    private static final int DATABASE_VERSION = 1;
    private static final String DATABASE_NAME = "CustDB.db";
    public static final String TABLE_NAME = "Customer";
    public static final String COLUMN_ID = "CID";
    public static final String COLUMN_NAME = "CName";
    public static final String COLUMN_ADDR = "Caddress";
    public static final String COLUMN_PH = "Cphno";

    //initialize the database
    public MyDBHandler(Context context, String name, SQLiteDatabase.CursorFactory factory, int version) {
        super(context, DATABASE_NAME, factory, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        String CREATE_TABLE = "CREATE TABLE " + TABLE_NAME + "(" + COLUMN_ID +
                " INTEGER PRIMARYKEY," + COLUMN_NAME + " TEXT," + COLUMN_ADDR + " TEXT," + COLUMN_PH +
                " TEXT )";
        db.execSQL(CREATE_TABLE);
    }

    @Override

    public void onUpgrade(SQLiteDatabase db, int i, int i1) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
        onCreate(db);
    }

    public String showHandler() {
```

```
String result = "";
String query = "Select*FROM" + TABLE_NAME;
SQLiteDatabase db = this.getWritableDatabase();
Cursor cursor = db.rawQuery(query, null);
while (cursor.moveToNext()) {
    int rs0 = cursor.getInt(0);
    String rs1 = cursor.getString(1);
    String rs2 = cursor.getString(2);
    String rs3 = cursor.getString(3);
    result = String.valueOf(rs0) + " " + rs1 + " " + rs2 + " " + rs3;
    System.getProperty("line.separator");

    cursor.close();
    db.close();
    return result;
}

public void addHandler(Customer cust) {
ContentValues values = new ContentValues();
values.put(COLUMN_ID, cust.getID());
values.put(COLUMN_NAME, cust.getName());
values.put(COLUMN_ADDR, cust.getaddr());
values.put(COLUMN_PH, cust.getphno());
SQLiteDatabase db = this.getWritableDatabase();
db.insert(TABLE_NAME, null, values);
db.close();
}
public String findHandler(int id)
{String result = "";
String query = "Select * FROM" + TABLE_NAME;
SQLiteDatabase db =this.getWritableDatabase();
Cursor cursor = db.rawQuery(query,null);
while (cursor.moveToNext()) {
    int rs0 = cursor.getInt(0);
    if(rs0==id) {
        String rs1 = cursor.getString(1);
        String rs2 = cursor.getString(2);
```

```

String rs3 = cursor.getString(3);
result = String.valueOf(rs0) + " " + rs1 + " " + rs2 + " " + rs3;
System.getProperty("line.separator");
}
cursor.close();
db.close();
return result;
}

}

```

```

import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    SQLiteDatabase database;
    EditText Id, Name, add, phno;
    Button Insertdatabtn, Showdatabtn, findbtn;

    TextView txt;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Id=(EditText) findViewById(R.id.etid);
        Name= (EditText) findViewById(R.id.etName);
        add= (EditText) findViewById(R.id.etadd);
        phno= (EditText) findViewById(R.id.etphno);
        Insertdatabtn= (Button) findViewById(R.id.btnSave);
        Showdatabtn= (Button) findViewById(R.id.btnShow);

        findbtn= (Button) findViewById(R.id.btnSearch);

    }

```

```

public void showcustomer(View view) {

```

```

MyDBHandler dbHandler = new MyDBHandler(this, null, null, 1);
txt.setText(dbHandler.showHanler());
etid.setText("");
etName.setText("");
etadd.setText("");
etphno.setText("");
}

public void addcustomer(View view) {
MyDBHandler dbHandler = new MyDBHandler(this, null, null, 1);
int id = Integer.parseInt(CID.getText().toString());
String name = CName.getText().toString();
String addr = Caddress.getText().toString();
String ph = Cphno.getText().toString();
Customer cust = new Customer(id, name,addr,ph);
dbHandler.addHandler(cust);
etid.setText("");
etName.setText("");
etadd.setText("");
etphno.setText("");
}

```

Toast.makeText(this, "Data Inserted Into Customer Database", Toast.LENGTH\_LONG).show();

