
COURSE OUTCOME-1

PROGRAM 1

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

PROGRAM CODE

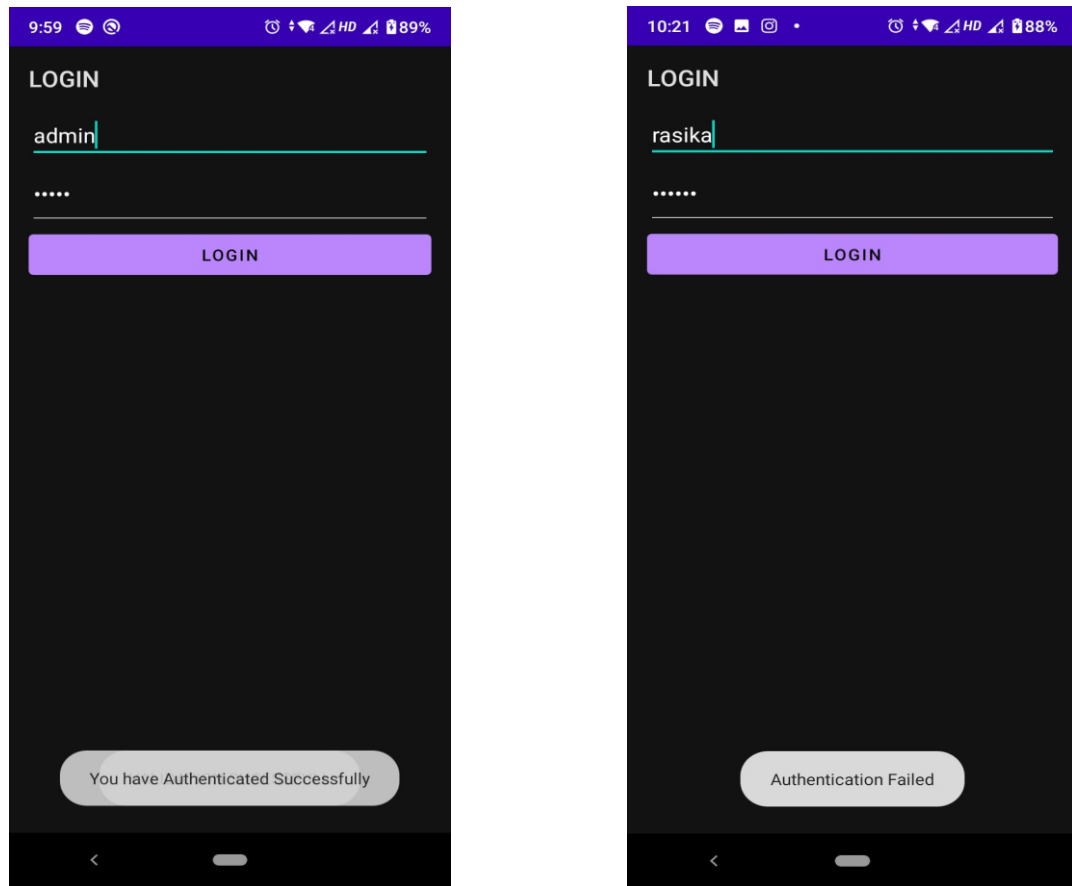
MainActivity.java	<pre>package com.example.login; import androidx.appcompat.app.AppCompatActivity; import android.widget.EditText; import android.widget.Button; import android.view.View; import android.widget.Toast; import android.os.Bundle; import java.util.Objects; public class MainActivity extends 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!@#%&*]";</pre>
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	<pre>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(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")) {</pre>
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	<pre> Toast.makeText(MainActivity.this,"You have Authenticated Successfully",Toast.LENGTH_LONG).show(); }else { Toast.makeText(MainActivity.this,"Authentication Failed",Toast.LENGTH_LONG).show(); } } } </pre>
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activity_main.xml	<pre> <?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> </pre>
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OUTPUT



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

PROGRAM 2

AIM: Write a program that demonstrates Activity Lifecycle.

