

Q.1 Write simple Java Program to print factorial given

no use recursion.--> public class Factorial {

```
    public static int factorial(int n) {
        if (n == 0 || n == 1) {
            return 1;
        } else {
            return n * factorial(n - 1);
        }
    }
    public static void main(String[] args) {
        int number = 5;
        for
        int result = factorial(number);
        System.out.println("The factorial of " +
        number + " is: " + result);
    }
}
```

Q. 2 Write a Java program to implement student information in a file and perform the operations on it?

```
-> import javax.swing.*; import
java.awt.*; import java.awt.event.*;
import java.io.*; public class GFG {
    public static void StudentInfo() { JFrame f
    = new JFrame( "Student Details Form"); /
    JLabel l1, l2, l3, l4, l5; / JTextField t1, t2, t3;
    /JComboBox j1, j2; / JButton b1, b2; / l1 =
    new JLabel("Student Name:");
    /l1.setBounds(50, 50, 100, 30); / l2 = new
    JLabel("College Email ID:"); /
    l2.setBounds(50, 120, 120, 30); / l3 = new
    JLabel("Branch:"); / l3.setBounds(50, 190,
    50, 30); / l4 = new JLabel("Section:");
    /l4.setBounds(420, 50, 70, 30); /l5 = new
    JLabel("Mobile No:"); /l5.setBounds(420,
    120, 70, 30); / t1 = new JTextField();
    t1.setBounds(150, 50, 130, 30); t2 = new
    JTextField(); /t2.setBounds(160, 120, 130,
    30); / t3 = new JTextField();
    /t3.setBounds(490, 120, 130, 30); /
    String s1[] = { " ", "CSE", "ECE", "EEE",
    "CIVIL", "MEC", "Others" }; / String s2[] = { "
    ", "Section-A", "Section-B", "Section-C",
    "Section-D", "Section-E" }; /
```

```
    / j1 = new JComboBox(s1);
    j1.setBounds(120, 190, 100, 30); j2 = new
    JComboBox(s2); j2.setBounds(470, 50, 140,
    30); // b1 = new JButton("Save");
    b1.setBounds(150, 300, 70, 30); b2 = new
    JButton("close"); b2.setBounds(420, 300,
    70, 30); /
    /b1.addActionListener(new ActionListener()
    { public void actionPerformed(ActionEvent
    e) { /String s1 = t1.getText(); String s2 =
    t2.getText(); String s3 = j1.getSelectedItem()
    + ""; String s4 = j2.getSelectedItem() + "";
    String s5 = t3.getText(); if (e.getSource() ==
    b1) { try { /Textfile. FileWriter w = new
    FileWriter( "GFG.txt", true); w.write(s1 +
    "\n"); w.write(s2 + "\n"); w.write(s3 + "\n");
    w.write(s4 + "\n"); w.write(s5 + "\n");
    w.close(); } catch (Exception ae) {
    System.out.println(ae); } } /JOptionPane
    .showMessageDialog( f, "Successfully
    Saved" + " The Details"); } });
    b2.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e)
    { f.dispose(); } });
    /f.addWindowListener(new
    WindowAdapter() { public void
    windowClosing(WindowEvent e) {
    System.exit(0); } }); / f.add(l1); f.add(t1);
    f.add(l2); f.add(t2); f.add(l3); f.add(j1);
    f.add(l4); f.add(j2); f.add(l5); f.add(t3);
    f.add(b1); f.add(b2); f.setLayout(null);
    f.setSize(700, 600); f.setVisible(true);
    } /public static void main(String args[]) {
    StudentInfo(); } }
```

Q. 1. Write a simple Java program to generate 5 random numbers.?

```
->import java.util.Random;
public class RandomNumberGenerator {
    public static void main(String[] args) {
        Random random = new Random();
        System.out.println("Generated random
        numbers:");
    }
```

```

    for (int i = 0; i < 5; i++) {
        int randomNumber =
random.nextInt();
        System.out.println(randomNumber);
    }
}

```

Q. 2. Write a program to design Registration process form using Applet and AWT components

```

import java.applet.Applet;/import
java.awt.Button;/import
java.awt.Color;/import
java.awt.Font;/import
java.awt.Label;/import
java.awt.TextField;/import
java.awt.event.ActionEvent;
/import java.awt.event.ActionListener;

public class RegistrationForm extends
Applet implements ActionListener {
    private TextField nameField;/private
TextField emailField;/ private TextField
passwordField;/private Button
registerButton; /public void init() { /
setSize(400, 200);
/setBackground(Color.lightGray);
/ Label nameLabel = new
Label("Name:");/Label emailLabel = new
Label("Email:");/Label passwordLabel = new
Label("Password:");
/nameField = new TextField(20);/emailField
= new TextField(20);/passwordField = new
TextField(20);
/passwordField.setEchoChar('*');
/ registerButton = new
Button("Register");
/registerButton.addActionListener(this);
/ setLayout(null);/
nameLabel.setBounds(50, 50, 100,
20);/add(nameLabel);/nameField.setBounds
(160, 50, 150, 20);/
add(nameField);/emailLabel.setBounds(50,
80,100,20);/add(emailLabel);/emailField.set