```

}

public void findcustomer(View view) {
MyDBHandler dbHandler = new MyDBHandler(this, null, null, 1);
txt.setText( dbHandler.findHandler(Integer.parseInt(CID.getText().toString())));
etid.setText("");
etName.setText("");
etadd.setText("");
etphno.setText("");
Toast.makeText(this, "Record Find in Database", Toast.LENGTH_LONG).show();

}

```

}

Q3) JavaAndroidProgramtodemonstrateLoginFormwithvalidation.

```
<?xml version = "1.0" encoding = "utf-8"?>
<RelativeLayout xmlns:android =
"http://schemas.android.com/apk/res/android"
    xmlns:tools ="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height = "match_parent"
    android:paddingLeft=
"@dimen/activity_horizontal_margin"
    android:paddingRight =
"@dimen/activity_horizontal_margin"
    android:paddingTop =
"@dimen/activity_vertical_margin"
    android:paddingBottom =
"@dimen/activity_vertical_margin" tools:context =
".MainActivity">

<EditText
    android:layout_width = "wrap_content"
    android:layout_height = "wrap_content"
    android:id = "@+id/editText"
    android:hint = "Enter Name"
    android:focusable = "true"
    android:textColorHighlight = "#ff7eff15"
    android:textColorHint = "#ffff25e6"
    android:layout_marginTop = "46dp"
    android:layout_below = "@+id/imageView"
    android:layout_alignParentLeft = "true"
    android:layout_alignParentStart = "true"
    android:layout_alignParentRight ="true"
    android:layout_alignParentEnd = "true" />
```

```
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:inputType="textPassword"
    android:ems="10"
    android:id="@+id/editText2"
    android:layout_below="@+id/editText"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_alignRight="@+id/editText"
    android:layout_alignEnd="@+id/editText"
    android:textColorHint="#fffff299f"
    android:hint="Password" />

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Attempts Left:"
    android:id="@+id/textView2"
    android:layout_below="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:textSize="25dp" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="login"
    android:id="@+id/button"
    android:layout_alignParentBottom="true"
    android:layout_toLeftOf="@+id/textview"
    android:layout_toStartOf="@+id/textview" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Cancel"
    android:id="@+id/button2"
```

```
    android:layout_alignParentBottom="true"
    android:layout_toRightOf="@+id/textview"
    android:layout_toEndOf="@+id/textview" />
</RelativeLayout>
```

Following is the content of the modified main activity file **src/MainActivity.java**.

```
package com.example.sairamkrishna.myapplication;

import android.app.Activity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;

import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity {
    Button b1, b2;
    EditText ed1, ed2;

    TextView tx1;
    int counter = 3;

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

        b1 = (Button) findViewById(R.id.button);
        ed1 = (EditText) findViewById(R.id.editText);
        ed2 = (EditText) findViewById(R.id.editText2);

        b2 = (Button) findViewById(R.id.button2);
        tx1 = (TextView) findViewById(R.id.textView3);
```

```
tx1.setVisibility(View.GONE);

b1.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v) {
        if(ed1.getText().toString().equals("admin") &&
ed2.getText().toString().equals("admin")) {
            Toast.makeText(getApplicationContext(),
"Redirecting...",Toast.LENGTH_SHORT).show();
        }else{
            Toast.makeText(getApplicationContext(), "Wrong
Credentials",Toast.LENGTH_SHORT).show();
            tx1.setVisibility(View.VISIBLE);
            tx1.setBackgroundColor(Color.RED);
            counter--;
            tx1.setText(Integer.toString(counter));
            if(counter == 0) {
                b1.setEnabled(false);
            }
        }
    } );
}