PROGRAM CODE

MainActivity.java	<pre>package com.example.activity1; import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle; import android.app.Activity; 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("Activity1", "OnCreate invoke"); } @Override protected void onStart() { super.onStart(); Log.d("Activity1", "Onstart invoke"); } @Override protected void onResume() { super.onResume(); Log.d("Activity1", "OnResume invoke"); } @Override protected void onPause() { super.onPause(); Log.d("Activity1", "OnPause invoke"); } @Override protected void onStop() {</pre>
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	<pre> super.onStop(); Log.d("Activity1","OnStope invoke"); } @Override protected void onRestart() { super.onRestart(); Log.d("Activity1","OnRestart invoke"); } @Override protected void onDestroy() { super.onDestroy(); Log.d("Activity1","OnDestroy invoke"); } } </pre>
activity_main.xml	<pre> <?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="109dp" android:layout_height="57dp" android:text="Hello world" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout> </pre>

OUTPUT



The screenshot shows the Android Studio interface with the logcat window open. The top bar indicates the emulator is 'Nexus_5X_API_28_x86', the package is 'com.example.app (10608)', and the log level is 'Verbose'. A search filter 'Activity1' is applied. The logcat displays the following lifecycle events for Activity1:

```
2021-12-03 15:19:06.923 10608-10608/com.example.app D/Activity1: onCreate invoke
2021-12-03 15:19:06.928 10608-10608/com.example.app D/Activity1: onStart invoke
2021-12-03 15:19:06.929 10608-10608/com.example.app D/Activity1: onResume invoke
2021-12-03 15:19:09.870 10608-10608/com.example.app D/Activity1: onPause invoke
2021-12-03 15:19:10.509 10608-10608/com.example.app D/Activity1: onStop invoke
2021-12-03 15:19:10.513 10608-10608/com.example.app D/Activity1: onDestroy invoke
2021-12-03 15:19:13.907 10608-10608/com.example.app D/Activity1: onCreate invoke
2021-12-03 15:19:13.921 10608-10608/com.example.app D/Activity1: onStart invoke
2021-12-03 15:19:13.922 10608-10608/com.example.app D/Activity1: onResume invoke
```

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

PROGRAM 3

AIM: Implementing basic arithmetic operations of a simple calculator.

