1. **Write a program in Java to print Fibonacci series.**

****

```
import java.util.Scanner;
class FibonacciSeriesExample
{

    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter Number=");
        int count=sc.nextInt();
        int n1=0;
        int n2=1;
        System.out.println(n1);
        System.out.println(n2);

        for(int i=2;i<count;i++)
        {
            int temp=n1;
            n1 = n2;
            n2=temp + n2;
            System.out.println(n2);
```

```
        }


    }
}
**********************************************************************
*
    //1,1,2,3,5,8,13,21,34,
```

2. **Write a program in Java to print Factorial of a number.**

```
import java.util.Scanner;
public class FactorialProgram
{
    public static void main(String[] args)
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter Number=");
        int n = sc.nextInt();
        int fact=1;
        for(int i=1; i<=n;i++)
        {
            fact=fact * i;


        }
        System.out.println(fact);
```

```
        }
}
```

****

```
//5!=5*4*3*2*1
```

3. Write a program in Java to demonstrate command line arguments.

```
public class CommandLineArgsExample
{
        public static void main(String[] args)
        {
                System.out.println("Below are arguments pass to program");
                for(String a:args)
                {
                        System.out.println(a);

                }
        }
}
```

4. Write a program in Java to create student information using array.

//Write a program in java to create student information using array.

```
import java.util.Scanner;
public class StudentArrayExample
{
    public static class Student
    {
        public String name;
        public String dob;
        public int rollno;
    }
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter number of Student=");
        int n=sc.nextInt();
        Student[] studentsArr =new Student[n];

        for(int i=0; i<n; i++)
```

```
        {
            System.out.println("****"+(i+1)+"****");
            Student s = new Student();
            System.out.print("Enter Student Roll Number=");
            s.rollno=sc.nextInt();
            System.out.print("Enter Student name=");
            s.name=sc.next();
            System.out.print("Enter Student DOB=");
            s.dob=sc.next();

            studentsArr[i]=s;
        }
        System.out.println("\n**********Show all
Students*******");
        for(Student s:studentsArr)
        {
            System.out.println("Roll Number  ="+s.rollno);
            System.out.println("Student Name ="+s.name);
            System.out.println("Student DOB  ="+s.dob);
```

```
                System.out.println("");
            }


        }
}
```

5. Write a program in Java to implement user defined package.

```
package school;
public class Student
{
    public String name;
    public String dob;
    public int rollno;
    public void show()
    {

    System.out.println("Name="+this.name);
```

```
        System.out.println("DOB="+this.dob);

    System.out.println("RollNumber="+this.roll
no);
    }
}

//javac -d . Student.java
//java Student
```

```
import school.Student;
public class StudentManager
{
    public static void main(String[] args)
    {
        Student s = new Student();
        s.name ="Akshita";
```

```
        s.dob ="21/01/1999";
        s.rollno=35;
        s.show();
    }
}
```

---

6. Write a program in Java to implement default & parameterized constructor.

```
public class Contact
{
    public String name;
    public String mobile;
    public String email;
    public int age;

    public Contact() //Default Constructor
    {
        this.name="";
        this.mobile="";
```

```
        this.email="";
        this.age=0;


    }
    public Contact(String name,String mobile,String email,int
age) //Parameterize constructor
    {
        this.name=name;
        this.mobile=mobile;
        this.email=email;
        this.age=age;
    }
    public Contact(Contact c) //Copy Constructor
    {
        this.name=c.name;
        this.mobile=c.mobile;
        this.email=c.email;
        this.age=c.age;
    }
```

```
    public void show()
    {
        System.out.println("\nName="+this.name);
        System.out.println("Mobile="+this.mobile);
        System.out.println("Email="+this.email);
        System.out.println("Age="+this.age);
    }
    public static void main(String[] args)
    {
        Contact c = new Contact(); //using default constructor
        c.show();
        Contact c1 = new
Contact("Vedika","7769656589","test@gmail.com",20); //using
Parameter constructor
        c1.show();

        Contact c2 = new Contact(c1); //using copy
constructor
        c2.show();
```

```
    }
}
```

---

7. **Write a program in Java to demonstrate various operations on string functions.**

```
public class StringExample
{
    public static void main(String[] args)
    {

        String name = "Test";
        //length function
        System.out.println("Length function="+name.length());
        //split
        String msg = "ssbt college of engineering";
        String[] strArray=msg.split(" ");
        //System.out.println("Split function="+split());
        for(String s: strArray)
        {
            System.out.println(s);
        }
        //split function
```

```
String cityNames = "Jalgaon,Pune,Kalyan,Mumbai";
System.out.println("\nBefore split="+cityNames);
String[] cityArray =cityNames.split(",");
System.out.println("\nAfter split=");
for(String s:cityArray)
{
        System.out.println(s);
}

//compareTo function
String str1="Java Programming";
String str2="Java Programming";
String str3="Java Programming1";
System.out.println(str1.compareTo(str2));
System.out.println(str1.compareTo(str3));
System.out.println(str3.compareTo(str1));
//replace
System.out.println("\n3.replace() ");
String msg1 = "Happy Wednesday";
System.out.println("before replace="+msg1);
```

```
        System.out.println("after
replace="+msg1.replace("Wednesday","Thursday"));

        //substring

        System.out.println("\n4.substring() ");

        String msg2 = msg1.substring(0,5);

        System.out.println(msg2);

        //indexOf

        System.out.println("\n5.indexOf() ");

        System.out.println("IndexOf W in
msg1="+msg1.indexOf("W"));

        //contain

        System.out.println("\n6.contain() ");

        System.out.println("msg1 contain Happy="+
msg1.contains("Happy"));

        //charAt

        System.out.println("\n7.charAt() ");

        System.out.println("charAt index 4="+msg1.charAt(4));

        //Trim


        System.out.println("\n8.trim() ");

        String msg4 = " Good Morning everyone   ";

        System.out.println("trim all spaces="+msg4.trim());
```

```
    }
}
```

---

8. Write a program in Java to demonstrate wrapper classes.

```
public class WrapperDemo {
    public static void main(String[] args) {
        // Creating wrapper objects
        Integer intObj = new Integer(10); // Integer wrapper for int
        Double doubleObj = new Double(3.14); // Double wrapper for double
        Character charObj = new Character('A'); // Character wrapper for char
        Boolean boolObj = new Boolean(true); // Boolean wrapper for boolean

        // Using wrapper objects
        System.out.println("Integer Value: " + intObj.intValue());
        System.out.println("Double Value: " + doubleObj.doubleValue());
        System.out.println("Character Value: " + charObj.charValue());
        System.out.println("Boolean Value: " + boolObj.booleanValue());
```

```
        // Autoboxing: automatic conversion from primitive type to
wrapper class
        Integer intObjAutoboxing = 20;
        Double doubleObjAutoboxing = 6.28;
        Character charObjAutoboxing = 'B';
        Boolean boolObjAutoboxing = true;

        // Unboxing: automatic conversion from wrapper class to primitive
type
        int intValue = intObjAutoboxing;
        double doubleValue = doubleObjAutoboxing;
        char charValue = charObjAutoboxing;
        boolean boolValue = boolObjAutoboxing;

        // Using unboxed values
        System.out.println("Autoboxing Integer Value: " + intValue);
        System.out.println("Autoboxing Double Value: " + doubleValue);
        System.out.println("Autoboxing Character Value: " + charValue);
        System.out.println("Autoboxing Boolean Value: " + boolValue);
    }
}
```

9. Write a program in Java to implement inheritance.

```
class Employee{
 float salary=40000;
}
class Programmer extends Employee{
 int bonus=10000;
 public static void main(String args[]){
   Programmer p=new Programmer();
   System.out.println("Programmer salary is:"+p.salary);
   System.out.println("Bonus of Programmer is:"+p.bonus);
}
}
```

10.Write a program in Java to demonstrate exception handling.

```
package exceptionhandling;
import java.util.Scanner;
public class ExceptionHandlingExample {
```

```
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Number For Division:");
        Integer n= sc.nextInt();
        Integer div=0;
        try{
            div=100/n;
        }catch (ArithmeticException e){
            System.out.println("The number " +n+ " cannot
divisible by 100");
            e.printStackTrace();
        }
        finally {
            System.out.println("division="+div);
        }
```

```
    }
}
```

11.Write awt/Swing program in java to create students' registration form

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

public class StudentRegistrationForm extends JFrame {
    // Labels
    private JLabel nameLabel = new JLabel("Name:");
    private JLabel ageLabel = new JLabel("Age:");
    private JLabel genderLabel = new JLabel("Gender:");
    private JLabel courseLabel = new JLabel("Course:");

    // Text Fields
    private JTextField nameField = new JTextField(20);
    private JTextField ageField = new JTextField(5);
```

```
    // Radio Buttons
    private JRadioButton maleRadioButton = new JRadioButton("Male");
    private JRadioButton femaleRadioButton = new JRadioButton("Female");
    private ButtonGroup genderGroup = new ButtonGroup();

    // Combo Box
    private String[] courses = {"Mathematics", "Physics", "Chemistry", "Biology"};
    private JComboBox<String> courseComboBox = new JComboBox<>(courses);

    // Button
    private JButton registerButton = new JButton("Register");
```

```
    public StudentRegistrationForm() {
        setTitle("Student Registration Form");
        setSize(300, 200);

setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLocationRelativeTo(null);

        JPanel panel = new JPanel(new GridLayout(5, 2));

        panel.add(nameLabel);
        panel.add(nameField);
        panel.add(ageLabel);
        panel.add(ageField);
        panel.add(genderLabel);
        genderGroup.add(maleRadioButton);
        genderGroup.add(femaleRadioButton);
        JPanel genderPanel = new JPanel();
        genderPanel.add(maleRadioButton);
```

```
        genderPanel.add(femaleRadioButton);
        panel.add(genderPanel);
        panel.add(courseLabel);
        panel.add(courseComboBox);
        panel.add(new JLabel()); // Placeholder for spacing
        panel.add(registerButton);

        registerButton.addActionListener(new
ActionListener() {
            public void actionPerformed(ActionEvent e) {
                String name = nameField.getText();
                int age = Integer.parseInt(ageField.getText());
                String gender = maleRadioButton.isSelected() ?
"Male" : "Female";
                String course = (String)
courseComboBox.getSelectedItem();

                // Perform registration process (for now, let's
just print the details)
```

```
            System.out.println("Name: " + name);
            System.out.println("Age: " + age);
            System.out.println("Gender: " + gender);
            System.out.println("Course: " + course);
        }
    });

    add(panel);
    setVisible(true);
}

public static void main(String[] args) {
    SwingUtilities.invokeLater(new Runnable() {
        public void run() {
            new StudentRegistrationForm();
        }
    });
}
```

```
}
```

12.Write awt/Swing program in java to demonstrate different events

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

public class EventDemo {
    private JFrame frame;
    private JLabel label;

    public EventDemo() {
        frame = new JFrame("Event Demo");
        frame.setSize(300, 200);

frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        label = new JLabel("No event yet.");
        frame.add(label, BorderLayout.CENTER);
```

```
        JButton button = new JButton("Click Me");
        button.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                label.setText("Button Clicked!");
            }
        });
        frame.add(button, BorderLayout.NORTH);

        frame.addMouseListener(new MouseAdapter() {
            public void mouseClicked(MouseEvent e) {
                label.setText("Mouse Clicked at (" + e.getX() + ", " +
e.getY() + ")");
            }
        });

        frame.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                JOptionPane.showMessageDialog(frame, "Window is
closing!");
```

```
            }
        });

        frame.setVisible(true);
    }

    public static void main(String[] args) {
        new EventDemo();
    }
}
```

13.Write a program in Java to demonstrate text stream object that take input from user & write it into text file.

```
import java.io.*;

public class TextStreamWriter {
    public static void main(String[] args) {
        BufferedReader reader = new BufferedReader(new
InputStreamReader(System.in));
        BufferedWriter writer = null;
```

```
        try {
            writer = new BufferedWriter(new
FileWriter("output.txt"));

            System.out.println("Enter text (type 'exit' to quit):");
            String line;
            while (!(line =
reader.readLine()).equalsIgnoreCase("exit")) {
                writer.write(line);
                writer.newLine();
            }

            System.out.println("Text written to output.txt
successfully.");
        } catch (IOException e) {
            System.err.println("Error writing to file: " +
e.getMessage());
        } finally {
            try {
                if (writer != null)
```

```
                writer.close();
            if (reader != null)
                reader.close();
        } catch (IOException e) {
            System.err.println("Error closing streams: " +
e.getMessage());
        }
    }
}
```