b2.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v) {
        finish();
    }
});
```

} }

Q4) Create the simple calculator shown below also perform appropriate operation

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/relative1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/edt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/button1"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignEnd="@+id/button4"
        android:layout_alignRight="@+id/button4"
        android:layout_below="@+id/edt1"
        android:layout_marginTop="94dp"
        android:text="1" />

    <Button
        android:id="@+id/button2"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/button1"
        android:layout_toLeftOf="@+id/button3"
        android:layout_toStartOf="@+id/button3"
        android:text="2" />

    <Button
        android:id="@+id/button3"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/button2"
        android:layout_centerHorizontal="true"
        android:text="3" />

    <Button
        android:id="@+id/button4"
        style="?android:attr/buttonStyleSmall"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button1"
    android:layout_toLeftOf="@+id/button2"
    android:text="4" />

<Button
    android:id="@+id/button5"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/button4"
    android:layout_alignLeft="@+id/button2"
    android:layout_alignStart="@+id/button2"
    android:text="5" />

<Button
    android:id="@+id/button6"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button3"
    android:layout_alignStart="@+id/button3"
    android:layout_below="@+id/button3"
    android:text="6" />

<Button
    android:id="@+id/button7"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button4"
    android:layout_toLeftOf="@+id/button2"
    android:text="7" />

<Button
    android:id="@+id/button8"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button5"
    android:layout_alignStart="@+id/button5"
    android:layout_below="@+id/button5"
    android:text="8" />

<Button
    android:id="@+id/button9"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button6"
    android:layout_alignStart="@+id/button6"
```

```
    android:layout_below="@+id/button6"
    android:text="9" />

<Button
    android:id="@+id/buttonadd"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/edit1"
    android:layout_alignRight="@+id/edit1"
    android:layout_alignTop="@+id/button3"
    android:layout_marginLeft="46dp"
    android:layout_marginStart="46dp"
    android:layout_toRightOf="@+id/button3"
    android:text "+" />

<Button
    android:id="@+id/buttonsub"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonadd"
    android:layout_alignLeft="@+id/buttonadd"
    android:layout_alignRight="@+id/buttonadd"
    android:layout_alignStart="@+id/buttonadd"
    android:layout_below="@+id/buttonadd"
    android:text "-" />

<Button
    android:id="@+id/buttonmul"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/buttonsub"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignStart="@+id/buttonsub"
    android:layout_below="@+id/buttonsub"
    android:text "*" />

<Button
    android:id="@+id/button10"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button7"
    android:layout_toLeftOf="@+id/button2"
    android:text "." />

<Button
    android:id="@+id/button0"
    style="?android:attr/buttonStyleSmall"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button8"
        android:layout_alignStart="@+id/button8"
        android:layout_below="@+id/button8"
        android:text="0" />

<Button
    android:id="@+id/buttonC"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button9"
    android:layout_alignStart="@+id/button9"
    android:layout_below="@+id/button9"
    android:text="C" />

<Button
    android:id="@+id/buttonndiv"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonmul"
    android:layout_alignLeft="@+id/buttonmul"
    android:layout_alignRight="@+id/buttonmul"
    android:layout_alignStart="@+id/buttonmul"
    android:layout_below="@+id/buttonmul"
    android:text="/" />

<Button
    android:id="@+id/buttononeql"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonndiv"
    android:layout_alignLeft="@+id/button10"
    android:layout_alignRight="@+id/buttonndiv"
    android:layout_alignStart="@+id/button10"
    android:layout_below="@+id/button0"
    android:layout_marginTop="37dp"
    android:text="=" />

</RelativeLayout>

```

Following is the content of the modified main activity file **src/MMainActivity.java**.

```

package com.example.calculator;

import android.os.Bundle;
//import android.support.v4.app.AppCompatActivity;

