//Write a Java Swing application to allow the user to enter a number N, a button "Prime" which on clicking generates the first N prime numbers and places them in a text area, a button "Factorial" which on clicking obtains the factorial of N and appends it to the text area!

```
import java.util.*;
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class Swing{
	public static void main(String[] args){
		JFrame frame = new JFrame();

		JTextField textField = new JTextField(20);
		textField.setBounds(130,100,100, 40); //x axis, y axis, width, height

		JButton primeButton = new JButton("Prime");
		primeButton.setBounds(130,150,100, 40); //x axis, y axis, width, height

		JButton factButton = new JButton("Factorial");
		factButton.setBounds(130,200,100, 40); //x axis, y axis, width, height

		JButton clearButton = new JButton("Clear");
		clearButton.setBounds(130,250,100, 40); //x axis, y axis, width, height


		JTextArea textArea = new JTextArea();
		textArea.setFont(new Font("Serif", Font.ITALIC, 16));
		textArea.setLineWrap(true);
		textArea.setWrapStyleWord(true);

		JScrollPane scroll = new JScrollPane(textArea);
		scroll.setBounds(100,300,200, 200); //x axis, y axis, width, height

		primeButton.addActionListener(new ActionListener(){
		  public void actionPerformed(ActionEvent ae){
			String textFieldValue = textField.getText();
			if(textFieldValue.length() > 0){
				textArea.append("Prime Numbers: \n");
				try{
					for(String s : getPrimes(Integer.parseInt(textFieldValue)) ){
						textArea.append(s+"\n");
					}
```

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                        }catch(Exception e){
                                textArea.append("Invalid input \n \n");
                        }

                }else{
                        textArea.append("Enter some number! \n");
                }
          }
        });

        factButton.addActionListener(new ActionListener(){
          public void actionPerformed(ActionEvent ae){
                String textFieldValue = textField.getText();
                if(textFieldValue.length() > 0)
                        try{
                                textArea.append("\nFactorial:
\n"+factorial(Integer.parseInt(textFieldValue))+"\n");
                        }catch(Exception e){
                                textArea.append("Invalid input \n \n");
                        }
                else
                        textArea.append("Enter some number! \n");
          }
        });

        clearButton.addActionListener(new ActionListener(){
          public void actionPerformed(ActionEvent ae){
                textArea.setText("");
                textField.setText("");
          }
        });


        frame.setLayout(null);
        frame.setSize(400,600);
        frame.add(textField);
        frame.add(primeButton);
        frame.add(factButton);
        frame.add(clearButton);
        frame.add(scroll);
        frame.setVisible(true);
    }
```

```
	public static long factorial(int n) {
		long fact = 1; // this  will be the result
		for (int i = 1; i <= n; i++) {
			fact *= i;
		}
		return fact;
	}

	public static ArrayList<String> getPrimes(int N){
		int count=0;
		ArrayList<String> result = new ArrayList<>();
		int num=2;
		while(count!=N)// while count!= number of prime numbers entered keep
searching..
		{
			boolean prime=true;// to determine whether the number is prime or not
			for (int i=2;i<=Math.sqrt(num);i++)//efficiency matters
			{
				if (num%i==0)
				{
					prime=false;// if number divides any other number its not a
prime so set prime to false and break the loop.
					break;
				}

			}
			if (prime)
			{
				count++;
				result.add(""+num);
			}
			num++;
		}
		return result;
	}
}
```