Q1.Construct an Android application to accept a number and calculate and Display Factorial of a given number in TextView.

<RelativeLayout xmlns:android=<http://schemas.android.com/apk/res/android>

Xmlns:tools=<http://schemas.android.com/tools>

Android:layout\_width=”match\_parent”

Android:layout\_height=”match\_parent”

Tools:context=”.MainActivity”>

<EditText

Android:id=”@+id/numberInput”

Android:layout\_width=”match\_parent”

Android:layout\_height=”wrap\_content”

Android:hint=”Enter a number”

Android:inputType=”number” />

<Button

Android:id=”@+id/calculateButton”

Android:layout\_width=”wrap\_content”

Android:layout\_height=”wrap\_content”

Android:layout\_below=”@id/numberInput”

Android:layout\_marginTop=”16dp”

Android:text=”Calculate Factorial” />

<TextView

Android:id=”@+id/resultText”

Android:layout\_width=”wrap\_content”

Android:layout\_height=”wrap\_content”

Android:layout\_below=”@id/calculateButton”

Android:layout\_marginTop=”16dp”

Android:text=”Factorial: “

Android:textSize=”18sp” />

</RelativeLayout>

**Main.java**

Import android.os.Bundle;

Import android.view.View;

Import android.widget.Button;

Import android.widget.EditText;

Import android.widget.TextView;

Import androidx.appcompat.app.AppCompatActivity;

Public class MainActivity extends AppCompatActivity {

Private EditText numberInput;

Private Button calculateButton;

Private TextView resultText;

@Override

Protected void onCreate(Bundle savedInstanceState) {

Super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

numberInput = findViewById(R.id.numberInput);

calculateButton = findViewById(R.id.calculateButton);

resultText = findViewById(R.id.resultText);

calculateButton.setOnClickListener(new View.OnClickListener() {

@Override

Public void onClick(View v) {

calculateFactorial();

}

});

}

Private void calculateFactorial() {

String input = numberInput.getText().toString();

If (input.isEmpty()) {

resultText.setText(“Please enter a number”);

return;

}

Int number = Integer.parseInt(input);

Long factorial = calculateFactorial(number);

resultText.setText(“Factorial: “ + factorial);

}

Private long calculateFactorial(int n) {

If (n == 0) {

Return 1;

}

Return n \* calculateFactorial(n – 1);

}

}

Q2. Create an Android application, which show Login Form. After clicking LOGIN button display the “Login Successful…” message if username and Password is same else display “Invalid Login” message in Toast Control.

<?xml version=”1.0” encoding=”utf-8”?>

<RelativeLayout xmlns:android=<http://schemas.android.com/apk/res/android>

Xmlns:tools=<http://schemas.android.com/tools>

Android:layout\_width=”match\_parent”

Android:layout\_height=”match\_parent”

Tools:context=”.MainActivity”>

<EditText

Android:id=”@+id/editTextUsername”

Android:layout\_width=”match\_parent”

Android:layout\_height=”wrap\_content”

Android:hint=”Username”

Android:layout\_margin=”16dp”/>

<EditText

Android:id=”@+id/editTextPassword”

Android:layout\_width=”match\_parent”

Android:layout\_height=”wrap\_content”

Android:hint=”Password”

Android:inputType=”textPassword”

Android:layout\_below=”@id/editTextUsername”

Android:layout\_margin=”16dp”/>

<Button

Android:id=”@+id/buttonLogin”

Android:layout\_width=”wrap\_content”

Android:layout\_height=”wrap\_content”

Android:text=”LOGIN”

Android:layout\_below=”@id/editTextPassword”

Android:layout\_centerHorizontal=”true”

Android:layout\_marginTop=”24dp”/>

</RelativeLayout>

**Main.java**

Import android.os.Bundle;

Import android.view.View;

Import android.widget.Button;

Import android.widget.EditText;

Import android.widget.Toast;

Import androidx.appcompat.app.AppCompatActivity;

Public class MainActivity extends AppCompatActivity {

Private EditText editTextUsername, editTextPassword;

Private Button buttonLogin;

@Override

Protected void onCreate(Bundle savedInstanceState) {

Super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

editTextUsername = findViewById(R.id.editTextUsername);

editTextPassword = findViewById(R.id.editTextPassword);

buttonLogin = findViewById(R.id.buttonLogin);

buttonLogin.setOnClickListener(new View.OnClickListener() {

@Override

Public void onClick(View v) {

Login();

}

});

}

Private void login() {

String username = editTextUsername.getText().toString().trim();

String password = editTextPassword.getText().toString().trim();

// Check if username and password are the same

If (username.equals(password)) {

// Login successful

Toast.makeText(this, “Login Successful…”, Toast.LENGTH\_SHORT).show();

} else {

// Invalid login

Toast.makeText(this, “Invalid Login”, Toast.LENGTH\_SHORT).show();

}

}

}