```

```
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.app.Activity;

public class MainActivity extends Activity {

    Button button0, button1, button2, button3, button4, button5,
button6,
            button7, button8, button9, buttonAdd, buttonSub,
buttonDivision,
            buttonMul, button10, buttonC, buttonEqual;
EditText crunchifyEditText;

    float mValueOne,mValueTwo;

    boolean crunchifyAddition, mSubtract, crunchifyMultiplication,
crunchifyDivision;

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

        button0 = (Button) findViewById(R.id.button0);
        button1 = (Button) findViewById(R.id.button1);
        button2 = (Button) findViewById(R.id.button2);
        button3 = (Button) findViewById(R.id.button3);
        button4 = (Button) findViewById(R.id.button4);
        button5 = (Button) findViewById(R.id.button5);
        button6 = (Button) findViewById(R.id.button6);
        button7 = (Button) findViewById(R.id.button7);
        button8 = (Button) findViewById(R.id.button8);
        button9 = (Button) findViewById(R.id.button9);
        button10 = (Button) findViewById(R.id.button10);
        buttonAdd = (Button) findViewById(R.id.buttonadd);
        buttonSub = (Button) findViewById(R.id.buttonsub);
        buttonMul = (Button) findViewById(R.id.buttonmul);
        buttonDivision = (Button) findViewById(R.id.buttondiv);
        buttonC = (Button) findViewById(R.id.buttonC);
        buttonEqual = (Button) findViewById(R.id.buttoneql);
        crunchifyEditText = (EditText) findViewById(R.id.edt1);

        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                crunchifyEditText.setText(crunchifyEditText.getText()
+ "1");
            }
        });
    }
}
```

```
button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "2");
    }
});

button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "3");
    }
});

button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "4");
    }
});

button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "5");
    }
});

button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "6");
    }
});

button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "7");
    }
});

button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText())
});
```

```

+"8");
}
);

button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+"9");
    }
});

button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ "0");
    }
});

buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        if (crunchifyEditText == null) {
            crunchifyEditText.setText("");
        } else {
            mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
            crunchifyAddition = true;
            crunchifyEditText.setText(null);
        }
    }
});

buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
        mSubtract = true;
        crunchifyEditText.setText(null);
    }
});

buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
        crunchifyMultiplication = true;
        crunchifyEditText.setText(null);
    }
});

```

```

        }
    });

    buttonDivision.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
            crunchifyDivision = true;
            crunchifyEditText.setText(null);
        }
    });

    buttonEqual.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            mValueTwo =
Float.parseFloat(crunchifyEditText.getText() + "");

            if (crunchifyAddition == true) {
                crunchifyEditText.setText(mValueOne + mValueTwo +
"");
                crunchifyAddition = false;
            }

            if (mSubtract == true) {
                crunchifyEditText.setText(mValueOne - mValueTwo +
"");
                mSubtract = false;
            }

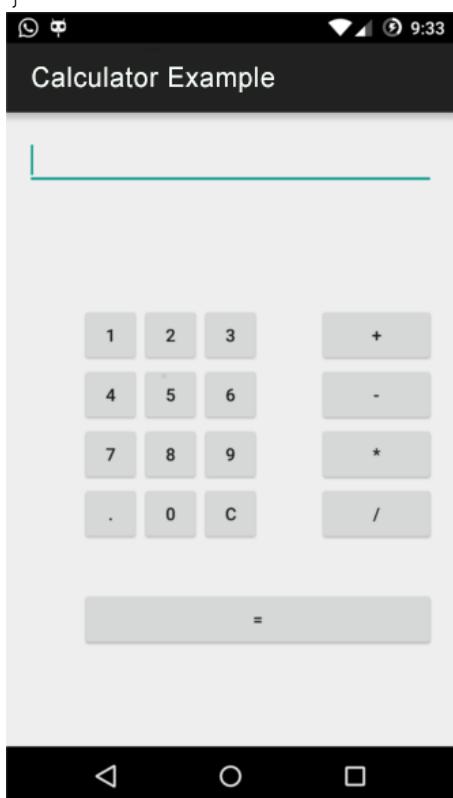
            if (crunchifyMultiplication == true) {
                crunchifyEditText.setText(mValueOne * mValueTwo +
"");
                crunchifyMultiplication = false;
            }

            if (crunchifyDivision == true) {
                crunchifyEditText.setText(mValueOne / mValueTwo +
"");
                crunchifyDivision = false;
            }
        }
    });

    buttonC.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            crunchifyEditText.setText("");
        }
    });
}

