

MOBILE APPLICATION DEVELOPMENT LAB
ROUGH RECORD

SUBMITTED BY,

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S3-MCA

20MCA316

COURSE OUTCOME 1

PROGRAM NO:1

AIM: Design a Login Form with username and password using LinearLayout and toast valid credentials

PROGRAM CODE:

XML CODE:

```
<?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>
```

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();
        int valid=1;

        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++;
    }

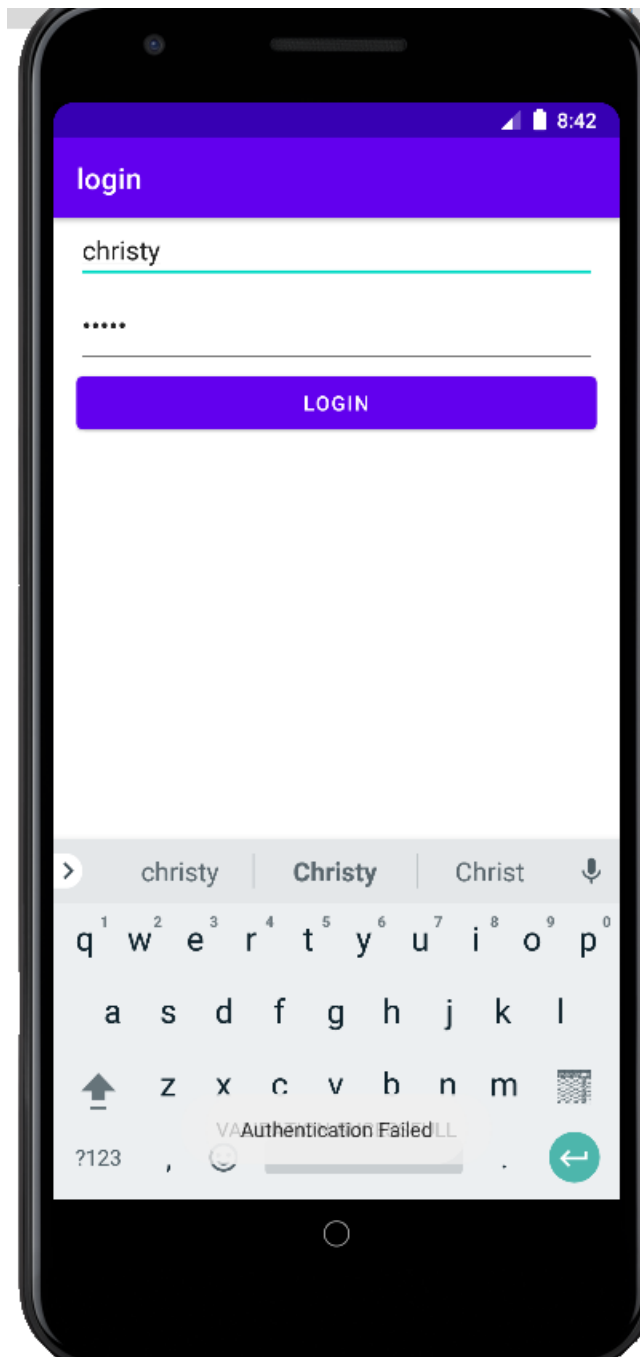
    if(password.length()==0)
    {
        password.requestFocus();
        password.setError("Enter password");
        valid++;
    }

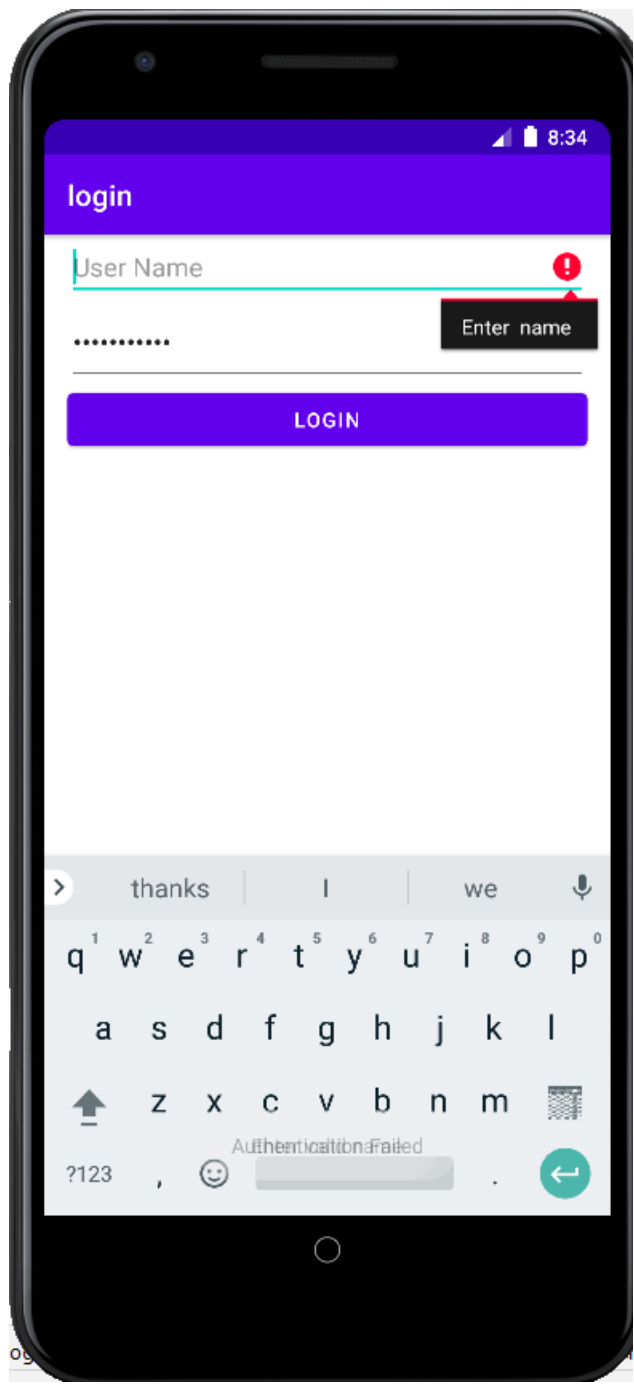
    if(valid==1)
    {
        Toast.makeText(getApplicationContext(), "VALIDATION SUCESSFULL",
Toast.LENGTH_SHORT).show();
    }
    if(Objects.equals(username.getText().toString(),
"admin")&&Objects.equals(password.getText().toString(),"admin"))
    {
        Toast.makeText(MainActivity.this,"You have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