PROGRAM CODE

MainActivity.java	<pre>package com.example.calculator; import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle; import android.widget.EditText; import android.view.View; public class MainActivity extends AppCompatActivity { EditText first,second,result; int n1,n2; String s1,s2,s3; @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity_main); } public void inputNum() { first = (EditText) findViewById(R.id.first); second = (EditText) findViewById(R.id.second); result = (EditText) findViewById(R.id.result); s1 = first.getText().toString(); s2 = second.getText().toString(); } public void sum(View v) { inputNum(); n1 = Integer.parseInt(s1); n2 = Integer.parseInt(s2); s3 = String.valueOf(n1+n2); result.setText(s3); } public void sub(View v) { inputNum(); n1 = Integer.parseInt(s1);</pre>
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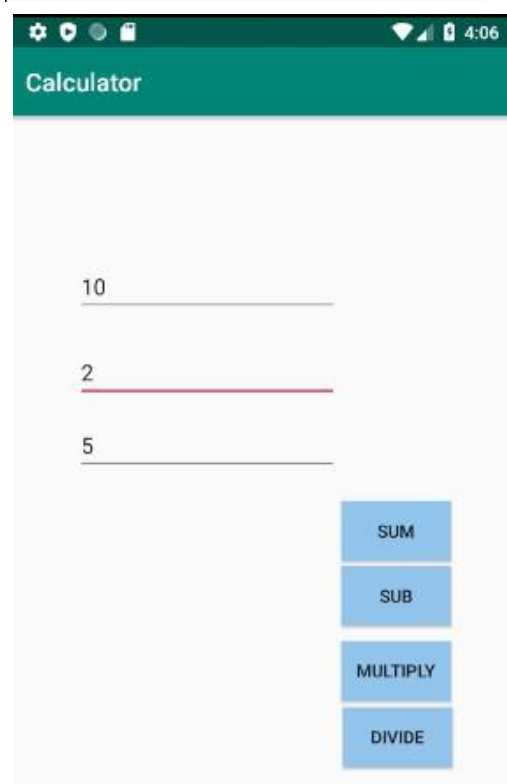
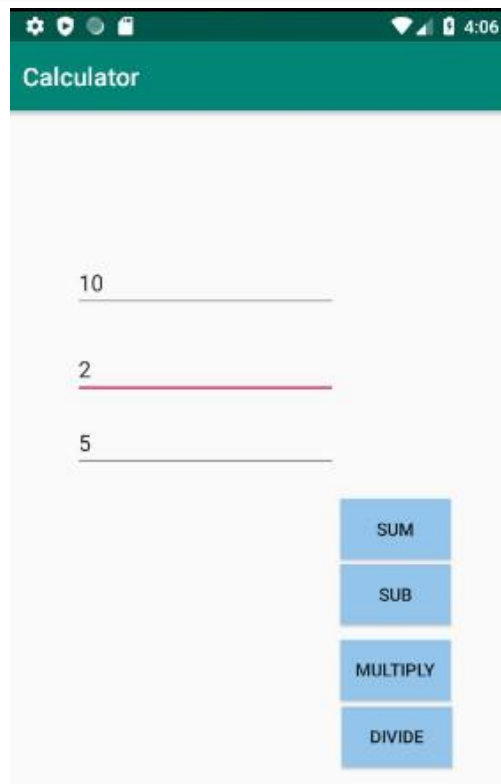
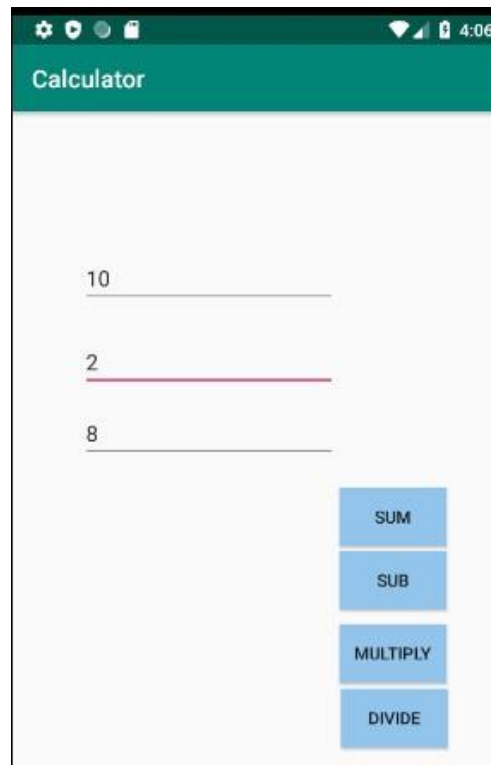
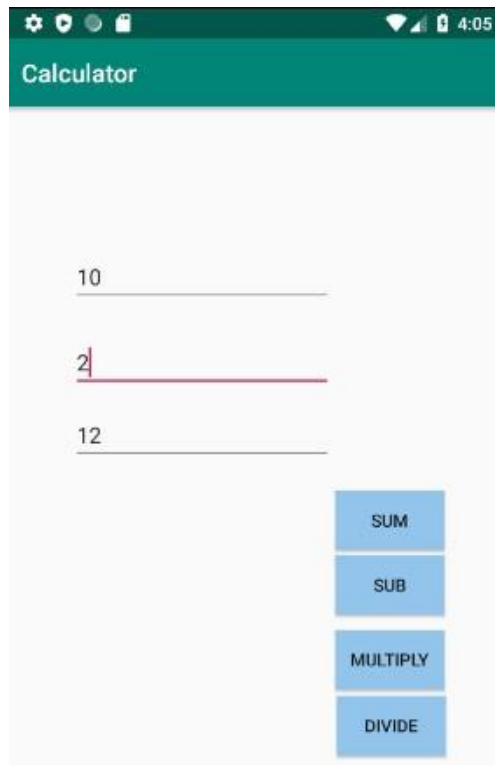
	<pre> n2 = Integer.parseInt(s2); s3 = String.valueOf(n1-n2); result.setText(s3); } public void mul(View v) { inputNum(); n1 = Integer.parseInt(s1); n2 = Integer.parseInt(s2); s3 = String.valueOf(n1*n2); result.setText(s3); } public void div(View v) { inputNum(); n1 = Integer.parseInt(s1); n2 = Integer.parseInt(s2); s3 = String.valueOf(n1/n2); result.setText(s3); } }; </pre>
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activity_main.xml	<pre> <?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/first" android:layout_width="160dp" android:layout_height="32dp" android:ems="10" android:hint="First number" android:inputType="textPersonName" android:textSize="12sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.43" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" </pre>
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	<pre> app:layout_constraintVertical_bias="0.158" /> <EditText android:id="@+id/second" android:layout_width="180dp" android:layout_height="34dp" android:ems="10" android:hint="Second number" android:inputType="textPersonName" android:textSize="12sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.454" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.275" /> <EditText android:id="@+id/result" android:layout_width="182dp" android:layout_height="43dp" android:ems="10" android:hint="Result" android:inputType="textPersonName" android:textSize="12sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.471" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.376" /> <Button android:id="@+id/sum" android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="SUM" android:onClick="sum" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.139" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> <Button </pre>
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	<pre> android:id="@+id/sub" android:layout_width="90dp" android:layout_height="43dp" android:text="SUB" android:onClick="sub" 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="0.504" /> <Button android:id="@+id/mul" android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="MUL" android:onClick="mul" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.88" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> <Button android:id="@+id/divide" android:layout_width="wrap_content" android:layout_height="wrap_content" android:text="DIVIDE" android:onClick="div" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.492" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.631" /> </androidx.constraintlayout.widget.ConstraintLayout> </pre>
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OUTPUT



