

## 1.Design a Login Page

### CODE

#### MainActivity.java

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private EditText unameEditText;
    private EditText passEditText;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        unameEditText = findViewById(R.id.uname1);
        passEditText = findViewById(R.id.pass1);
    }

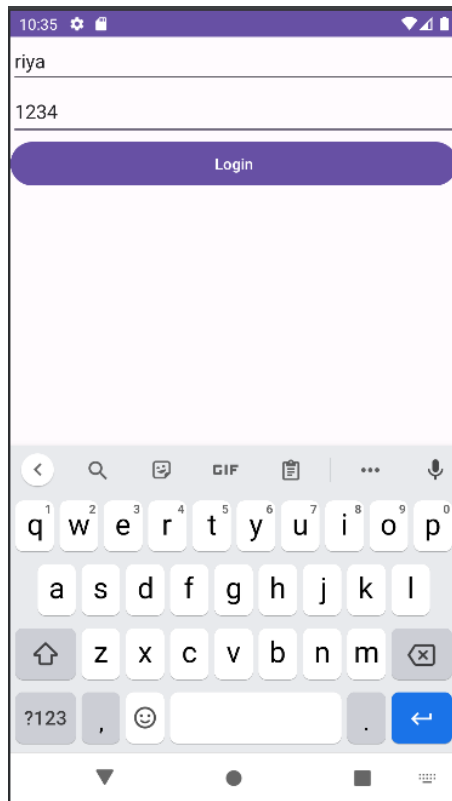
    public void Login(View view) {
        String username = unameEditText.getText().toString();
        String password = passEditText.getText().toString();
        if (isValidCredentials(username,password)){
            Toast.makeText(this, "login Successful", Toast.LENGTH_SHORT).show();
        }
        else {
            Toast.makeText(this, "invalid credentials", Toast.LENGTH_SHORT).show();
        }
    }

    private boolean isValidCredentials(String username, String password) {
        return username.equals("riya") && password.equals("1234");
    }
}
```

## Activity-main.xml

```
<LinearLayout xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    xmlns:android="http://schemas.android.com/apk/res/android">
<EditText
    android:id="@+id/username1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Username"
/>
<EditText
    android:id="@+id/pass1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Password"
    android:inputType="textPassword"
/>
<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Login"
    android:onClick="Login"
    tools:ignore="UsingOnClickInXml" />
</LinearLayout>
```

## **OUTPUT**



## **2.LifeCycle**

### **CODE**

#### **MainActivity.java**

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private static final String TAG = "Lifecycle";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(TAG,"onCreate:MainActivity");
        Button goToSecondActivityBtn = findViewById(R.id.btnGoToSecondActivity);
        goToSecondActivityBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                startActivity(new Intent(MainActivity.this,MainActivity.class));
            }
        });
    }
    @Override
    protected void onStart(){
        super.onStart();
        Log.d(TAG,"onStart:MainActivity");
        Toast.makeText(this,"ON START",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onResume()
    {
        super.onResume();
        Log.d(TAG,"onResume:MainActivity");
        Toast.makeText(this,"ON RESUME",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onPause(){
        super.onPause();
        Log.d(TAG,"onPause:MainActivity");
        Toast.makeText(this,"ON PAUSE",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onStop(){
        super.onStop();
        Log.d(TAG,"onStop:MainActivity");
        Toast.makeText(this,"ON STOP",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onDestroy(){
        super.onDestroy();
        Log.d(TAG,"onDestroy:MainActivity");
        Toast.makeText(this,"ON DESTORY",Toast.LENGTH_SHORT).show();
    }
}

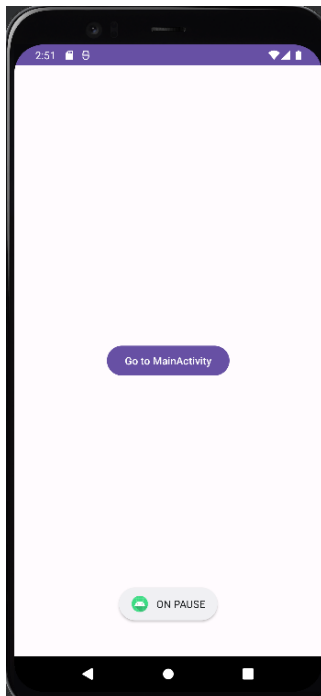
```

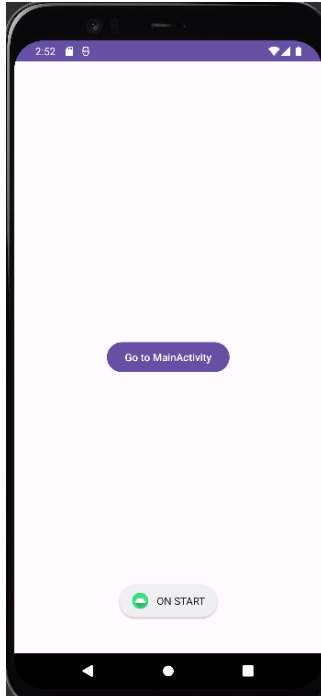
## Activity-main.xml

```
<?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">
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:padding="16dp">
        <Button
            android:id="@+id/btnGoToSecondActivity"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Go to MainActivity"
            android:layout_centerInParent="true"/>
    </RelativeLayout>

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

## OUTPUT





### 3. Android Calculator

#### CODE

##### MainActivity.java

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;
import android.view.View;
import android.os.Bundle;
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    EditText ed1,ed2;
    TextView tv1;
    double num1,num2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ed1=findViewById(R.id.ed1);
        ed2=findViewById(R.id.ed2);
        tv1=findViewById(R.id.tv1);
    }
    public void Add(View view){
```

```

String num1str=ed1.getText().toString();
String num2str=ed2.getText().toString();
if (!num1str.isEmpty() && !num2str.isEmpty()){
    double num1=Double.parseDouble(num1str);
    double num2=Double.parseDouble(num2str);
    double result=num1+num2;
    tv1.setText(String.valueOf(result));
}
else {
    tv1.setText("Result: Invalid Input");
}
}

public void Sub(View view){
    String num1str=ed1.getText().toString();
    String num2str=ed2.getText().toString();
    if (!num1str.isEmpty() && !num2str.isEmpty()){
        double num1=Double.parseDouble(num1str);
        double num2=Double.parseDouble(num2str);
        double result=num1-num2;
        tv1.setText(String.valueOf(result));
    }
    else {
        tv1.setText("Result:Invalid input");
    }
}

public void Mul(View view)
{
    String num1str=ed1.getText().toString();
    String num2str=ed2.getText().toString();
    if (!num1str.isEmpty() && !num2str.isEmpty()){
        double num1=Double.parseDouble(num1str);
        double num2=Double.parseDouble(num2str);
        double result=num1*num2;
        tv1.setText(String.valueOf(result));
    }
    else {
        tv1.setText("Result:Invalid input");
    }
}

public void Div(View view){
    String num1str=ed1.getText().toString();
    String num2str=ed2.getText().toString();
    if (!num1str.isEmpty() && !num2str.isEmpty()){
        double num1=Double.parseDouble(num1str);

```

```

        double num2=Double.parseDouble(num2str);
        if (num2 != 0){
            double result=num1/num2;
            tv1.setText(String.valueOf(result));
        }
        else {
            tv1.setText("Result:Division by zero");
        }
    }
    else {
        tv1.setText("Result:Invalid input");
    }
}
}

```

### Activity-main.xml

```

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <EditText
            android:id="@+id/ed1"
            android:layout_width="160dp"
            android:layout_height="wrap_content"
            android:hint="Num 1"/>

        <EditText
            android:id="@+id/ed2"
            android:layout_width="160dp"
            android:layout_height="wrap_content"
            android:hint="Num 2"/>
    </LinearLayout>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="120dp"
        android:text="Add"

```



```

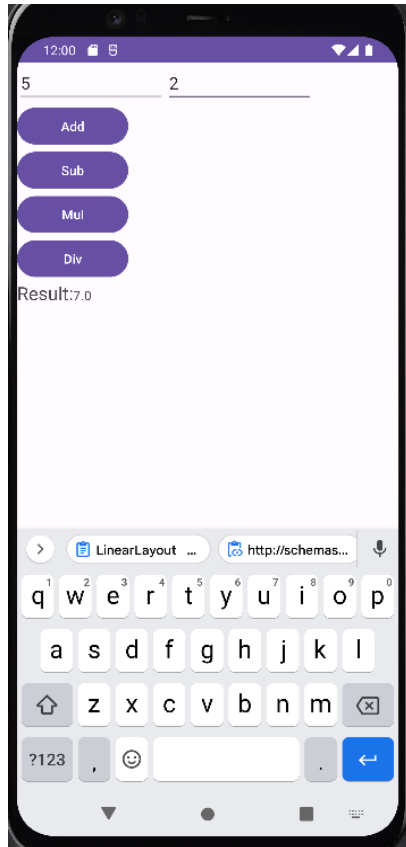
        android:onClick="Add"/>

<Button
    android:layout_height="wrap_content"
    android:layout_width="120dp"
    android:text="Sub"
    android:onClick="Sub"/>
<Button
    android:layout_height="wrap_content"
    android:layout_width="120dp"
    android:text="Mul"
    android:onClick="Mul"/>
<Button
    android:layout_height="wrap_content"
    android:layout_width="120dp"
    android:text="Div"
    android:onClick="Div"/>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    >
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Result:"
        android:textSize="20sp"/>
    <TextView
        android:id="@+id/tv1"
        android:layout_width="160dp"
        android:layout_height="30dp"
    />
</LinearLayout>

</LinearLayout>

```

## **CODE**



#### **4.uiValid**

#### **CODE**

##### MainActivity.java

```
package com.example.myapplication;

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;
public class MainActivity extends AppCompatActivity {
    EditText etUsername, etPassword;
    TextView tvUsernameError, tvPasswordError;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
etUsername = findViewById(R.id.etUsername);
etPassword = findViewById(R.id.etPassword);
tvUsernameError = findViewById(R.id.tvUsernameError);
tvPasswordError = findViewById(R.id.tvPasswordError);
Button btnSubmit = findViewById(R.id.btnSubmit);
btnSubmit.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        validateInput();
    }
});
}

private void validateInput() {
    String username = etUsername.getText().toString().trim();
    String password = etPassword.getText().toString().trim();
    boolean isValid = true;

    // Validate username
    if (username.isEmpty()) {
        tvUsernameError.setText("Username is required");
        isValid = false;
    } else {
        tvUsernameError.setText("");
    }

    // Validate password
    if (password.isEmpty()) {
        tvPasswordError.setText("Password is required");
        isValid = false;
    } else if (password.length() < 6) {
        tvPasswordError.setText("Password must be at least 6 characters");
        isValid = false;
    } else {
        tvPasswordError.setText("");
    }

    if (isValid) {
    }
}
}

```

## Activity-main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/etUsername"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
    />

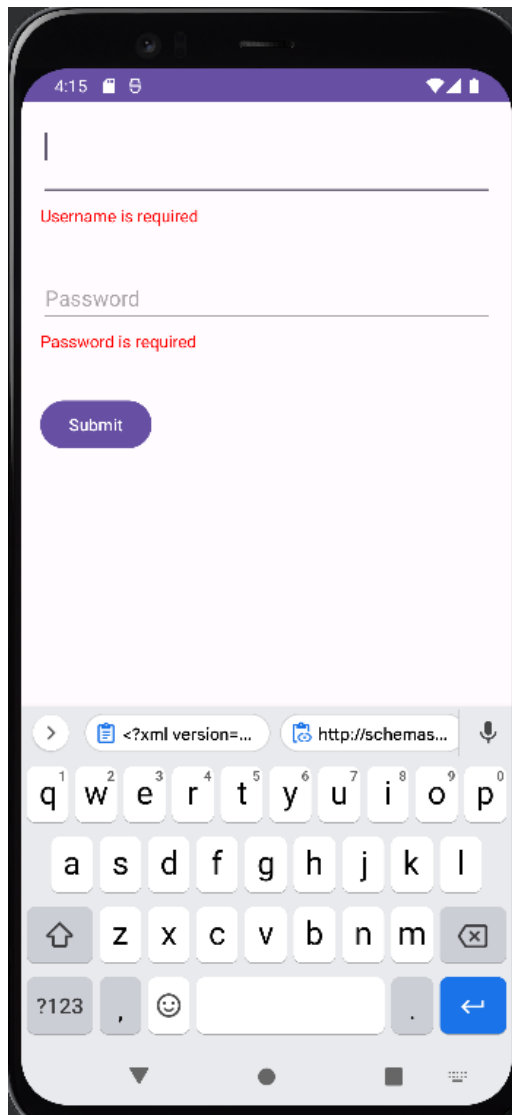
    <EditText
        android:id="@+id/etPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/etUsername"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="60dp"
        android:hint="Password"
        android:inputType="textPassword" />

    <Button
        android:id="@+id/btnSubmit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/etPassword"
        android:layout_alignStart="@+id/etUsername"
        android:layout_marginTop="59dp"
        android:text="Submit" />

    <TextView
        android:id="@+id/tvUsernameError"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/etUsername"
        android:layout_marginTop="4dp"
        android:text=""
        android:textColor="#FF0000" />
```

```
<TextView
    android:id="@+id/tvPasswordError"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/etPassword"
    android:layout_marginTop="4dp"
    android:text=""
    android:textColor="#FF0000"
/>
</RelativeLayout>
```

## OUTPUT



4:16

user

..

Password must be at least 6 characters

Submit

.....

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 , . ✓