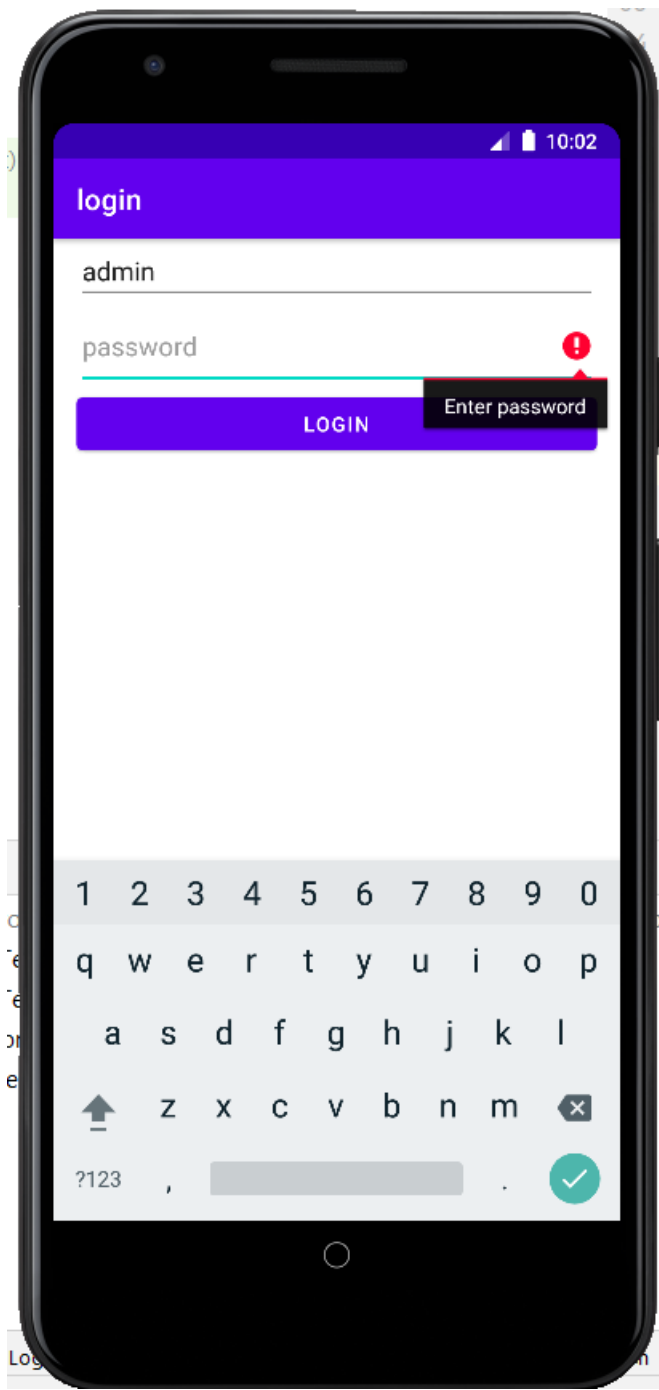
}

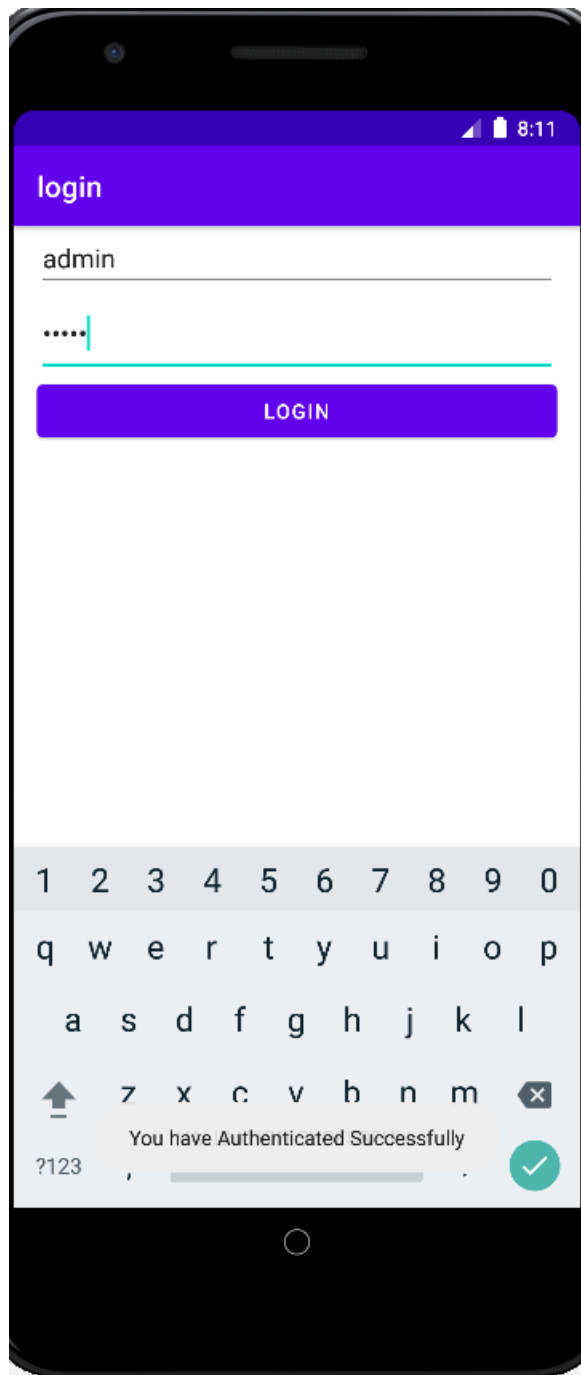
```

OUTPUT









RESULT: The program is executed successfully and output is obtained

PROGRAM NO:2

AIM: Write a program that demonstrates Activity Lifecycle

PROGRAM CODE:

XML CODE:

```
<?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" />
```

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");
}
}
```

OUTPUT



The screenshot shows the 'Run' tab in an Android Studio interface. The left sidebar contains 'Resource Manager' and 'Structure' tabs. The main area displays a log of events for an application named 'app'. The events are as follows:

```
D/lifecycle: onPause invoked
D/EGL_emulation: eglMakeCurrent: 0xe7897840: ver 3 1 (tinfo 0xf01b1cd0)
D/lifecycle: onStop invoked
D/lifecycle: onRestart invoked
D/lifecycle: onStart invoked
D/lifecycle: onResume invoked
D/EGL_emulation: eglMakeCurrent: 0xe7897840: ver 3 1 (tinfo 0xf01b1cd0)
D/lifecycle: onPause invoked
D/EGL_emulation: eglMakeCurrent: 0xe7897840: ver 3 1 (tinfo 0xf01b1cd0)
D/lifecycle: onStop invoked
D/lifecycle: onRestart invoked
D/lifecycle: onStart invoked
D/lifecycle: onResume invoked
D/EGL_emulation: eglMakeCurrent: 0xe7897840: ver 3 1 (tinfo 0xf01b1cd0)
D/lifecycle: onPause invoked
D/EGL_emulation: eglMakeCurrent: 0xe7897840: ver 3 1 (tinfo 0xf01b1cd0)
D/lifecycle: onStop invoked
D/lifecycle: onDestroy invoked
```

RESULT: The program is executed successfully and output is obtained

PROGRAM NO:3

AIM: Implementing basic arithmetic operations of a simple calculator

PROGRAM CODE:

XML CODE:

```
<?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">

    <EditText
        android:id="@+id/fn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="99dp"
        android:layout_marginTop="68dp"
        android:layout_marginEnd="102dp"
        android:layout_marginBottom="32dp"
        android:ems="10"
        android:hint="First number"
```

```
android:inputType="textPersonName"
app:layout_constraintBottom_toTopOf="@+id/sn"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.0" />
```

<Button

```
android:id="@+id/mul"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="36dp"
android:layout_marginTop="44dp"
android:onClick="mul"
android:text="*"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/add" />
```

<Button

```
android:id="@+id/div"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="130dp"
android:layout_marginTop="48dp"
android:layout_marginEnd="62dp"
android:onClick="div"
```

```
android:text="/"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.285"
app:layout_constraintStart_toEndOf="@+id/mul"
app:layout_constraintTop_toBottomOf="@+id/sub" />
```

<Button

```
android:id="@+id/sub"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="129dp"
android:layout_marginTop="106dp"
android:layout_marginEnd="65dp"
android:onClick="sub"
android:text="-"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toEndOf="@+id/add"
app:layout_constraintTop_toBottomOf="@+id/res" />
```

<Button

```
android:id="@+id/add"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="36dp"
android:layout_marginTop="108dp"
android:onClick="sum"
```

```
android:text="+"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toBottomOf="@+id/res" />
```

<EditText

```
android:id="@+id/sn"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="101dp"  
android:layout_marginTop="27dp"  
android:layout_marginEnd="100dp"  
android:ems="10"  
android:hint="Second number"  
android:inputType="textPersonName"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintHorizontal_bias="0.0"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toBottomOf="@+id/fn" />
```

<EditText

```
android:id="@+id/res"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="100dp"  
android:layout_marginTop="25dp"  
android:layout_marginEnd="101dp"  
android:ems="10"
```



```
    android:hint="Result"
    android:inputType="textPersonName"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/sn" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

JAVA CODE:

```
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.EditText;


public class MainActivity extends AppCompatActivity {

    EditText num1,num2,result;

    int n1,n2;

    String s1,s2,s3;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

    public void getNum()

    {

        num1 = (EditText) findViewById(R.id.fn);

        num2 = (EditText) findViewById(R.id.sn);

        result = (EditText) findViewById(R.id.res);

        s1 = num1.getText().toString();

        s2 = num2.getText().toString();

    }

    public void sum(View v)

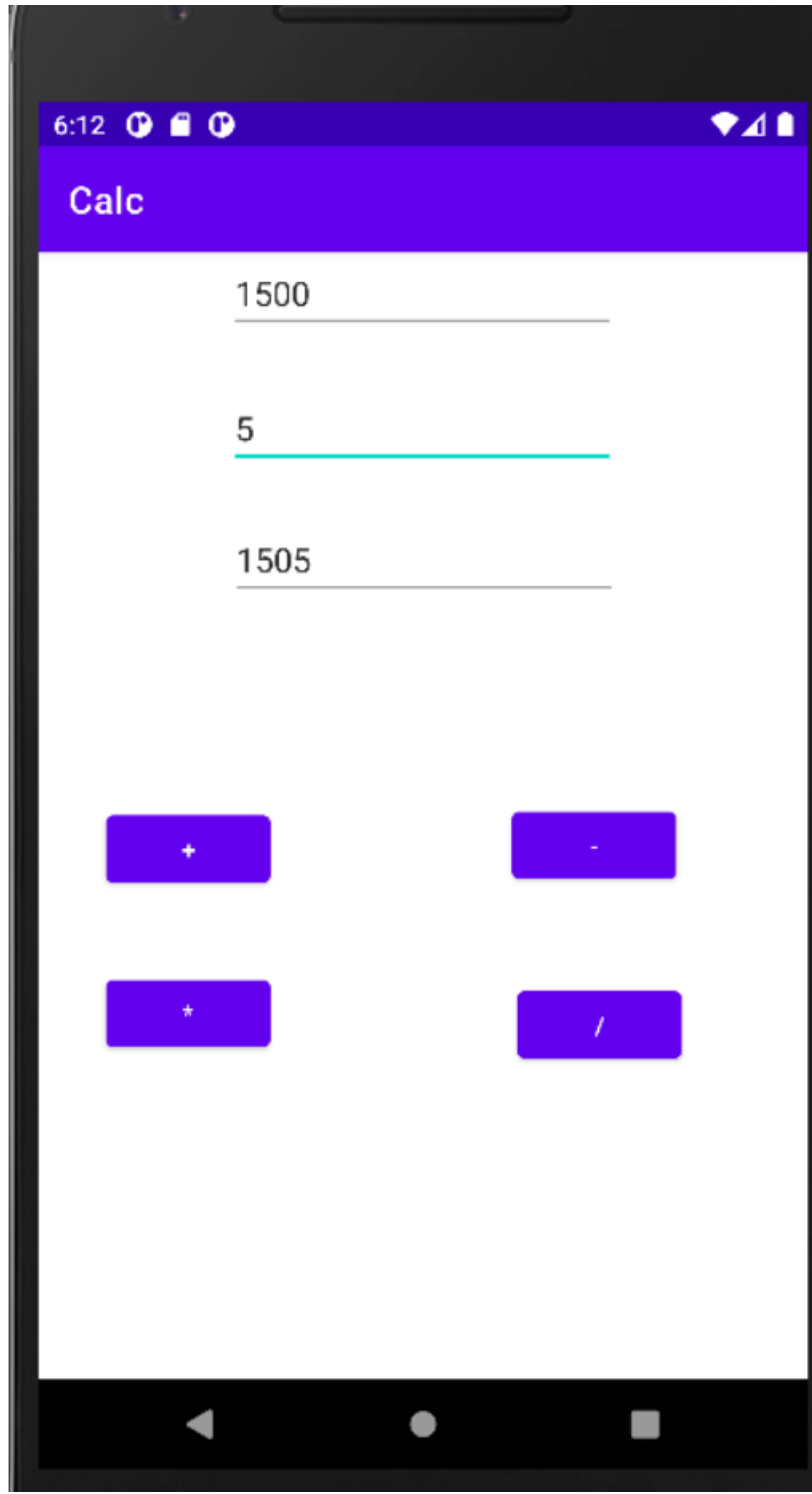
    {

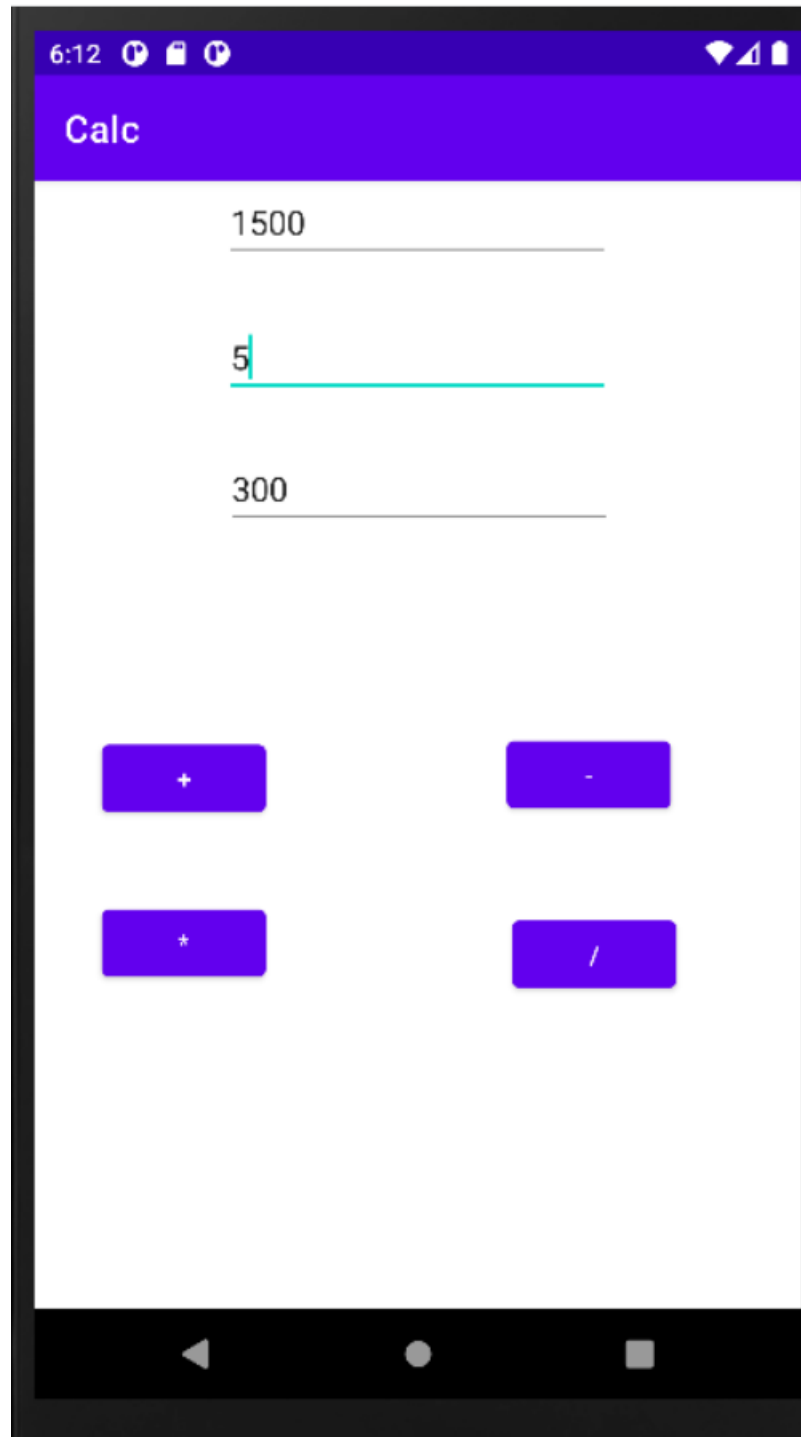
        getNum();

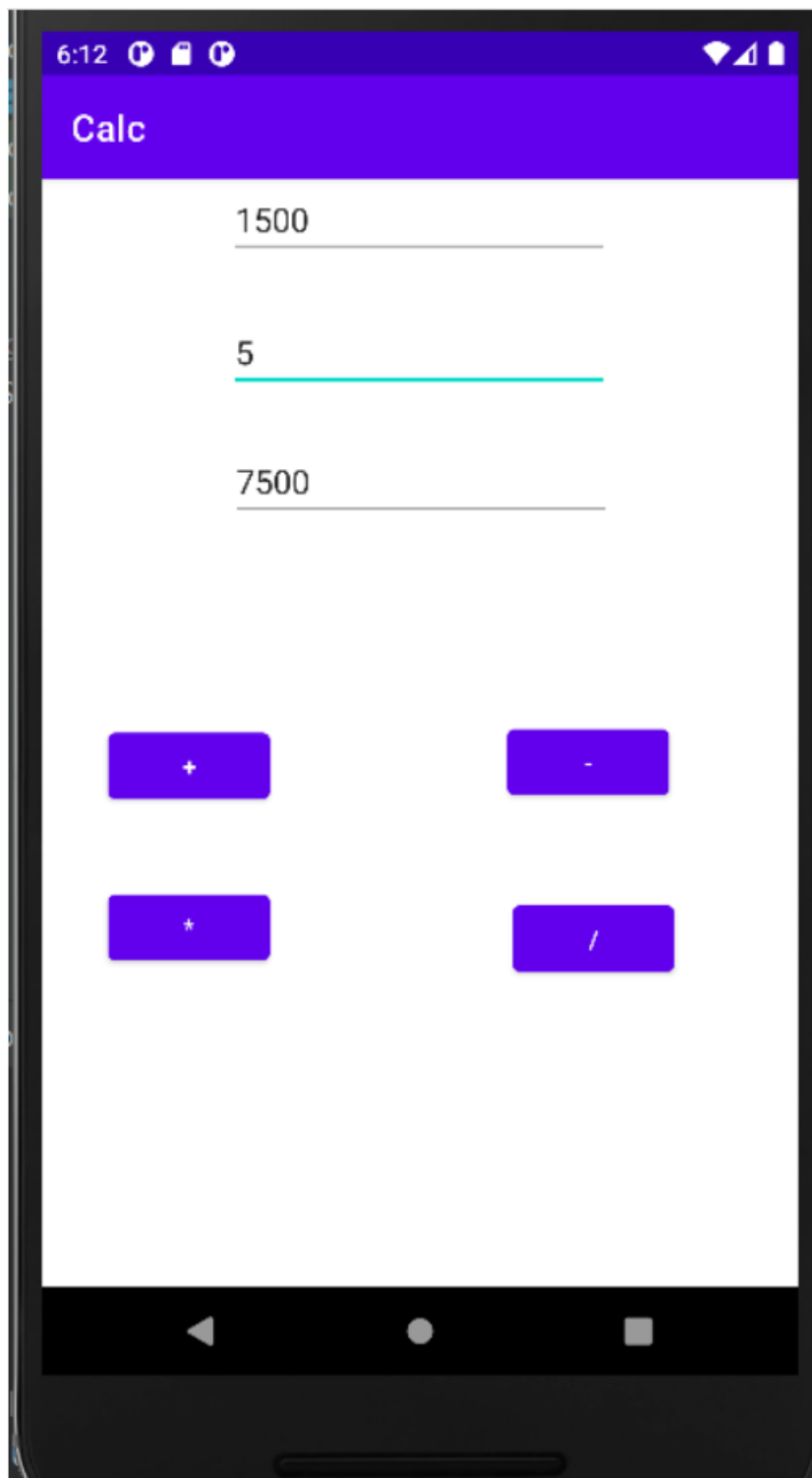
        n1 = Integer.parseInt(s1);
```

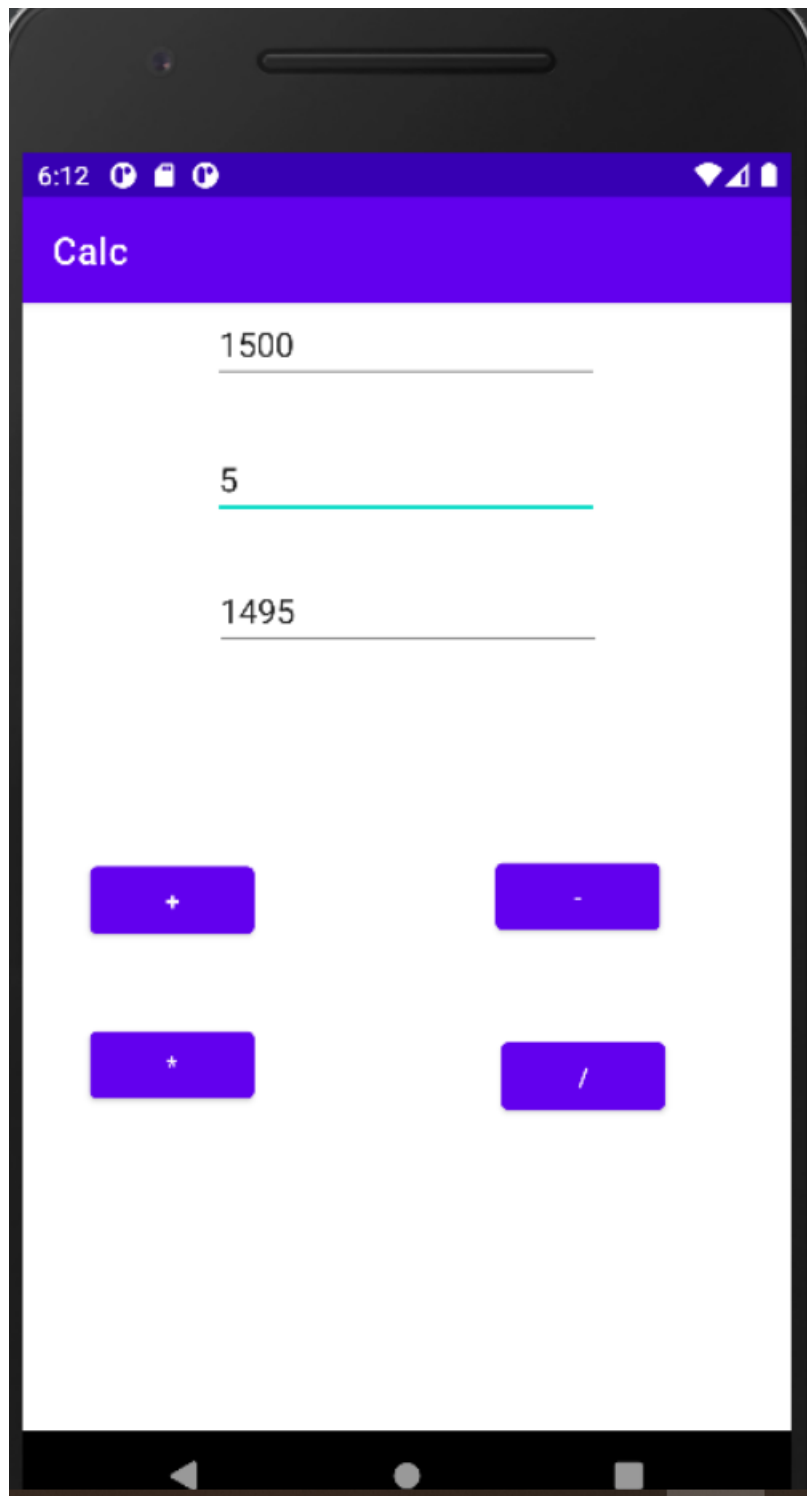
```
        n2 = Integer.parseInt(s2);
        s3 = String.valueOf(n1+n2);
        result.setText(s3);
    }
    public void sub(View v)
    {
        getNum();
        n1 = Integer.parseInt(s1);
        n2 = Integer.parseInt(s2);
        s3 = String.valueOf(n1-n2);
        result.setText(s3);
    }
    public void mul(View v)
    {
        getNum();
        n1 = Integer.parseInt(s1);
        n2 = Integer.parseInt(s2);
        s3 = String.valueOf(n1*n2);
        result.setText(s3);
    }
    public void div(View v)
    {
        getNum();
        n1 = Integer.parseInt(s1);
        n2 = Integer.parseInt(s2);
        s3 = String.valueOf(n1/n2);
        result.setText(s3);
    }
}
```

OUTPUT









RESULT: The program is executed successfully and output is obtained

PROGRAM NO:4

AIM: Implement validations on various UI controls

PROGRAM CODE:

XML CODE:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#F6C7D7"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:backgroundTint="#00BCD4"
        android:ems="10"
        android:hint="Name"
        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/address"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:backgroundTint="#00BCD4"
        android:ems="10"
        android:hint="Address"
        android:inputType="textPersonName"
        android:minHeight="48dp" />

    <EditText
        android:id="@+id/email"
```



```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:backgroundTint="#00BCD4"
android:ems="10"
android:hint="Email"
android:inputType="textEmailAddress" />
```

```
<EditText
    android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:backgroundTint="#00BCD4"
    android:ems="10"
    android:hint="Password"
    android:inputType="textPassword" />
```

```
<EditText
    android:id="@+id/phno"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:backgroundTint="#00BCD4"
    android:ems="10"
    android:hint="Phone"
    android:inputType="phone" />
```

```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="35dp"
    android:backgroundTint="#00BCD4"
    android:text="Gender"
    android:textAppearance="@style/TextAppearance.AppCompat.Body2"
    android:textSize="16sp" />
```

```
<RadioGroup
    android:id="@+id/gender"
    android:layout_width="match_parent"
    android:layout_height="99dp">
```

```
<RadioButton
    android:id="@+id/male"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:backgroundTint="#00BCD4"
    android:text="Male" />
```

```

<RadioButton
    android:id="@+id/female"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:backgroundTint="#00BCD4"
    android:text="Female" />

<Button
    android:id="@+id/validate"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="SUBMIT" />
</RadioGroup>

<Button
    android:id="@+id/validate1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:backgroundTint="#009688"
    android:text="SUBMIT"
    android:textSize="20sp" />

```

JAVA CODE:

```

package com.example.validation;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText e1,e2,e3,e4,e5;
    Button b1;
    RadioButton r1,r2;
    RadioGroup r;

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

```

```

e1=(EditText)findViewById(R.id.name);
e2=(EditText)findViewById(R.id.address);
e3=(EditText)findViewById(R.id.email);
e4=(EditText)findViewById(R.id.password);
e5=(EditText)findViewById(R.id.phno);
b1=(Button)findViewById(R.id.validate1);
r=(RadioGroup)findViewById(R.id.gender);
r1=(RadioButton)findViewById(R.id.male);
r2=(RadioButton)findViewById(R.id.female);
b1.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View v)
    {
        validate();
    }
});
}

public void validate()
{
    String name=e1.getText().toString();
    String email=e3.getText().toString().trim();
    String address=e2.getText().toString();
    String password=e4.getText().toString();
    String namePattern="[0-9!@#$$%^&*]";
    String emailPattern="[a-zA-Z0-9._-]+@[a-z]+\.[a-z]+";
    String pno=e5.getText().toString();
    int valid=1;

    if(name.length()==0)
    {
        e1.getText().clear();
        e1.requestFocus();
        e1.setError("Enter name ");
        Toast.makeText(getApplicationContext(), "Enter valid name", Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(name.matches(namePattern))
    {
        e1.getText().clear();
        e1.requestFocus();
        e1.setError("Name contains illegal characters");
        Toast.makeText(getApplicationContext(), "Enter valid name", Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(address.length()==0)
    {
        e2.getText().clear();
        e2.requestFocus();
        e2.setError("Enter address");
    }
}

```

```

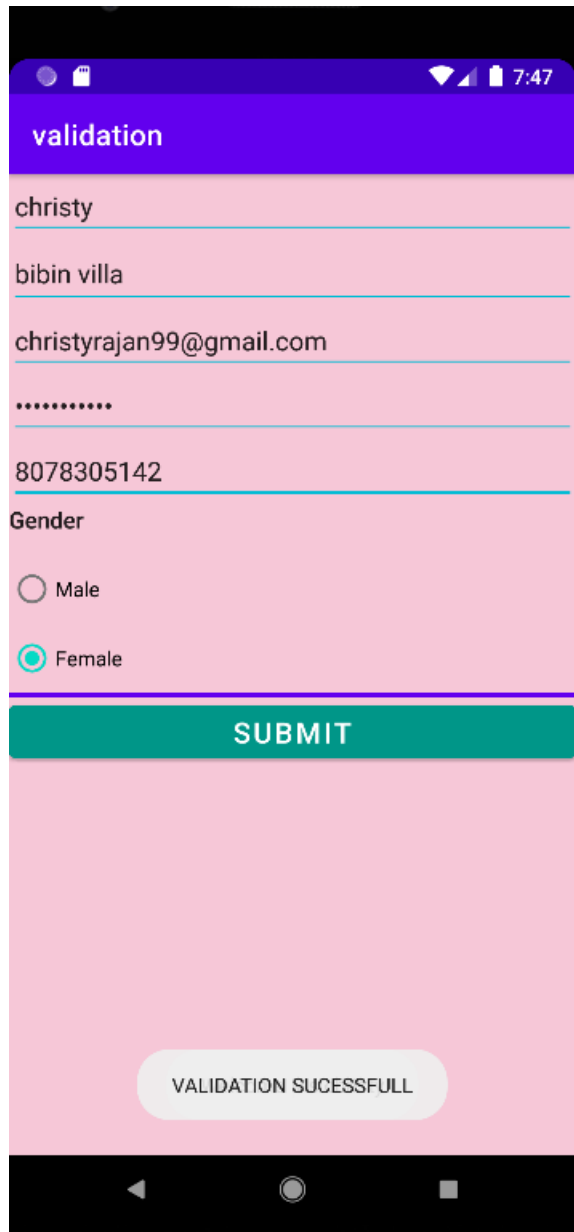
        Toast.makeText(getApplicationContext(), "Enter valid address",
Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(email.length()==0)
    {
        e3.getText().clear();
        e3.requestFocus();
        e3.setError("Enter email address");
        Toast.makeText(getApplicationContext(), "Enter valid email", Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(!email.matches(emailPattern))
    {
        e3.getText().clear();
        e3.requestFocus();
        e3.setError("Invalid email address");
        Toast.makeText(getApplicationContext(), "Enter valid email ", Toast.LENGTH_SHORT).show();
        valid++;
    }
    if(password.length()==0)
    {
        e4.requestFocus();
        e4.setError("Enter password");
        valid++;
    }
    if(password.length()<5)
    {
        e4.requestFocus();
        e4.setError("Enter an 8 digit password");
        valid++;
    }

    if (r.getCheckedRadioButtonId() == -1)
    {
        Toast.makeText(getApplicationContext(), "Please select any gender",
Toast.LENGTH_SHORT).show();
        valid++;
    }
    else
    {
        if(r1.isChecked())
        {
            Toast.makeText(getApplicationContext(), "Welcome Mr."+name,
Toast.LENGTH_SHORT).show();
        }
        if(r2.isChecked())
        {
            Toast.makeText(getApplicationContext(), "Welcome Ms."+name,
Toast.LENGTH_SHORT).show();
        }
    }
}

```

```
    }  
  }  
  if(pno.length()<10)  
  {  
    e5.setError("Phone number should be of atleast 10 digits");  
    valid++;  
  }  
  if(valid==1)  
  {  
    Toast.makeText(getApplicationContext(), "VALIDATION SUCESSFULL",  
Toast.LENGTH_SHORT).show();  
  }  
}  
}
```

OUTPUT



The screenshot shows a mobile application interface for a validation form. At the top, there is a purple header bar with the title "validation". Below the header, the form fields are arranged vertically on a light pink background. The fields are: a text input for "christy", a text input for "bibin villa", a text input for "christyrajan99@gmail.com", a password input (represented by dots) for "8078305142", and a "Gender" section with two radio buttons: "Male" (unselected) and "Female" (selected). Below these fields is a green "SUBMIT" button. At the bottom of the form, a white rounded rectangle contains the text "VALIDATION SUCESSFULL". The top of the screen shows a status bar with icons for signal, battery, and the time "7:47". The bottom of the screen shows the Android navigation bar with back, home, and recent apps buttons.

validation

christy

bibin villa

christyrajan99@gmail.com

.....

8078305142

Gender


☐ Male

☒ Female

SUBMIT

VALIDATION SUCESSFULL

validation

Name 

bibin villa

christyrajan99@gmail.com


.....

8078305142

Gender

☐ Male


☒ Female



> thanks | I | we 

1 2 3 4 5 6 7 8 9 0

q w e r t y u i o p

a s d f g h j k l

↑ z x c v b n m 

?123 ,  

validation

christy

bibin villa

Email

Invalid email address

.....

8078305142

Gender

Male

Female

SUBMIT

1234567890

q w e r t y u i o p

a s d f g h j k l

↑ z x c v b n m ✕

?123 @ ☺ . →l

validation

christy

bibin villa

christyrajan99@gmail.com

...

8078305142

Enter an 8 digit password

Gender

☐ Male

☒ Female

SUBMIT

1 2 3 4 5 6 7 8 9 0

q w e r t y u i o p

a s d f g h j k l

↑ z x c v b n m ✕

?123 , . →

validation

christy

bibin villa

christy@gmail.com

.....

8078564532

Gender

☐ Male

☐ Female

SUBMIT

1

2 ABC

3 DEF

-

4 GHI

5 JKL

6 MNO

7 PRQS

8 TUV

9 WXYZ

* #

0 +

.

Please select any gender

RESULT: The program is executed successfully and output is obtained