COURSE OUTCOME1

PROGRAM 1

AIM: Design a Login Form with username and password using Linear Layout and toast valid credentials.

PROGRAM CODE

JAVA CODE	
| | ```
package com.example.login;

import androidx.appcompat.app.AppCompatActivity;
import android.widget.EditText;
import android.widget.Button;
import android.view.View;
import android.widget.Toast;
import android.os.Bundle;

import java.util.Objects;

public class MainActivity extends AppCompatActivity {
  EditText username,password;
  Button btn;

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    username = (EditText) findViewById(R.id.usr);
    password = (EditText) findViewById(R.id.pass);
    btn = (Button) findViewById(R.id.button);
    btn.setOnClickListener(new View.OnClickListener(){
      @Override
      public void onClick(View v)
      {

          validate();
      }
    });

  }

  public void validate()
  {
    String name=username.getText().toString();
    String pass=password.getText().toString();
    String namePattern="[0-9!@#$%^&*]";
    int valid=1;
``` |

```java
    if(name.length()==0)
    {
        username.getText().clear();
        username.requestFocus();
        username.setError("Enter  name ");
        Toast.makeText(getApplicationContext(), "Enter valid name",
Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(name.matches(namePattern))
    {
        username.getText().clear();
        username.requestFocus();
        username.setError("Name contains illegal characters");
        Toast.makeText(getApplicationContext(), "Enter valid name",
Toast.LENGTH_SHORT).show();
        valid++;
    }
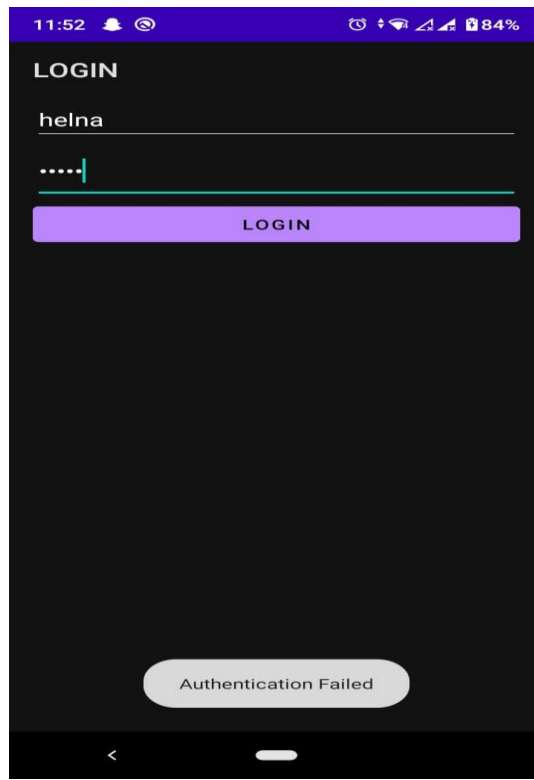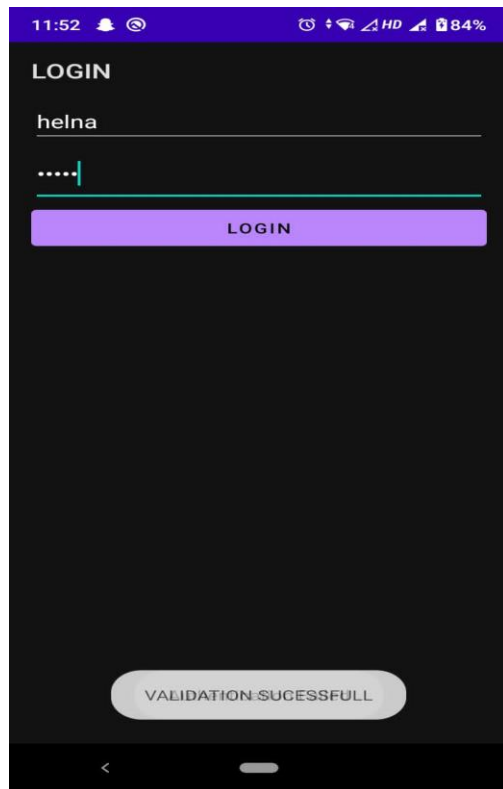
    if(password.length()==0)
    {
        password.requestFocus();
        password.setError("Enter password");
        valid++;
    }
    if(password.length()<5)
    {
        password.requestFocus();
        password.setError("Enter 5 digit password");
        valid++;
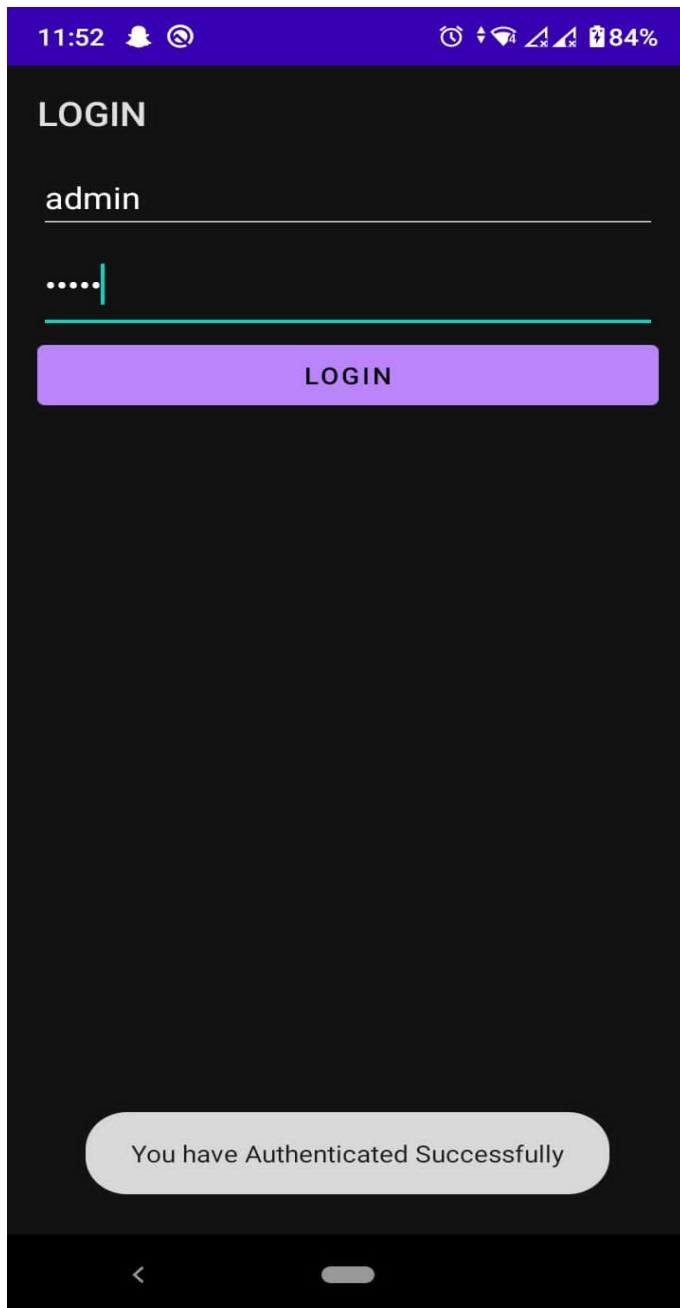
    }


    if(valid==1)
    {
        Toast.makeText(getApplicationContext(), "VALIDATION
SUCESSFULL", Toast.LENGTH_SHORT).show();
    }
    if(Objects.equals(username.getText().toString(),
"admin")&&Objects.equals(password.getText().toString(),"admin"))
    {
        Toast.makeText(MainActivity.this,"You have Authenticated
Successfully",Toast.LENGTH_LONG).show();
    }else
```

	{
	 Toast.*makeText*(MainActivity.this,"Authentication Failed",Toast.*LENGTH_LONG*).show();
	 }
	 }
	
	 }
| XML CODE | ```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  android:paddingLeft="16dp"
  android:paddingRight="16dp">

  <EditText
    android:id="@+id/usr"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="User Name" />

  <EditText
    android:id="@+id/pass"
    android:layout_width="match_parent"
    android:layout_height="59dp"
    android:ems="10"
    android:hint="password"
    android:inputType="textPassword"/>

  <Button
    android:id="@+id/button"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="LOGIN" />
</LinearLayout>
``` |

RESULT: The above program is successfully executed and obtained the output
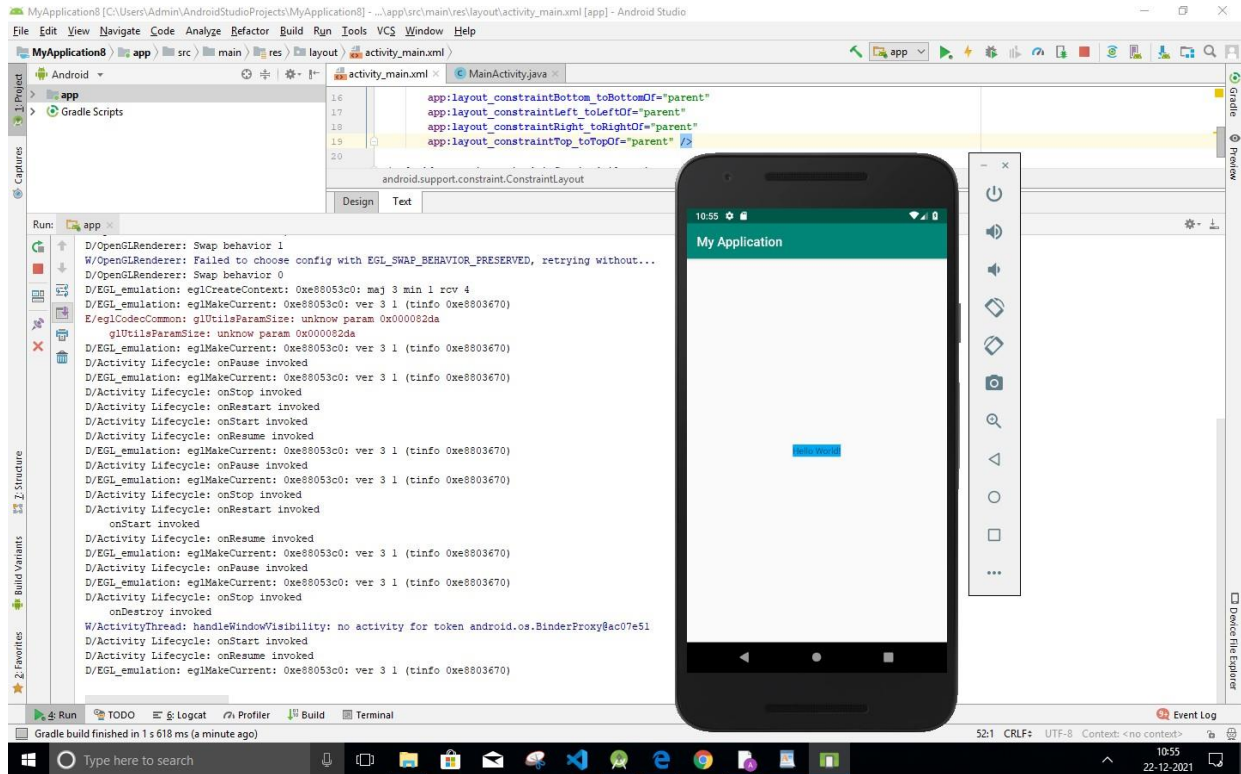
PROGRAM 2

AIM: Write a program that demonstrates Activity Lifecycle.

PROGRAM CODE

| JAVA CODE | package com.example.myactivity;
 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"); } }
| XML CODE | ```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/name"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="HELLOOOO"
android:textColor="#9C27B0"
android:textColorHighlight="#F44336"
android:textColorLink="#F44336"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
``` |

OUTPUT

RESULT: The above program is successfully executed and obtained the output

PROGRAM 3

AIM: Implementing basic arithmetic operations of a simple calculator

PROGRAM CODE

JAVA CODE	
| | ```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;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
int num1, num2;
TextView txt;
Button btn1, btn2, btn3, btn4;
EditText edt1, edt2;

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
edt1 = (EditText) findViewById(R.id.editText);
edt2 = (EditText) findViewById(R.id.editText2);
txt = (TextView) findViewById(R.id.textView);
btn1 = (Button) findViewById(R.id.button);
btn2 = (Button) findViewById(R.id.button2);
btn3 = (Button) findViewById(R.id.button3);
btn4 = (Button) findViewById(R.id.button4);

// Addition
btn1.setOnClickListener(new View.OnClickListener() {
public void onClick(View v) {
if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
double oper1 = Double.parseDouble(edt1.getText().toString());
double oper2 = Double.parseDouble(edt2.getText().toString());
double result = oper1 + oper2;
txt.setText(Double.toString(result));
}
else {
Toast toast = Toast.makeText(MainActivity.this, "Enter The Required
Numbers", Toast.LENGTH_LONG);
toast.show(); }
``` |

```
} });

//Subtraction
 btn2.setOnClickListener(new View.OnClickListener() {

@Override
 public void onClick(View v) {
if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
double oper1 = Double.parseDouble(edt1.getText().toString());
double oper2 = Double.parseDouble(edt2.getText().toString());
 double result = oper1 - oper2;
txt.setText(Double.toString(result));
}
 else {
Toast toast = Toast.makeText(MainActivity.this, "Enter The Required
Numbers", Toast.LENGTH_LONG); toast.show(); } } });

// Multiplication
btn3.setOnClickListener(new View.OnClickListener() {

@Override public void onClick(View v) {
if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
 double oper1 = Double.parseDouble(edt1.getText().toString());
double oper2 = Double.parseDouble(edt2.getText().toString());
double result = oper1 * oper2;
txt.setText(Double.toString(result));
} else {
 Toast toast = Toast.makeText(MainActivity.this, "Enter The Required
Numbers", Toast.LENGTH_LONG); toast.show();
}
 } });

// Division
btn4.setOnClickListener(new View.OnClickListener() {

@Override
 public void onClick(View v) {
if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
double oper1 = Double.parseDouble(edt1.getText().toString());
double oper2 = Double.parseDouble(edt2.getText().toString());
 double result = oper1 / oper2;
txt.setText(Double.toString(result));
 }
else {
 Toast toast = Toast.makeText(MainActivity.this, "Enter The Required
Numbers", Toast.LENGTH_LONG); toast.show();
```
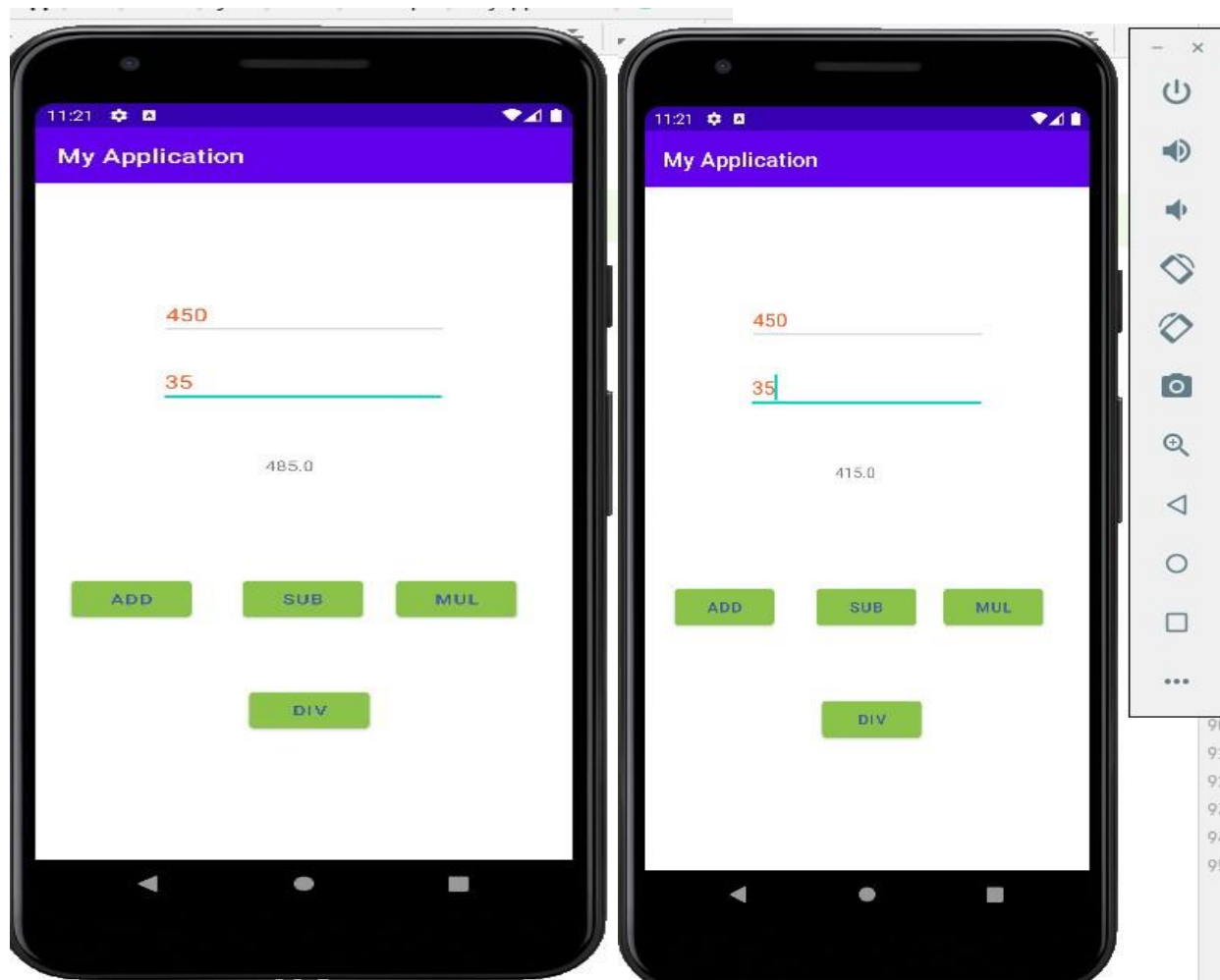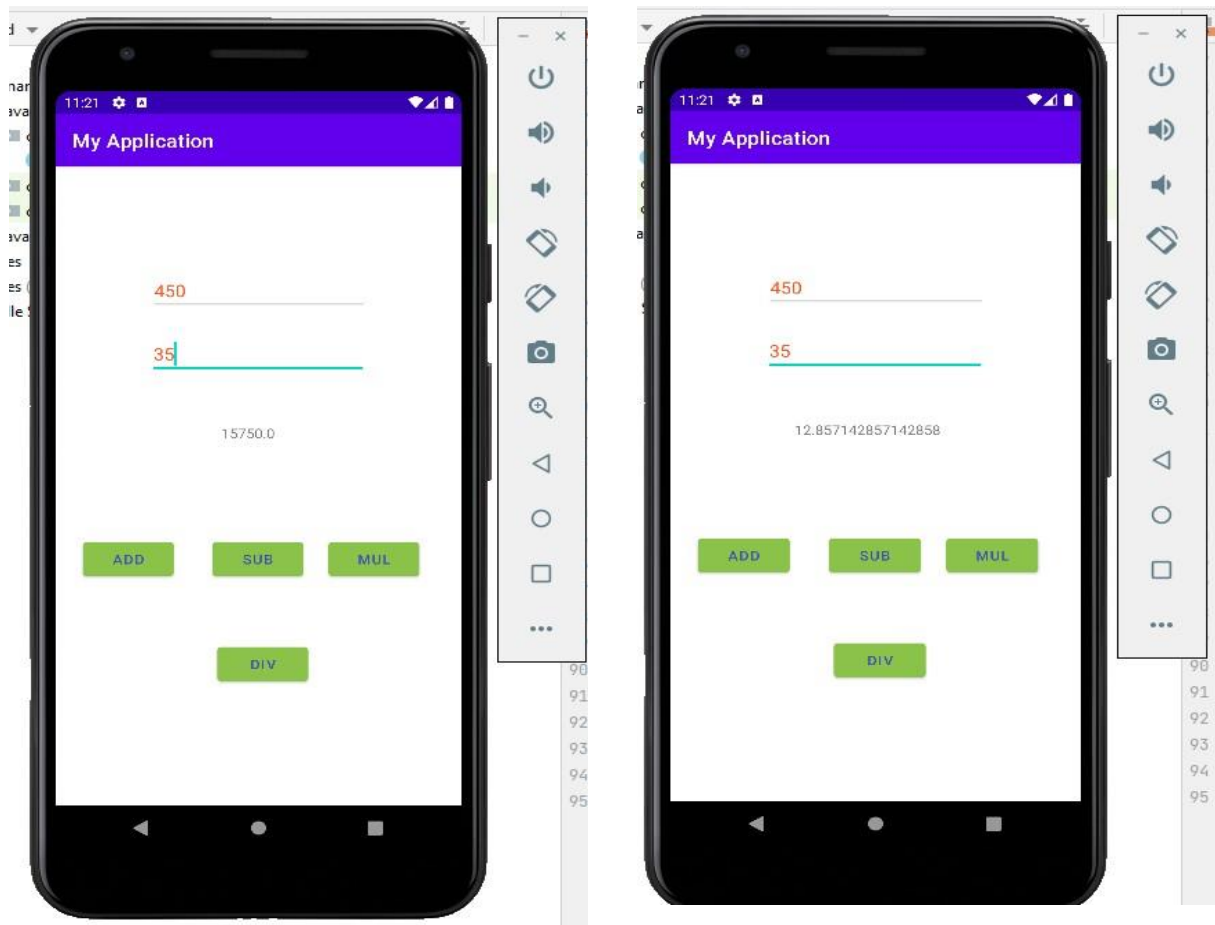
	``` } } }); } } ```
XML CODE	```xml <?xml version="1.0" encoding="utf-8"?> <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent" android:layout_height="match_parent" tools:context=".MainActivity"> <TextView android:id="@+id/textView" android:layout_width="200dp" android:layout_height="50dp" android:ems="10" android:hint="answer" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintLeft_toLeftOf="parent" app:layout_constraintRight_toRightOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintVertical_bias="0.376" /> <EditText android:id="@+id/editText" android:layout_width="wrap_content" android:layout_height="wrap_content" android:ems="10" android:inputType="textPersonName" android:text="" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.113" /> <EditText android:id="@+id/editText2" android:layout_width="wrap_content" android:layout_height="wrap_content" android:ems="10" android:inputType="textPersonName" android:text="" ```

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.228" />
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="+"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.105"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.585" />

<Button
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="-"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.585" />

<Button
android:id="@+id/button3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="*"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.882"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.585" />

<Button
android:id="@+id/button4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="/"
```

	app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.498" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.734" /> </androidx.constraintlayout.widget.ConstraintLayout>

OUTPUT

RESULT: The above program is successfully executed and obtained the output

PROGRAM 4

AIM: Implement validations on various UI controls

PROGRAM CODE

JAVA CODE	
| | ```java
package com.example.formvalidation;
import androidx.appcompat.app.AppCompatActivity;

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 AppCompatActivity { Button button;
TextView name,number,password,mail,addr; EditText
ename,enumber,epassword,email,address;

@Override

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

button = findViewById(R.id.button);

name = findViewById(R.id.textView1);
number = findViewById(R.id.textView2);
mail = findViewById(R.id.textView3);
password = findViewById(R.id.textView4);
addr=findViewById(R.id.adr);
ename= findViewById(R.id.editText);
enumber= findViewById(R.id.editText2);
email= findViewById(R.id.editText3);
epassword= findViewById(R.id.editText4);
address= findViewById(R.id.addr);


button.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) { login();
}
});


}
public void login() {
if (ename.getText().toString().length() == 0) {
``` |

```
ename.requestFocus();
 ename.setError("Name is required");
return;
}
String namePattern="^[0-9!@#$%^&*]+$";
if(ename.getText().toString().matches(namePattern))
{
 ename.requestFocus();
ename.setError("Enter valid name");
return;


}
String fPattern="^[A-Za-z!@#$%^&*]+[0-9!@#$%^&*]+[A-Za-
z!@#$%^&*]+$";
if(ename.getText().toString().matches(fPattern))
{
ename.requestFocus();
 ename.setError("Enter valid name");
return;


}
String namPattern="^[A-Za-z!@#$%^&*]+[0-9!@#$%^&*]+$";
if(ename.getText().toString().matches(namPattern))
{
ename.requestFocus();
 ename.setError("Enter valid name");
return;


}
String naPattern="^[0-9!@#$%^&*]+[A-Za-z!@#$%^&*]++$";
if(ename.getText().toString().matches(naPattern))
{
ename.requestFocus();
ename.setError("Enter valid name");
return;
}
if (address.getText().toString().length() == 0) {
address.requestFocus();
address.setError("Address is required");
 return;
}
String noPattern="^[A-Za-z!@#$%^&*]+$";
if(enumber.getText().toString().matches(noPattern))
{
enumber.requestFocus();
enumber.setError("Enter valid number");
```

```java
return;

}
String numPattern="^[A-Za-z]+[0-9]+[!@#$%^&*]+$";
if(enumber.getText().toString().matches(numPattern))
{
enumber.requestFocus();
enumber.setError("Enter valid number");
return;

}
String nuPattern="^[A-Za-z]+[0-9]+$";
if(enumber.getText().toString().matches(nuPattern))
{
enumber.requestFocus();
enumber.setError("Enter valid number");
 return;

}
String nPattern="^[0-9]+[A-Za-z]+$";
if(enumber.getText().toString().matches(nPattern))
{ enumber.requestFocus(); enumber.setError("Enter valid number");
return;

}
String numberPattern="^[0-9]+[!@#$%^&*]+$";
if(enumber.getText().toString().matches(numberPattern))
{
enumber.requestFocus();
 enumber.setError("Enter valid number");
 return;

}
if (enumber.getText().toString().length() == 0)
{
enumber.requestFocus();
enumber.setError("Number is required");
return;
}
if (enumber.getText().toString().length() < 10)
{
enumber.requestFocus();
enumber.setError("Enter 10 digit number");
return;
}
if (enumber.getText().toString().length() >10)
```

| | ```java
{
enumber.requestFocus();
enumber.setError("Enter 10 digit number");
return;
}


if (email.getText().toString().length() == 0) {
Toast.makeText(getApplicationContext(), "Invalid Email Address",
Toast.LENGTH_SHORT).show();
email.requestFocus();
email.setError("email is required");
return;
}
String emailpattern="^[a-zA-Z0-9._-]+@[a-z]+.+[a-z]+$";
if(email.getText().toString().matches(emailpattern)) {

}
else{
email.requestFocus(); email.setError("Enter valid email");
return;
}
if (epassword.getText().toString().length() == 0)
{
epassword.requestFocus();
epassword.setError("Enter valid password");
return;
}

if (epassword.getText().toString().length() < 8) {
epassword.requestFocus();
epassword.setError("Enter minimum 8 digit password");
return;
}

}
}
``` |
| XML CODE | ```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/textView4"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:text="PASSWORD"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.145"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.519" />

<TextView android:id="@+id/textView1"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:text="NAME"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.167"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.14" />

<TextView android:id="@+id/textView2"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:text="MOB NO"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.167"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.327" />

<TextView android:id="@+id/textView3"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:text="EMAIL"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.194"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.431" />

<EditText android:id="@+id/editText"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:ems="10"
android:inputType="textPersonName" android:hint="Name"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
```

```xml
app:layout_constraintHorizontal_bias="0.757"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.125" />

<EditText android:id="@+id/editText2"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:ems="10"
android:hint="Number" android:inputType="textPersonName"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.757"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.319" />

<EditText android:id="@+id/editText3"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:ems="10"
android:inputType="textEmailAddress"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.757"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.425" />

<EditText android:id="@+id/editText4"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:ems="10"
android:inputType="textPassword"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.757"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.523" />

<Button android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:background="#00BCD4"
android:text="OK" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.464"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
```

```xml
                            app:layout_constraintVertical_bias="0.67" />

                            <EditText android:id="@+id/addr"
                            android:layout_width="wrap_content"
                            android:layout_height="wrap_content" android:ems="10"
                            android:inputType="textPersonName" android:hint="Address"
                            app:layout_constraintBottom_toBottomOf="parent"
                            app:layout_constraintEnd_toEndOf="parent"
                            app:layout_constraintHorizontal_bias="0.757"
                            app:layout_constraintStart_toStartOf="parent"
                            app:layout_constraintTop_toTopOf="parent"
                            app:layout_constraintVertical_bias="0.221" />

                            <TextView android:id="@+id/adr"
                            android:layout_width="wrap_content"
                            android:layout_height="wrap_content" android:text="Address"
                            app:layout_constraintBottom_toBottomOf="parent"
                            app:layout_constraintEnd_toEndOf="parent"
                            app:layout_constraintHorizontal_bias="0.17"
                            app:layout_constraintStart_toStartOf="parent"
                            app:layout_constraintTop_toTopOf="parent"
                            app:layout_constraintVertical_bias="0.233" />


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

OUTPUT

RESULT: The above program is successfully executed and obtained the output