```

```
button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
+ ".");
    }
})
```



Q5) Construct a bank app to display different menu like windrow, depositetc.

### Activity main.xml

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

    <TextView
        android:id="@+id/text1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="6dp"
        android:layout_marginTop="6dp"
        android:layout_marginRight="6dp"
        android:layout_marginBottom="6dp"
        android:hint="Output"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/text2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="20dp"
        android:hint="Enter Amount"
        app:layout_constraintBottom_toBottomOf="@+id/text1"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

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

### Menu.xml

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

</menu>
```

### MainActivity.java

```
package com.example.menurun;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
```

```

import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.*;

public class MainActivity extends AppCompatActivity {
    TextView txt1;
    EditText txt2;
    int bal,amt;
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txt1 = (TextView) findViewById(R.id.text1);
        txt2 = (EditText) findViewById(R.id.text2);
        bal=10000;
        txt1.setText(" "+ bal);
    }

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

    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {

            case R.id.deposite:
                Toast.makeText(MainActivity.this,"Deposite selected",Toast.LENGTH_LONG).show();
                amt=Integer.parseInt(txt2.getText().toString());
                bal=bal+amt;
                txt1.setText(" "+ bal);
                returntrue;
            case R.id.withdrawal:
                Toast.makeText(MainActivity.this,"Withdrawal selected",Toast.LENGTH_LONG).show();
                amt=Integer.parseInt(txt2.getText().toString());
                if(amt>bal)
                    Toast.makeText(MainActivity.this,"You can not Withdrawal",Toast.LENGTH_LONG).show();
                else{
                    bal=bal-amt;
                    txt1.setText(" "+ bal);}

                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }
}

```

Q6) 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"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="20px"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/playertxt"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="30px"
        android:layout_marginStart="12dp"
        android:layout_marginLeft="12dp"
        android:layout_marginTop="12dp"
        android:layout_marginEnd="12dp"
        android:layout_marginRight="12dp"
        android:layout_marginBottom="12dp"
        android:hint="Name"
        app:layout_constraintBottom_toTopOf="@+id/pointstxt"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="MissingConstraints" />

    <EditText
        android:id="@+id/pointstxt"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="40px"
        android:layout_marginStart="15dp"
        android:layout_marginLeft="15dp"
        android:layout_marginTop="15dp"
        android:layout_marginEnd="15dp"
        android:layout_marginRight="15dp"
        android:layout_marginBottom="20dp"
        android:hint="point"
        app:layout_constraintBottom_toTopOf="@+id/submitbtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/playertxt"
        tools:ignore="MissingConstraints" />

    <Button
        android:id="@+id/submitbtn"
        android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="20dp"
        android:text="SUBMIT"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/pointstxt"
        tools:ignore="MissingConstraints" />
    </androidx.constraintlayout.widget.ConstraintLayout>

```

## Mainactivity.java

```

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.*;
import android.net.Uri;
public class MainActivity extends AppCompatActivity {

    EditText player;
    EditText points;
    Button submit;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        player = (EditText) findViewById(R.id.playertxt);
        points = (EditText) findViewById(R.id.pointstxt);
        submit = (Button) findViewById(R.id.submitbtn);

        submit.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                Intent i = new Intent(MainActivity.this, page2.class);
                String name = player.getText().toString();
                String num = points.getText().toString();
                i.putExtra("PlayerName",name );
                i.putExtra("score",num);
                startActivity(i);
            }
        });
    }
}

