Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2022), BSc. in CSE (Day)

LAB REPORT - 02

Course Title: Mobile Application Development Lab

Course Code: CSE-426 **Section:** PC-201 DB

Student Details

Name		Students Id
1.	Md. Romzan Alom	201902144

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Submission Date: 15-12-2022

Course Teacher's Name: Md. Shihab Hossain

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Lab Report Status	
Marks: ……	**Signature: ……**
Comments: ……	**Date: ……**

1. TITLE OF THE LAB EXPERIMENT

Design and Development of a Calculator Application.

2. OBJECTIVES/AIMS

- To develop the Calculator application in Android device.
- To perform simple addition operation.
- To perform simple subtraction operation.
- To perform simple multiplication operation.
- To perform simple division operation.
- To perform simple modulus operation.
- To create responsive components.

3. PROCEDURE / ANALYSIS / DESIGN

This experiment is mainly based on software. From this experiment we will try to create an application that use for calculating. This application name Calculator. It has 5 operations. They are addition, subtraction, multiplication, division and modulus. It has also 10 numbers (0 to 9), one reset button to clear data, one point button for floating number, one equal button to calculate answer. Now the working process,

1st we will need an EditText where we can write data. Next we chose one number (0 to 9) and store it an variable. Then we write an operation and next we take another number and finally we click equal button to show the result. If we remove any number or reset it then we can use reset button to clear it.

4. IMPLEMENTATION

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"
android:background="@android:color/holo_blue_bright">
<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:orientation="horizontal"
   android:paddingLeft="30dp"
   android:paddingRight="30dp"
   >
   <EditText
      android:layout_width="match_parent"
      android:layout_height="150dp"
      android:id="@+id/Et"
      android:hint="Enter your value"
      android:textAlignment="center"
```

```
        android:textSize="30dp"
        android:layout_marginTop="80dp"
        android:layout_marginBottom="50dp"
        android:background="@android:color/holo_red_light"
        />
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_margin="35dp"
    >
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginLeft="85dp"
        android:background="@android:color/darker_gray">>
        <Button
            android:layout_width="65dp"
            android:layout_height="65dp"
            android:id="@+id/buttonReset"
            android:text="AC"
            android:textSize="22dp"
            android:layout_marginHorizontal="10dp"

            />
        <Button
            android:layout_width="65dp"
            android:layout_height="65dp"
            android:id="@+id/buttonModule"
            android:text="%"
            android:textSize="22dp"
            android:layout_marginHorizontal="10dp"
            />
        <Button
            android:layout_width="65dp"
            android:layout_height="65dp"
            android:id="@+id/buttonDiv"
            android:text="/"
            android:textSize="22dp"
            android:layout_marginHorizontal="10dp"
            />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:background="@android:color/darker_gray">>
        <Button
            android:layout_width="65dp"
            android:layout_height="65dp"
```

```
        android:id="@+id/button7"
        android:text="7"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button8"
        android:text="8"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button9"
        android:text="9"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/buttonMul"
        android:text="*"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:background="@android:color/darker_gray">
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button4"
        android:text="4"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button5"
        android:text="5"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
```

```
        android:layout_height="65dp"
        android:id="@+id/button6"
        android:text="6"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/buttonAdd"
        android:text="+"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:background="@android:color/darker_gray">
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button1"
        android:text="1"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button2"
        android:text="2"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/button3"
        android:text="3"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
    <Button
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:id="@+id/buttonSub"
        android:text="-"
        android:textSize="22dp"
        android:layout_marginHorizontal="10dp"
        />
</LinearLayout>
```

```
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal"
            android:layout_marginLeft="85dp"
            android:background="@android:color/darker_gray">
            <Button
                android:layout_width="65dp"
                android:layout_height="65dp"
                android:id="@+id/button0"
                android:text="0"
                android:textSize="22dp"
                android:layout_marginHorizontal="10dp"
                />
            <Button
                android:layout_width="65dp"
                android:layout_height="65dp"
                android:id="@+id/buttonDot"
                android:text="."
                android:textSize="22dp"
                android:layout_marginHorizontal="10dp"
                />
            <Button
                android:layout_width="65dp"
                android:layout_height="65dp"
                android:id="@+id/buttonEql"
                android:text="="
                android:textSize="22dp"
                android:layout_marginHorizontal="10dp"
                />
        </LinearLayout>
    </LinearLayout>
</LinearLayout>
```

MainActivity.java:

```
package com.example.calculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
 Button
button0,button1,button2,button3,button4,button5,button6,button7,button8,button9;
Button
buttonReset,buttonModule,buttonDiv,buttonMul,buttonAdd,buttonSub,buttonDot,buttonEql;
    EditText Et;
    float ValueOne, ValueTwo, result;
    int result1,ValueOne1,ValueTwo2;
    boolean Addition, Subtract, Multiplication, Division,Module;
    @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);
buttonReset = (Button) findViewById(R.id.buttonReset);
buttonEql =  (Button) findViewById(R.id.buttonEql);
buttonModule =  (Button) findViewById(R.id.buttonModule);
buttonDiv =  (Button) findViewById(R.id.buttonDiv);
buttonAdd =  (Button) findViewById(R.id.buttonAdd);
buttonSub =  (Button) findViewById(R.id.buttonSub);
buttonDot =  (Button) findViewById(R.id.buttonDot);
buttonMul = (Button) findViewById(R.id.buttonMul);
Et = (EditText) findViewById(R.id.Et);
        button0.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
           Et.setText(Et.getText()+"0");
        }
        });
        button1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"1");
        }
        });
        button2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"2");
        }
        });
        button3.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"3");
        }
        });
        button4.setOnClickListener(new View.OnClickListener() {
         @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"4");
           }
        });
 button5.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"5");
        }
        });
        button6.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
        Et.setText(Et.getText()+"6");
       }
    });
          button7.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View view) {
            Et.setText(Et.getText()+"7");
        }
    });
    button8.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Et.setText(Et.getText()+"8");
        }
    });
    button9.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Et.setText(Et.getText()+"9");
        }
    });
    buttonReset.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Et.setText("");
        }
    });
    buttonDot.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Et.setText(Et.getText()+".");
        }
    });
    buttonAdd.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ValueOne = Float.parseFloat(Et.getText().toString());
            Addition = true;
            Et.setText(null);
        }
    });
    buttonSub.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ValueOne = Float.parseFloat(Et.getText().toString());
            Subtract = true;
            Et.setText(null);
        }
    });
    buttonMul.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ValueOne = Float.parseFloat(Et.getText().toString());
            Multiplication = true;
            Et.setText(null);
        }
    });
    buttonDiv.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ValueOne = Float.parseFloat(Et.getText().toString());
            Division = true;
            Et.setText(null);
        }
});
    buttonModule.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View view) {
            ValueOne = Float.parseFloat(Et.getText().toString());
            Module = true;
            Et.setText(null);
        }
    });
    buttonEql.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ValueTwo = Float.parseFloat(Et.getText().toString());
            if (Addition == true) {
                result = ValueOne + ValueTwo;
                Et.setText(String.valueOf(result));
                Addition = false;
            }
            if (Subtract == true){
                result = ValueOne - ValueTwo;
                Et.setText(String.valueOf(result));
               Subtract = false;
            }
            if (Multiplication == true){
                result = ValueOne * ValueTwo;
                Et.setText(String.valueOf(result));
                Multiplication = false;
            }
            if (Division == true){
                result = ValueOne / ValueTwo;
                Et.setText(String.valueOf(result));
                Division = false;
            }
            if (Module == true){
                ValueOne1 = (int) ValueOne;
                ValueTwo2 = (int) ValueTwo;
                result1 = ValueOne1 % ValueTwo2;
                Et.setText(String.valueOf(result1));
                Module = false;
            }
        }
    });
  }
}
```

5. TEST RESULT / OUTPUT

We we open the application then the 1st interface,

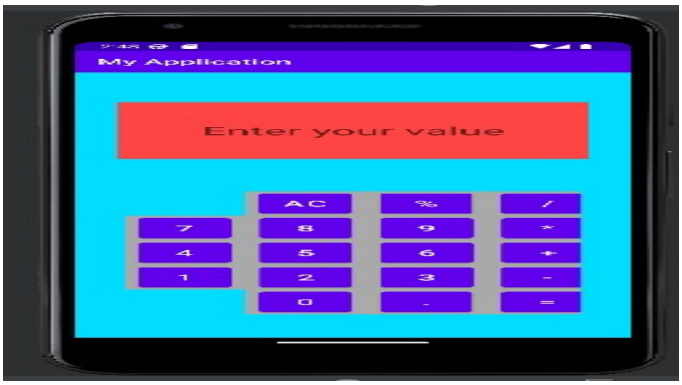

Figure_1: 1st interface

Figure_2: Click 7's button

Figure_3: Click 8's button

Figure_4: Addition

Figure_5: Subtraction

Figure_6: Division

Figure_7: Multiplication

Figure_6: Modulus

6. SUMMARY/ CONCLUSION

In this experiment we will try to create an application where we can calculate with two numbers. We can operate those two numbers like addition, subtraction, multiplication, division, modulus etc. That will help to calculate very easier and faster. That's why we can safe our time. In this experiment, the main hard part was how to make responsive all button and we face some problem of that point. We use some functions to design and modify activity page that's why components are oriented. In this experiment, we knew how to create a complete application and we can know about calculator where we operate some operations. That's why it experiment is very interesting and helpful for future.