

CYCLE-1

1.Design a Login Form with username and password using LinearLayout and toast valid credentials

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <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="UserName"
            android:id="@+id/username"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="password"
            android:id="@+id/password"
            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/login"/>
    </LinearLayout>
</android.support.constraint.ConstraintLayout>
```

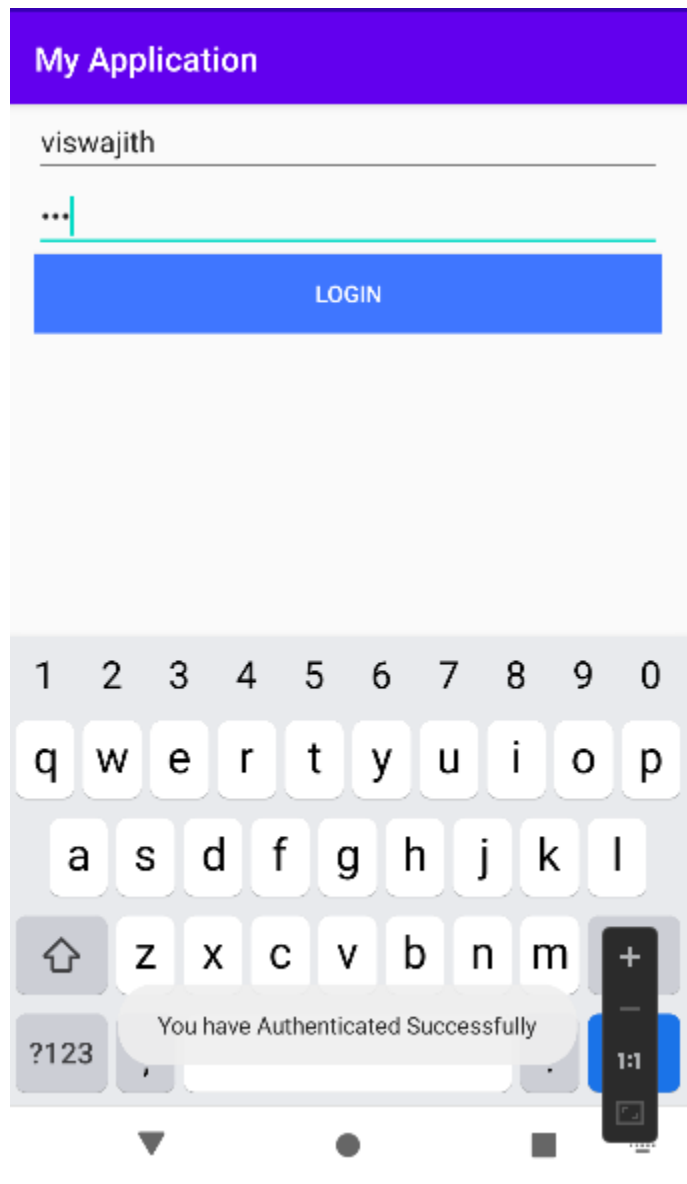
Java code:

```
package com.example.myapplication;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import java.util.Objects;

public class MainActivity extends AppCompatActivity {
    EditText username,password;
    Button login;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        username=findViewById(R.id.username);
        password=findViewById(R.id.password);
        login=findViewById(R.id.login);
        login.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(Objects.equals(username.getText().toString(),
"viswajith")&&Objects.equals(password.getText().toString(),"238"))
                {
                    Toast.makeText(MainActivity.this,"You have Authenticated
Successfully",Toast.LENGTH_LONG).show();
                }else
                {
                    Toast.makeText(MainActivity.this,"Authentication
Failed",Toast.LENGTH_LONG).show();
                }
            }
        });
    }
}
```

Output:



2. Write a program that demonstrates Activity Lifecycle.

Xml code:

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

```
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello World!"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
</android.support.constraint.ConstraintLayout>
```

Java Code:

```
package com.example.myapplication2demonstratesactivitylifecycle;
```

```
import android.support.v7.app.AppCompatActivity;
```

```
import android.util.Log;
```

```
import android.widget.Toast;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    @Override
```