```

```

Bounds(160,80,150,20);/add(emailField);/p
asswordLabel.setBounds(50, 110, 100,
20);/add(passwordLabel);
/passwordField.setBounds(160, 110, 150,
20);
/add(passwordField); /
registerButton.setBounds(160, 150, 80, 30);
/add(registerButton);}

```

```

    public void actionPerformed(ActionEvent
e) {/if (e.getSource() == registerButton)
{/String name = nameField.getText(); /
String email = emailField.getText();/ String
password = passwordField.getText();
/ Label confirmationLabel = new
Label("Registration successful!"); /
confirmationLabel.setFont(new
Font("Arial",Font.BOLD,16));/confirmationL
abel.setBounds(50, 200, 300,
30);/add(confirmationLabel);}}

```

Q. 1. Write a Java Program to implement stack using Queue interface?

```

-> import java.util.Queue;/ import
java.util.LinkedList; /class Main { / public
static void main(String[] args) { /
Queue numbers = new LinkedList<>(); /
numbers.offer(1); / numbers.offer(2);
/numbers.offer(3);/System.out.println("Que
ue: " + numbers / int removedNumber =
numbers.poll();/System.out.println("Remov
ed Element: " + removedNumber); /
System.out.println("Queue after deletion: "
+ numbers); } }

```

Q. 2 Write a JAVA Servlet Program to implement and demonstrate get () and Post () methods (Using HTTP Servlet Class).
-> index.html

```
Prog3.java (Servlet File) import java.io.*;
import javax.servlet.*; import
javax.servlet.http.*; /public class Prog3
extends HttpServlet {/ public void
doPost(HttpServletRequest request,
HttpServletResponse response)/ throws
ServletException,IOException {/ String
color=request.getParameter("color");
/response.setContentType("text/html"); try
(PrintWriter out = response.getWriter())/ {
out.println(""); /out.println("");
/out.println(""); out.println("");
/out.println("");/ out.println("
");/ out.println("Hello from Post method");/
out.println("You have selected" + " " + color
+ " " + "color"); out.println("
"); } } public void
doGet(HttpServletRequest request,
HttpServletResponse response) throws
ServletException,IOException {
response.setContentType("text/html"); try
(PrintWriter out = response.getWriter()) {
out.println("Hello from Get method");
out.println("Welcome to AIT"); } }
```

Q. 1 Write a Java Program to Implement stack using Stack class?

```
-? class Main { / public static void
main(String[] args) { / Stack animals= new
Stack<>(); /animals.push("Dog");
/animals.push("Horse");
/animals.push("Cat");
/System.out.println("Stack: " + animals);
/animals.pop(); System.out.println("Stack
after pop: " + animals); } }
```

Q.2 Wri JSP Pro validate username & pass?

```
-> <%@ page language="java"
contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8" %>
<!DOCTYPE
html>/<html>/<head>/<title>Login
Validation</title> / </head> / <body> /
<h2>Login Form</h2>/ <form
action="login.jsp" method="post">
<label
for="username">Username:</label>
<input type="text" id="username" name="us
ername" required><br><br>/<label for="pass
word">Password:</label>/<input type="pas
sword" id="password" name="password"
required><br><br>
<input type="submit"
value="Submit">/</form>
<!-- JSP code to process the form
submission --%>
<%
String username=request.getParameter("us
ername");/String password=request.getPara
meter("password");/ if (username != null
&& password != null)
{/if(username.equals("admin")&&password.
equals("password123"))
{/out.println("<h3>Login
Successful</h3>")} else {
out.println("<h3>Login Failed. Invalid
username or password.</h3>");
}}/%>/</body>/</html>
```

Q1 Wrt java Pro implement thread using runnable interface ?

```
-> public class
RunnableThreadExample implements
Runnable { / @Override/ public void run(){ /
for(int i=1;i<=5;i++){/System.out.println("
Thread: " + Thread.currentThread().getId() +
", Value: " + i); / try { /
Thread.sleep(1000); /
```

```

}catch(InterruptedException){/e.printStackTrace
Trace();
}} }
    public static void main(String[] args) {
Thread thread1 = new Thread(new
RunnableThreadExample());
/ Thread thread2 = new Thread(new
RunnableThreadExample());/
thread1.start();
thread2.start();/ }}

```

Q. 2 Writ JSP pro to print current date & time ?

```

-> <%@ page import="java.util.Date"
%>/<html>/ <head> / <title>Current Date
and Time</title> /</head> /<body> /
<h1>Current Date and Time:</h1>
/<jsp:useBean id="currentDate"
class="java.util.Date" /> / <%= currentDate
%> / </body> /</html> .

```