```

## page.xml

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

    <TextView
        android:id="@+id/playerdisplay"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20px"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginRight="8dp"
        android:layout_marginBottom="8dp"
        android:text="TextView"
        app:layout_constraintBottom_toTopOf="@+id/pointsdisplay"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <TextView
        android:id="@+id/pointsdisplay"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20px"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="16dp"
        android:layout_marginEnd="16dp"
        android:layout_marginRight="16dp"
        android:layout_marginBottom="16dp"
        android:text="TextView"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/playerdisplay" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

## Page2.java

```

import androidx.appcompat.app.AppCompatActivity;

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

public class page2 extends AppCompatActivity {
    TextView t1;
    TextView t2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.page);
        t1= (TextView) findViewById(R.id.playerdisplay);
        t2= (TextView) findViewById(R.id.pointsdisplay);
        Intent intent=getIntent();
        String value1 =intent.getStringExtra("PlayerName");
        String value2 =intent.getStringExtra("score");
        t1.setText(value1);
        t2.setText(value2);

    }
}

```

## AndroidManifest.xml:-

```

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".page2"/>
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category
                    android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>

```

## Q7) Program with radio button

```
<?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/edno"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:hint="enter no"
        android:textSize="20dp"
        android:textStyle="bold" />

    <!-- add RadioGroup which contain the many RadioButton-->
    <RadioGroup
        android:layout_marginTop="50dp"
        android:id="@+id/groupradio"
        android:layout_marginLeft="10dp"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content">

        <!-- In RadioGroup create the 1 Radio Button-->
        <!-- like this we will add some more Radio Button-->
        <RadioButton
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:id="@+id/radia_id1"
            android:text="Even or Odd"
            android:textSize="20dp"/>

        <RadioButton
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:id="@+id/radia_id2"
            android:text="Positive or Negative"
            android:textSize="20dp"/>

        <RadioButton
```

```
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:id="@+id/radia_id3"
        android:text="Square"
        android:textSize="20dp"/>

    <RadioButton
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:id="@+id/radia_id4"
        android:text="Factorial"
        android:textSize="20dp"/>
</RadioGroup>

<!-- add button For Submit the Selected item-->
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    android:id="@+id/submit"
    android:textStyle="bold"
    android:textSize="20dp"
    android:layout_marginTop="200dp"
    android:layout_marginLeft="180dp"
/>

<!-- add clear button for clear the selected item-->
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Clear"
    android:id="@+id/clear"
    android:textSize="20dp"
    android:textStyle="bold"
    android:layout_marginTop="200dp"
    android:layout_marginLeft="20dp"
/>

<TextView
    android:id="@+id/txtanswer"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="300dp"
    android:hint="Answer"
    android:textSize="20dp"
```

```
        android:textStyle="bold" />
</RelativeLayout>
```