```
    protected void onStart() {
```

```
        super.onStart();
```

```
        Log.d("Activity_Lifecycle", "onStart invoked");
```

```
        Toast.makeText(MainActivity.this, "Start", Toast.LENGTH_SHORT).show();
```

```
    }
```

```
    @Override
```

```
    protected void onPause() {
```

```
        super.onPause();
```

```
        Log.d("Activity_Lifecycle", "onPause invoked");
```

```
        Toast.makeText(MainActivity.this, "Pause", Toast.LENGTH_SHORT).show();
```

```
    }
```

```
    @Override
```

```
    protected void onStop() {
```

```
        super.onStop();
```

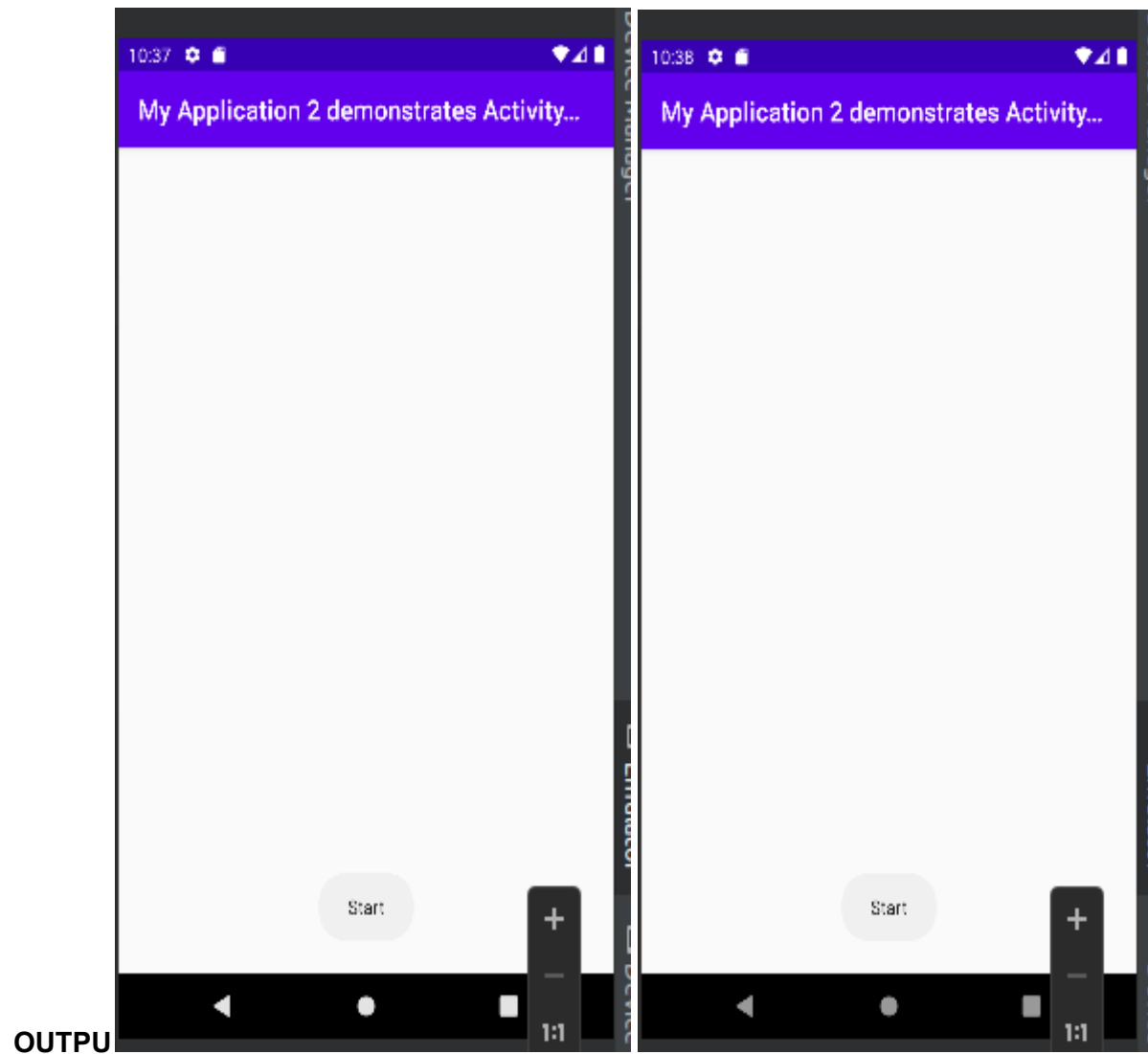
```
        Log.d("Activity_Lifecycle", "onStop invoked");
```

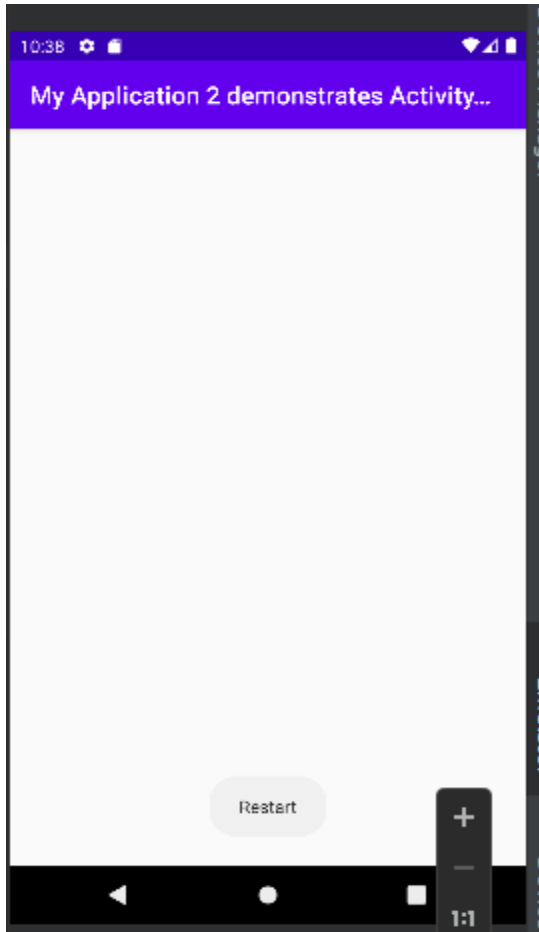
```
        Toast.makeText(MainActivity.this, "Stop", Toast.LENGTH_SHORT).show();
```