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

PROGRAM 4

AIM: Implement validations on various UI controls.

PROGRAM CODE:

MainActivity.java a	<pre>package com.example.formvalidation; import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle; import android.widget.Button; import android.widget.EditText; import android.view.View; import android.widget.Toast; import java.util.regex.Matcher; import java.util.regex.Pattern; public class MainActivity extends AppCompatActivity { EditText ed1,ed2,ed3,ed4,ed5; Button bts1; Pattern patterns; Matcher matches; String emailPattern="[a-zA-Z0-9._-]+@[a-z]+\.[a-z]+"; @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity_main); ed1=(EditText)findViewById(R.id.Name); ed2=(EditText)findViewById(R.id.Address); ed3=(EditText)findViewById(R.id.Email); ed4=(EditText)findViewById(R.id.Password); // String email=ed3.getText().toString().trim(); String emailPattern="[a-zA-Z0-9._-]+@[a-z]+\.[a-z]+"; //String passPattern="[(?=.*\d)(?=.*![@#\$%^&*])(?=.*[a-z])(?=.*[A-Z]).{8,}]"; bts1=(Button)findViewById(R.id.bt1); bts1.setOnClickListener(new View.OnClickListener() { @Override</pre>
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```

        public void onClick(View v) {
            login();
        }
    });
}

public void login() {
    String email = ed3.getText().toString().trim();
    String nam = ed1.getText().toString();
    //String email=ed3.getText().toString();
    if (ed1.getText().toString().length() == 0) {
        ed1.requestFocus();
        ed1.setError("Enter valid name");
        return;
    }
    String namePattern = "[0-9!@#%$%^&*]";
    if (ed1.getText().toString().matches(namePattern)) {
        ed1.requestFocus();
        ed1.setError("Enter valid name");
        return;
    }

    if (ed2.getText().toString().length() == 0) {
        ed2.requestFocus();
        ed2.setError("Enter valid address");
        return;
    }

    if (ed3.getText().toString().length() == 0) {
        Toast.makeText(getApplicationContext(), "Invalid Email Address",
        Toast.LENGTH_SHORT).show();
        ed3.requestFocus();
        ed3.setError("Enter valid email");
        return;
    }

    if (!email.matches(emailPattern)) {
        //Toast.makeText(getApplicationContext(),"Invalid Email
        Address",Toast.LENGTH_SHORT).show();
        ed3.requestFocus();
        ed3.setError("Invalid email");

    } else {
        Toast.makeText(getApplicationContext(), "valid Email Address",
        Toast.LENGTH_SHORT).show();
    }
}

```

	<pre> if (ed4.getText().toString().length() == 0) { ed4.requestFocus(); ed4.setError("Enter valid password"); return; } if (ed4.getText().toString().length() < 8) { ed4.requestFocus(); ed4.setError("Enter minimum 8 digit password"); return; } } } </pre>
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activity_main.xml 1	<pre> <?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"> <Button android:id="@+id/bt1" android:layout_width="114dp" android:layout_height="56dp" android:text="Submit" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.377" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.675" /> <EditText android:id="@+id/Name" android:layout_width="225dp" android:layout_height="38dp" android:ems="10" android:inputType="textPersonName" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" </pre>
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	<pre>app:layout_constraintHorizontal_bias="0.896" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.139" /></pre>
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```
<EditText
    android:id="@+id/Address"
    android:layout_width="215dp"
    android:layout_height="47dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.852"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.252" />
```