### MainActivity.java:

```
import android.os.Bundle;

import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;
import android.view.View.OnClickListener;

public class MainActivity extends AppCompatActivity {

    private RadioGroup radioGroup;
    Button b1submit, b2clear;
    RadioButton r1;
    TextView txt;
    EditText ed1;
    int f =1,i;

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

        radioGroup = (RadioGroup) findViewById(R.id.groupradio);
        radioGroup.clearCheck();
        b1submit = (Button) findViewById(R.id.submit);
        txt = (TextView) findViewById(R.id.txtanswer);
        ed1 = (EditText) findViewById(R.id.edno) ;

        b2clear = (Button) findViewById(R.id.clear);

        b1submit.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {

                // get selected radio button from radioGroup
                int selectedId =
radioGroup.getCheckedRadioButtonId();
```

```

        String value1=ed1.getText().toString();
        int n=Integer.parseInt(value1);
        // find the radiobutton by returned id
        r1 = (RadioButton) findViewById(selectedId);

        Toast.makeText(MainActivity.this,r1.getText(),
        Toast.LENGTH_SHORT).show();
        if ( r1.getText().toString().equals("Even or
Odd")) {
            if(n %2 == 0) {
                txt.setText(String.valueOf(n+"      is
Even"));
            }else {
                txt.setText(String.valueOf(n+"      is
Odd"));
            }
        }
        if ( r1.getText().toString().equals("Positive or
Negative")) {
            if(n > 0) {
                txt.setText(String.valueOf(n+"      is
Positive"));
            }else {
                txt.setText(String.valueOf(n+"      is
Negative"));
            }
        }
        if ( r1.getText().toString().equals("Square")) {
            txt.setText(String.valueOf(n*n));
        }
        if (
r1.getText().toString().equals("Factorial")){
            for(i=1;i<=n;i++) {
                f=f*i;
            }

txt.setText(String.valueOf("Factorialis      "+f));
        }

    });

radioGroup.setOnCheckedChangeListener(new
RadioGroup.OnCheckedChangeListener() {
    @Override
    public void onCheckedChanged(RadioGroup group, int
checkedId) {
        RadioButton rb = (RadioButton)

```

```
group.findViewById(clickedId);
    if (null != rb && clickedId != -1) {
        Toast.makeText(MainActivity.this,
rb.getText(), Toast.LENGTH_SHORT).show();
    }

}
} );

}

public void onClear(View v) {
    /* Clears all selected radio buttons to default */
    radioGroup.clearCheck();
}

public void onSubmit(View v) {
    RadioButton rb = (RadioButton)
radioGroup.findViewById(radioGroup.getCheckedRadioButtonId());
    Toast.makeText(MainActivity.this, rb.getText(),
Toast.LENGTH_SHORT).show();
}
```

Q8)Construct a to accept a number and calculate Factorial and sum of digits of given number using the menu.

Activity\_main.xml

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

    <TextView
        android:id="@+id/text1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="6dp"
        android:layout_marginTop="6dp"
        android:layout_marginRight="6dp"
        android:layout_marginBottom="6dp"
        android:hint="Output"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <EditText
        android:id="@+id/text2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="20dp"
        android:hint="Enter Number"
        app:layout_constraintBottom_toBottomOf="@+id/text1"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Menu.xml

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

```
<item android:id="@+id/sumofdigit"
    android:title="Sum of Digit" />
<item android:id="@+id/factorial"
    android:title="Factorial"/>
</menu>
MainActivity.java
package com.example.menurun;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.*;

public class MainActivity extends AppCompatActivity {
    TextView txt1;
    EditText txt2;
    int r,n,i,f=1,sum=0;
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txt1 = (TextView) findViewById(R.id.text1);
        txt2 = (EditText) findViewById(R.id.text2);
    }
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu, menu);
        return true;
    }
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.sumofdig:
                Toast.makeText(MainActivity.this,"Sum of Digit selected",Toast.LENGTH_LONG).show();
                n=Integer.parseInt(txt2.getText().toString());
                While(n>0)
                {
                    r=n%10;
                    sum=sum+r;
                    n=n/10;
                }
                txt1.setText(" Sum of digit is "+ sum);
                return true;
        }
    }
}
```

```
case R.id.factorial:  
    Toast.makeText(MainActivity.this,"Factorial selected",Toast.LENGTH_LONG).show();  
  
    n=Integer.parseInt(txt2.getText().toString());  
    for(i=1;i<=n;i++)  
        f=f*i;  
    txt1.setText("Factorial is "+ f);}  
    return true;  
    default:  
        return super.onOptionsItemSelected(item);  
    }  
}
```

Q9) Construct a to accept a number and check the given number is Armstrong and Perfect using the menu.

Activity\_main.xml

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

    <TextView
        android:id="@+id/text1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="6dp"
        android:layout_marginTop="6dp"
        android:layout_marginRight="6dp"
        android:layout_marginBottom="6dp"
        android:hint="Output"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <EditText
        android:id="@+id/text2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="20dp"
        android:hint="Enter Number"
        app:layout_constraintBottom_toBottomOf="@+id/text1"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Menu.xml

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

```
<item android:id="@+id/Armstrong"
    android:title="Armstrong" />
<item android:id="@+id/Perfect"
    android:title="Perfect"/>
</menu>
MainActivity.java
package com.example.menurun;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.*;

public class MainActivity extends AppCompatActivity {
    TextView txt1;
    EditText txt2;
    int r,n,m,i,f=1,sum=0;
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txt1 = (TextView) findViewById(R.id.text1);
        txt2 = (EditText) findViewById(R.id.text2);
    }
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu, menu);
        return true;
    }
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.Armstrong:
                Toast.makeText(MainActivity.this,"Armstrong selected",Toast.LENGTH_LONG).show();
                n=Integer.parseInt(txt2.getText().toString());
                m=n;
                While(n>0)
                {
                    r=n%10;
                    sum=sum+(r*r*r);
                    n=n/10;
                }
                if(m==sum)
```

```
txt1.setText(sum+" is Armstrong number");
else
txt1.setText(sum+" is not Armstrong number");

return true;
case R.id.Perfect:
Toast.makeText(MainActivity.this,"Perfect selected",Toast.LENGTH_LONG).show();

n=Integer.parseInt(txt2.getText().toString());
for(i=1;i<n;i++)
{
if(n%i==0)
sum=sum+i;
}
if(n==sum)
txt1.setText(sum+" is Perfect number");
else
txt1.setText(sum+" is not Perfect number");

return true;
default:
return super.onOptionsItemSelected(item);
}
}
```

Q10) Write an Android Application to send Email.

**MainActivity.java:**

```
package com.example.sendemail;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    EditText editTextTo,editTextSubject,editTextMessage;
    Button send;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        editTextTo=(EditText)findViewById(R.id.editText1);
        editTextSubject=(EditText)findViewById(R.id.editText2);
        editTextMessage=(EditText)findViewById(R.id.editText3);

        send=(Button)findViewById(R.id.button1);

        send.setOnClickListener(new OnClickListener(){

            @Override
            public void onClick(View arg0) {
                String to=editTextTo.getText().toString();
                String subject=editTextSubject.getText().toString();
                String message=editTextMessage.getText().toString();

                Intent email = new Intent(Intent.ACTION_SEND);
                email.putExtra(Intent.EXTRA_EMAIL, new String[]{ to});
                email.putExtra(Intent.EXTRA_SUBJECT, subject);
                email.putExtra(Intent.EXTRA_TEXT, message);

                //need this to prompts email client only
                email.setType("message/rfc822");

                startActivity(Intent.createChooser(email, "Choose an Email client :"));

            }
        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
```

```

        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu, menu);
        return true;
    }

}

```

## android\_mail.xml

```

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

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginRight="22dp"
        android:layout_marginTop="16dp"
        android:ems="10" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/editText1"
        android:layout_below="@+id/editText1"
        android:layout_marginTop="18dp"
        android:ems="10" >

        <requestFocus />
    </EditText>

    <EditText
        android:id="@+id/editText3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/editText2"
        android:layout_below="@+id/editText2"
        android:layout_marginTop="28dp"
        android:ems="10"
        android:inputType="textMultiLine" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/editText1"

```

```
    android:layout_alignBottom="@+id/editText1"
    android:layout_alignParentLeft="true"
    android:text="To:" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText2"
    android:layout_alignBottom="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:text="Subject:" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText3"
    android:layout_alignBottom="@+id/editText3"
    android:layout_alignParentLeft="true"
    android:text="Message:" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText3"
    android:layout_below="@+id/editText3"
    android:layout_marginLeft="76dp"
    android:layout_marginTop="20dp"
    android:text="Send" />

</RelativeLayout>
```