```
    }
```

```
    @Override
```

```
protected void onRestart() {  
    super.onRestart();  
    Log.d("Activity_Lifecycle","onRestart invoked");  
    Toast.makeText(MainActivity.this,"Restart",Toast.LENGTH_SHORT).show();  
}  
  
}
```





3. Implementing basic arithmetic operations of a simple calculator

Xml code:

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Multiply" />

<Button
    android:id="@+id/divideButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Divide" />
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
```

```
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:padding="16dp"
tools:context=".MainActivity">
```

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

```
<EditText
    android:id="@+id/secondNumber"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter second number"
    android:inputType="numberDecimal" />
```

```
<TextView
    android:id="@+id/result"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Result: "
    android:textSize="20sp" />
```

```
<Button
    android:id="@+id/addButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Add" />
```

```
<Button
    android:id="@+id/subtractButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Subtract" />
```

```
<Button
    android:id="@+id/multiplyButton"
```

```
<Button
    android:id="@+id/clearButton"
```

```
        android:onClick="clear"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="clear"/>
</LinearLayout>
```

Java code:

```
package com.example.myapplication;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.support.v7.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText firstNumberEditText, secondNumberEditText;
    private TextView resultTextView;

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

        firstNumberEditText = findViewById(R.id.firstNumber);
        secondNumberEditText = findViewById(R.id.secondNumber);
        resultTextView = findViewById(R.id.result);

        Button addButton = findViewById(R.id.addButton);
        Button subtractButton = findViewById(R.id.subtractButton);
        Button multiplyButton = findViewById(R.id.multiplyButton);
        Button divideButton = findViewById(R.id.divideButton);

        addButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                calculate('+');
            }
        });

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