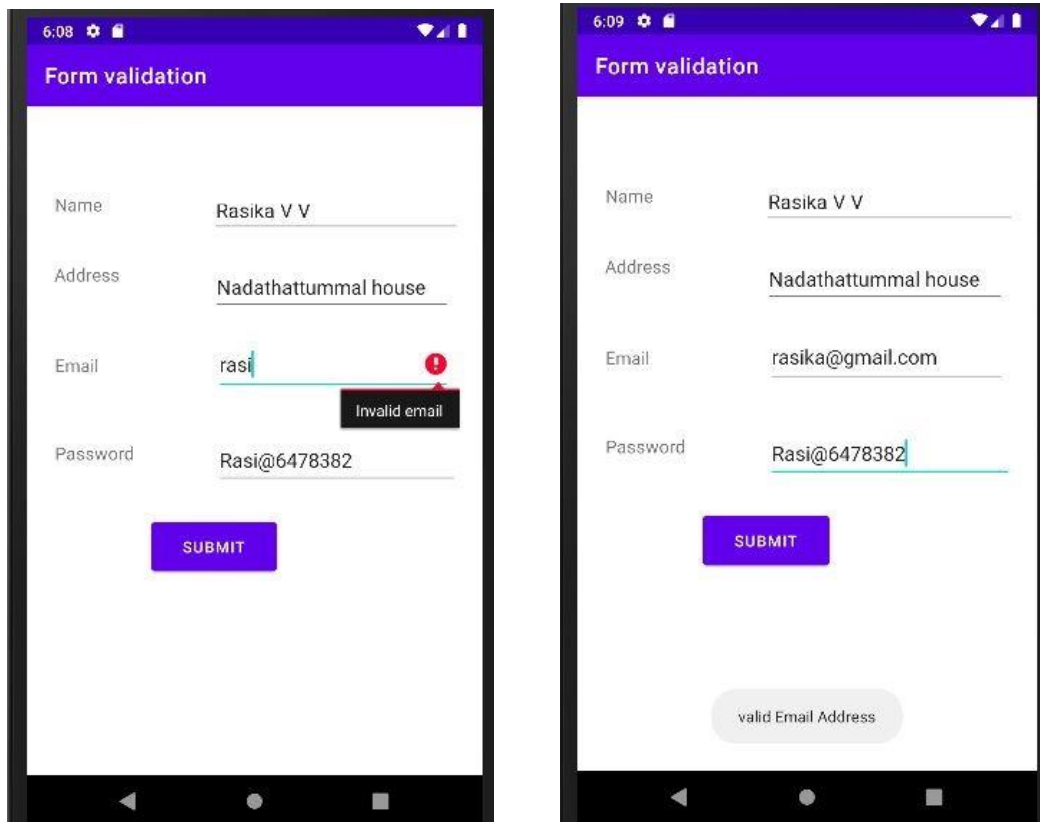
```
<EditText
    android:id="@+id/Email"
    android:layout_width="213dp"
    android:layout_height="51dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.858"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.376" />
```

```
<EditText
    android:id="@+id/Password"
    android:layout_width="219dp"
    android:layout_height="48dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.885"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
```

	<pre> app:layout_constraintVertical_bias="0.532" /> <TextView android:id="@+id/textView5" android:layout_width="107dp" android:layout_height="35dp" android:text="Name" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.082" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.137" /> <TextView android:id="@+id/textView6" android:layout_width="112dp" android:layout_height="38dp" android:text="Address" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.083" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.249" /> <TextView android:id="@+id/textView8" android:layout_width="124dp" android:layout_height="34dp" android:text="Email" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.087" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.391" /> </pre>
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	<pre> <TextView android:id="@+id/textView9" android:layout_width="121dp" android:layout_height="40dp" android:text="Password" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.086" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.536" /> </androidx.constraintlayout.widget.ConstraintLayout> </pre>
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OUTPUT



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