```

        public void onClick(View v) {
            calculate('-');
        }
    });

    multiplyButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            calculate('*');
        }
    });

    divideButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            calculate('/');
        }
    });
}

private void calculate(char operator) {
    double num1 = Double.parseDouble(firstNumberEditText.getText().toString());
    double num2 = Double.parseDouble(secondNumberEditText.getText().toString());
    double result = 0;

    switch (operator) {
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            if (num2 != 0) {
                result = num1 / num2;
            } else {
                resultTextView.setText("Cannot divide by zero");
                return;
            }
            break;
    }
}

```

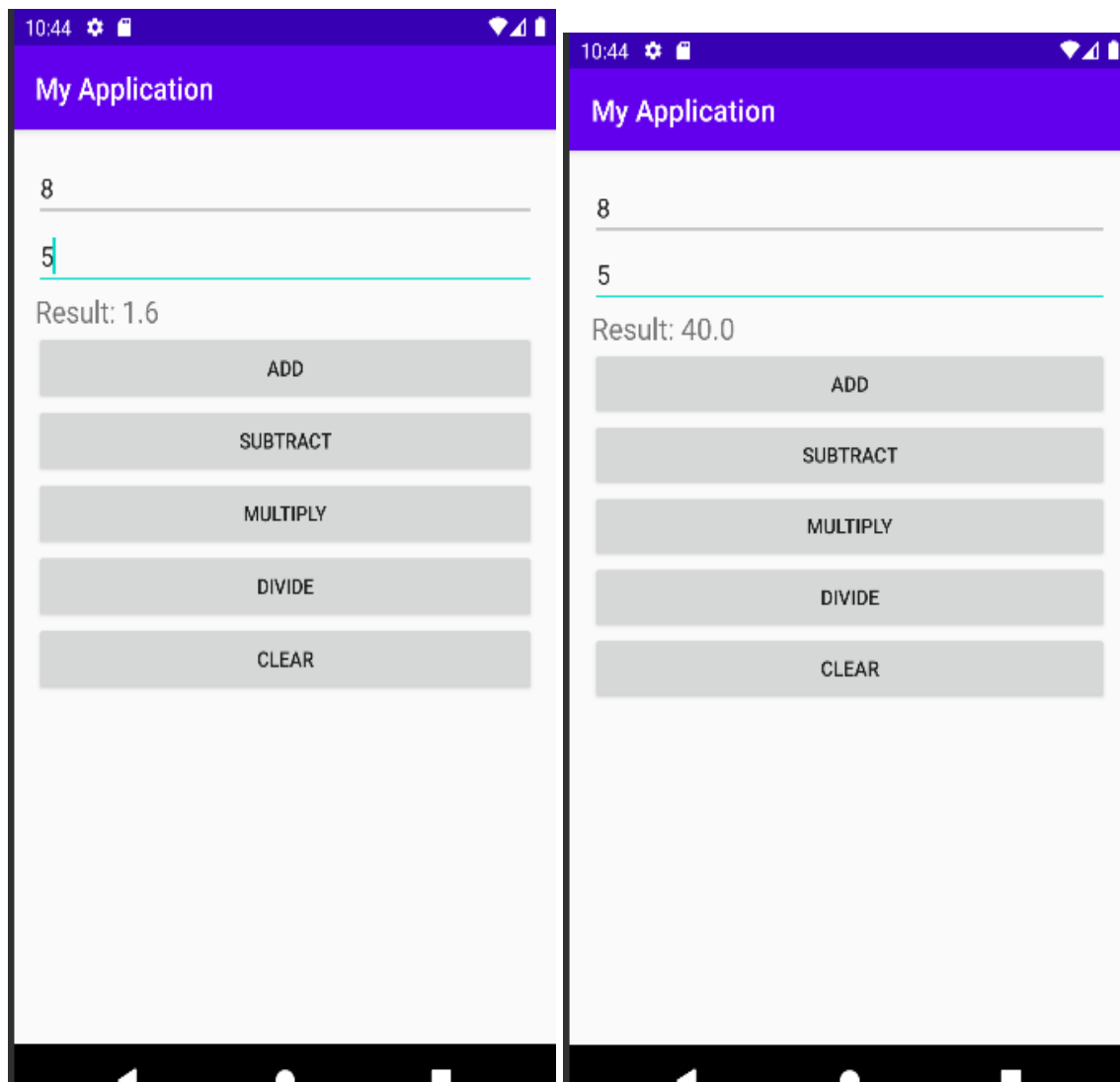
```

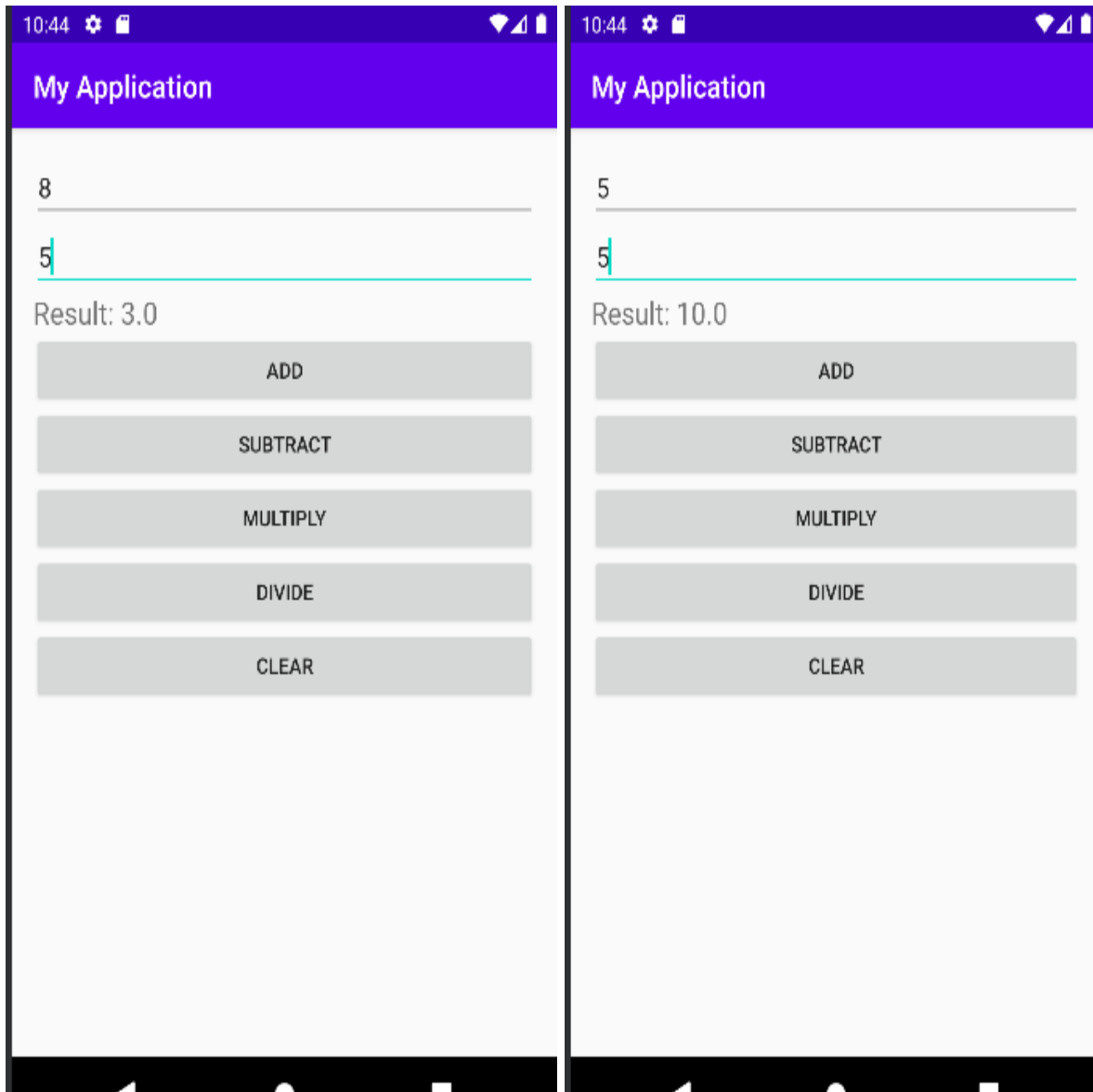
        resultTextView.setText("Result: " + result);
    }

    public void clear(View view) {
        firstNumberEditText.setText("");
        secondNumberEditText.setText("");
        resultTextView.setText("Result");
    }
}

```

OUTPUT:





4. create a student registration form and Implement validations on various UI controls

Xml code: