SRI KRISHNA
ARTS AND SCIENCE COLLEGE

RECORD NOTE

DEPARTMENT : COMPUTER TECHNOLOGY AND DATA SCIENCE

NAME

ROLL NUMBER

PROGRAMME____

CLASS____

COURSE____

SRI KRISHNA

ARTS AND SCIENCE COLLEGE

ROLL.NO:

Certified bonafide record of work done by____________________________________

during the year 2024 - 2025

Staff In-charge **Head of the Department**

Submitted to the Sri Krishna Arts & Science College (Autonomous) end semester examination

held on____________________________________

Internal Examiner **External Examiner**

DECLARATION

I____________________hereby declare that this record of observations is based on the experiments carried out and recorded by me during the laboratory classes of "_________________________________" conducted by SRI KRISHNA ARTS AND SCIENCE COLLEGE, Coimbatore-641 008.

Date: Signature of the Student

Name of the Student :

Roll Number :

Countersigned by Staff

CONTENT

EX NO. 1 DATE :	**WRITE JAVA PROGRAM TO ATTAIN CODE REUSABILITY USING INHERITANCE**

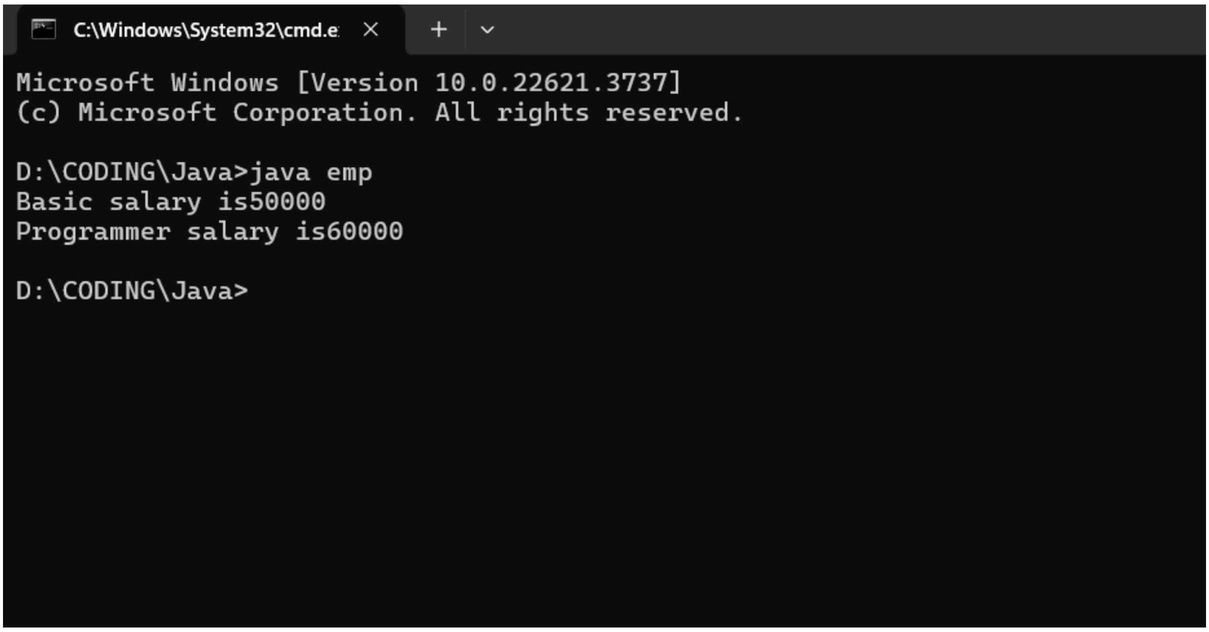
AIM :

ALGORITHM :

PROGRAM 1

```
import java.util.Scanner;
class Employee {
int salary = 50000;
void basic_salary() {
System.out.println("Basic salary is"+salary);
}
}
class Programmer extends Employee {
int increment = 10000;
int prog_salary = salary + increment;
void print_salary() {
System.out.println("Programmer salary is"+prog_salary);
}
}
public class emp {
public static void main(String args[]) {
Programmer p1 = new Programmer();
p1.basic_salary();
p1.print_salary();
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java emp
Basic salary is50000
Programmer salary is60000

D:\CODING\Java>
```

RESULT :

Thus , the above program has executed successfully .

EX NO. 2

DATE :

WRITE JAVA PROGRAM TO SIMULATE THE CPU SCHEDULING ALGORITHM

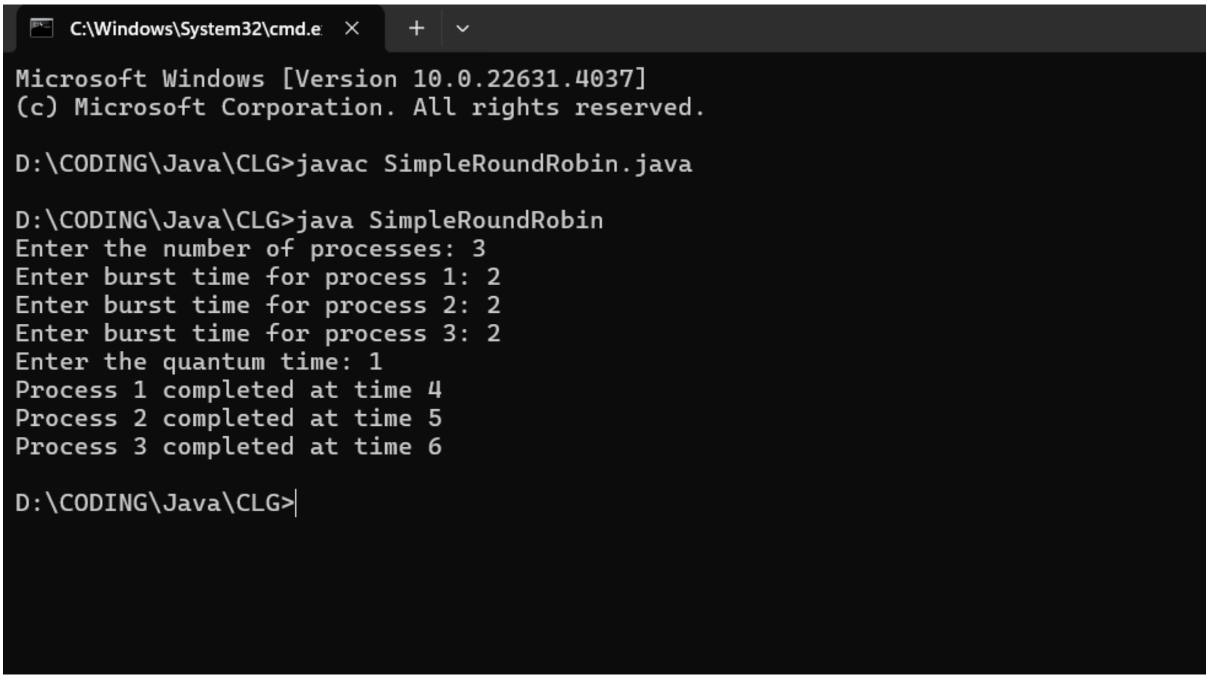
AIM :

ALGORITHM :

PROGRAM 1

```
import java.util.LinkedList;
import java.util.Queue;
import java.util.Scanner;

public class SimpleRoundRobin {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the number of processes: ");
        int numProcesses = scanner.nextInt();
        int[] burstTimes = new int[numProcesses];

        for (int i = 0; i < numProcesses; i++) {
            System.out.print("Enter burst time for process " + (i + 1) + ": ");
            burstTimes[i] = scanner.nextInt();
        }

        System.out.print("Enter the quantum time: ");
        int quantum = scanner.nextInt();

        roundRobinScheduling(burstTimes, quantum);
    }

    public static void roundRobinScheduling(int[] burstTimes, int quantum) {
        int numProcesses = burstTimes.length;
        int[] remainingTimes = new int[numProcesses];
        System.arraycopy(burstTimes, 0, remainingTimes, 0, numProcesses);
        Queue<Integer> queue = new LinkedList<>();
        for (int i = 0; i < numProcesses; i++) {
            queue.add(i);
        }

        int currentTime = 0;

        while (!queue.isEmpty()) {
            int i = queue.poll();

            if (remainingTimes[i] > quantum) {
                currentTime += quantum;
                remainingTimes[i] -= quantum;
                queue.add(i);
            } else {
                currentTime += remainingTimes[i];
                System.out.println("Process " + (i + 1) + " completed at time " +
currentTime);
                remainingTimes[i] = 0;
            }
        }
    }
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG>javac SimpleRoundRobin.java

D:\CODING\Java\CLG>java SimpleRoundRobin
Enter the number of processes: 3
Enter burst time for process 1: 2
Enter burst time for process 2: 2
Enter burst time for process 3: 2
Enter the quantum time: 1
Process 1 completed at time 4
Process 2 completed at time 5
Process 3 completed at time 6

D:\CODING\Java\CLG>
```

RESULT :

Thus , the above program has executed successfully .

EX NO. 3

DATE :

WRITE A JAVA PROGRAM USING INTERFACE

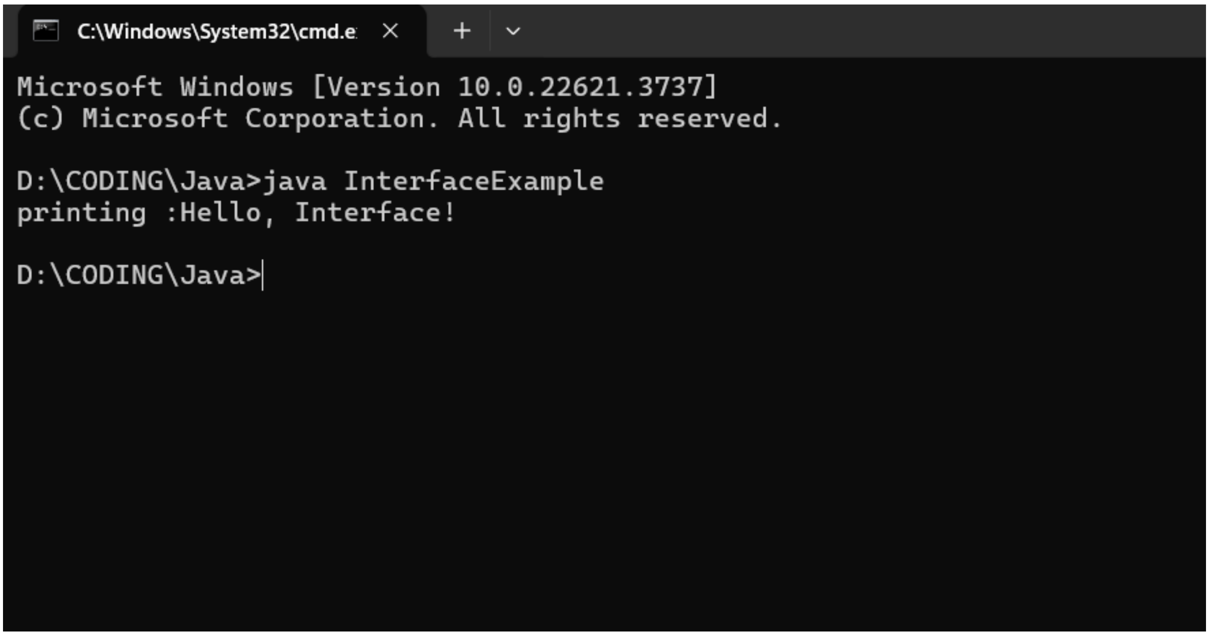
AIM :

ALGORITHM :

PROGRAM 1

```
interface Printer
{
void print(String message);
}
class ConsolePrinter implements Printer
{
public void print(String message)
{
System.out.println("printing :" + message);
}
}
public class InterfaceExample
{
public static void main(String[]args)
{
Printer printer = new ConsolePrinter();
printer.print ("Hello, Interface!");
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java InterfaceExample
printing :Hello, Interface!

D:\CODING\Java>
```

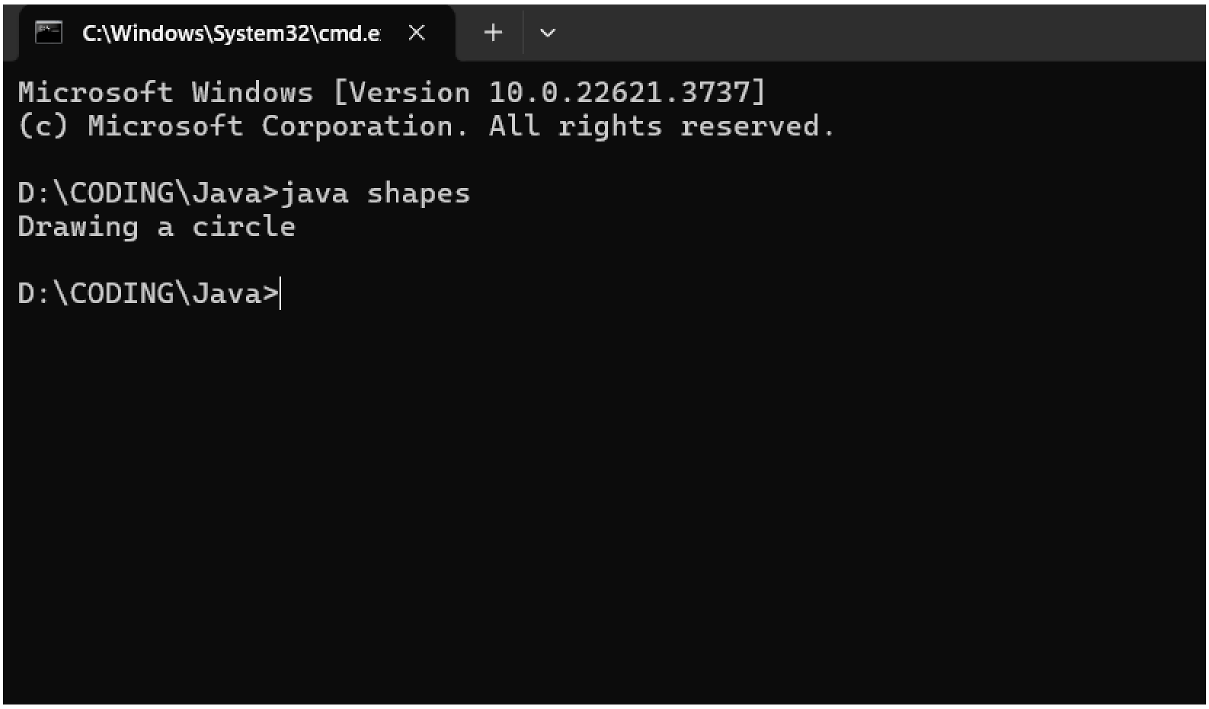
RESULT :

Thus , the above program has executed successfully .

PROGRAM 2

```
interface Shape
{
void draw();
}
class Circle implements Shape { @Override
public void draw() { System.out.println("Drawing a circle");
}
}
class Square implements Shape { @Override
public void draw() { System.out.println("Drawing a square ");
}
}
public class shapes{
public static void main(String[]args)
{
Shape circle = new Circle();
 Shape square = new Square();
 String shapeType = "circle";
 switch (shapeType){ case"circle":
circle.draw(); break; case"square": square.draw(); break; default:
System.out.println("unknow shape");
}}}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java shapes
Drawing a circle

D:\CODING\Java>
```

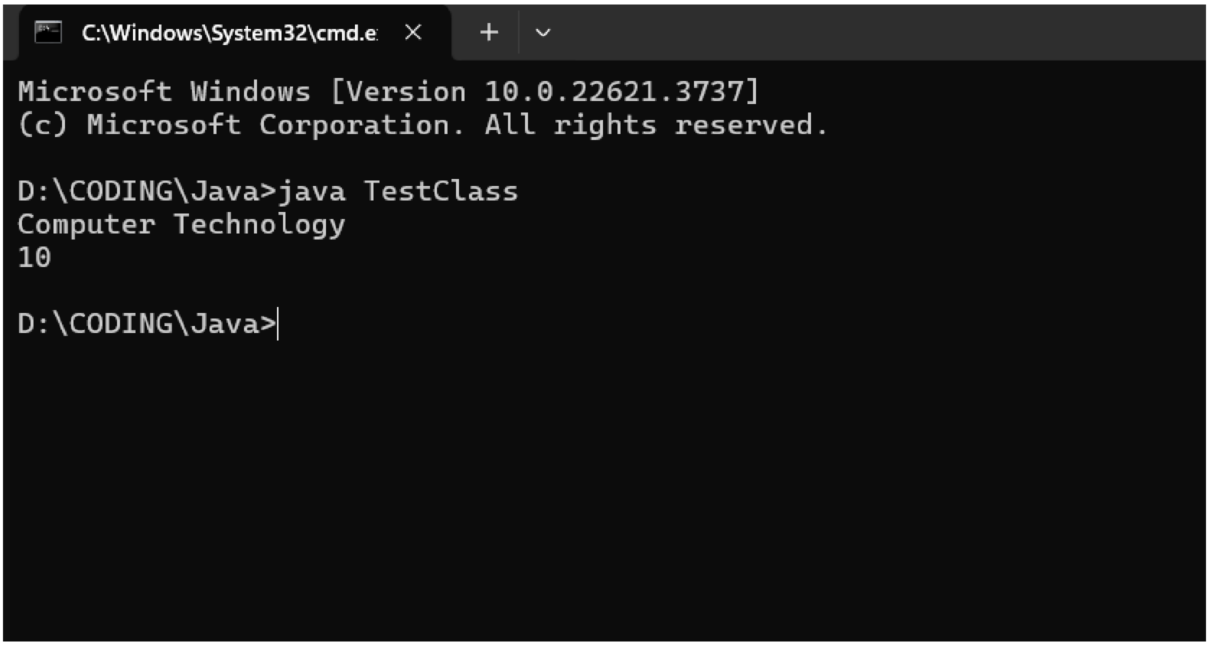
RESULT :

Thus , the above program has executed successfully .

PROGRAM 3

```
interface In1 {
     int a = 10;
    void display();
}
class TestClass implements In1 {
    public void display(){
      System.out.println("Computer Technology");
    }
    public static void main(String[] args)
    {
        In1 t = new TestClass();
        t.display();
        System.out.println(t.a);
    }
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java TestClass
Computer Technology
10

D:\CODING\Java>
```

RESULT :

Thus , the above program has executed successfully .

EX NO. 4

DATE :

WRITE A JAVA PROGRAM USING USER DEFINED AND PREDEFINED PACKAGES

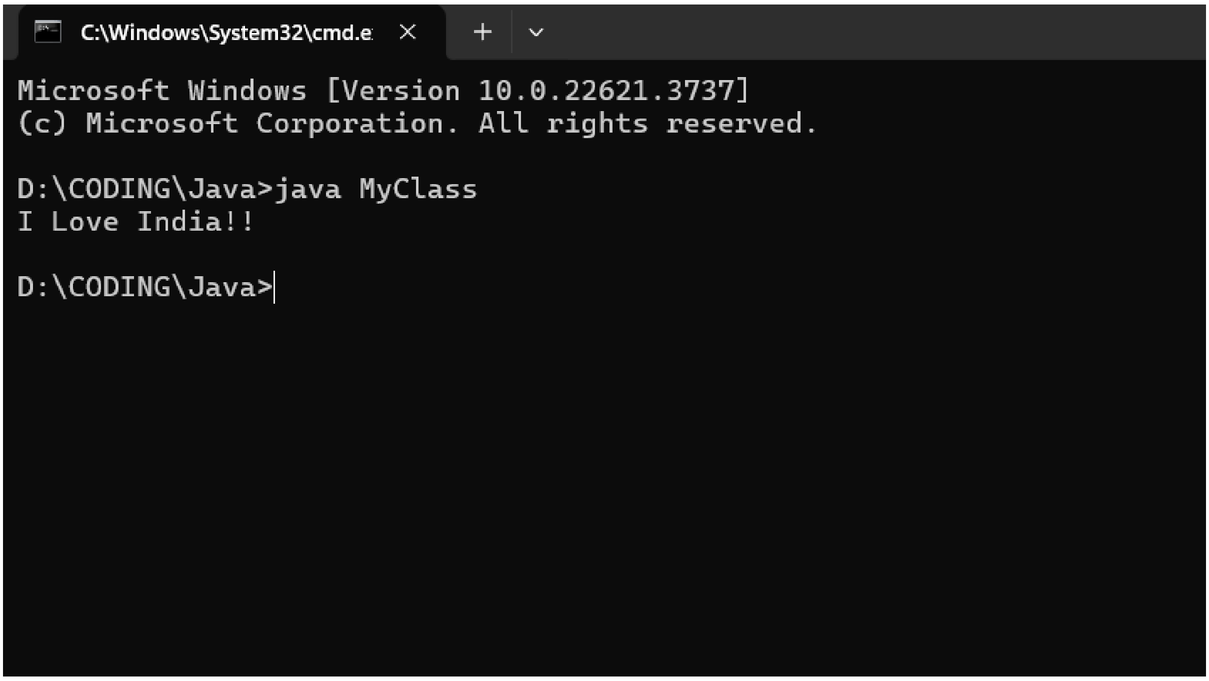
AIM :

ALGORITHM :

PROGRAM 1

```
import mypack.Hello;
public class MyClass
{
public static void main(String args[])
{
Hello a = new Hello();
 a.display();
}
}


package mypack;
public class Hello
{
public void display()
{
System.out.println("I Love India!!");
}}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java MyClass
I Love India!!

D:\CODING\Java>
```

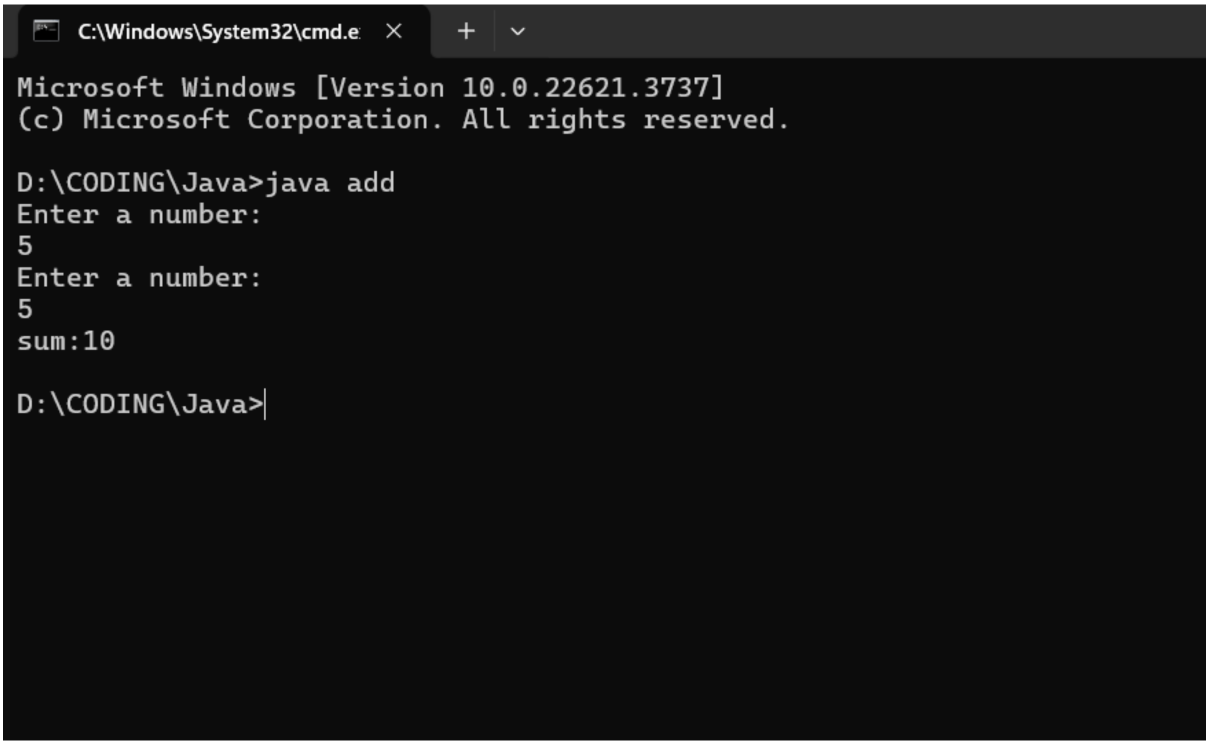
RESULT :

Thus , the above program has executed successfully .

PROGRAM 2

```
import userinput.UserInput;
 import calculator.Addition;
public class add {
public static void main(String[]args)
{ int number1 = UserInput.getUserInput();
 int number2 = UserInput.getUserInput();
int sum = Addition.addNumbers(number1,number2);
System.out.println("sum:"+sum);
}}

package userinput;
import java.util.Scanner;
public class UserInput
{
public static int getUserInput()
{ Scanner scanner = new Scanner(System.in);
System.out.println("Enter a number:");
return scanner.nextInt();
}
 }
package calculator;
public class Addition {
public static int addNumbers(int num1, int num2 )
{
return num1+num2;
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java add
Enter a number:
5
Enter a number:
5
sum:10

D:\CODING\Java>
```

RESULT :

Thus , the above program has executed successfully .

EX NO. 5

DATE :

WRITE A JAVA PROGRAM FOR EXCEPTION HANDLING MECHANISM

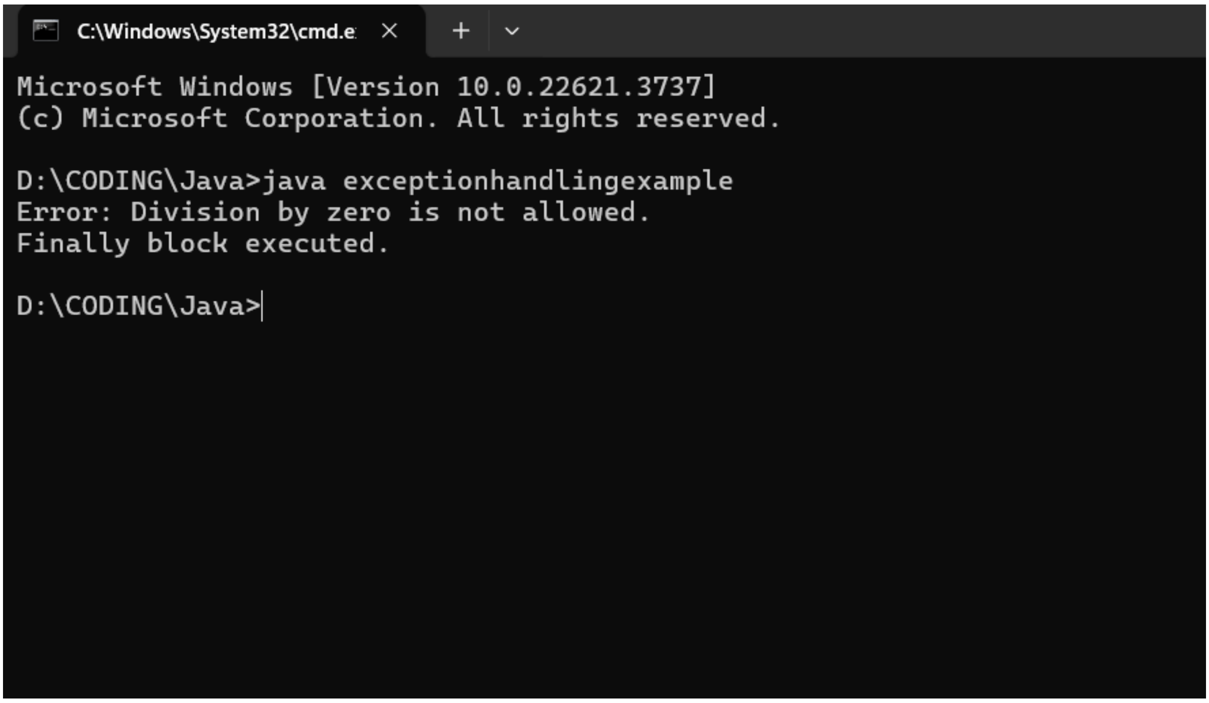
AIM :

ALGORITHM :

PROGRAM 1

```
public class exceptionhandlingexample
{
public static void main(String[] args)
{
try
 {
int result = divideNumbers(10, 0); System.out.println("Result: " +  result);
} catch (ArithmeticException e) {
System.err.println("Error: Division by zero is not allowed.");
} finally {
System.out.println("Finally block executed.");
}
}

private static int divideNumbers(int numerator, int denominator) {
return numerator / denominator;
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java exceptionhandlingexample
Error: Division by zero is not allowed.
Finally block executed.

D:\CODING\Java>
```

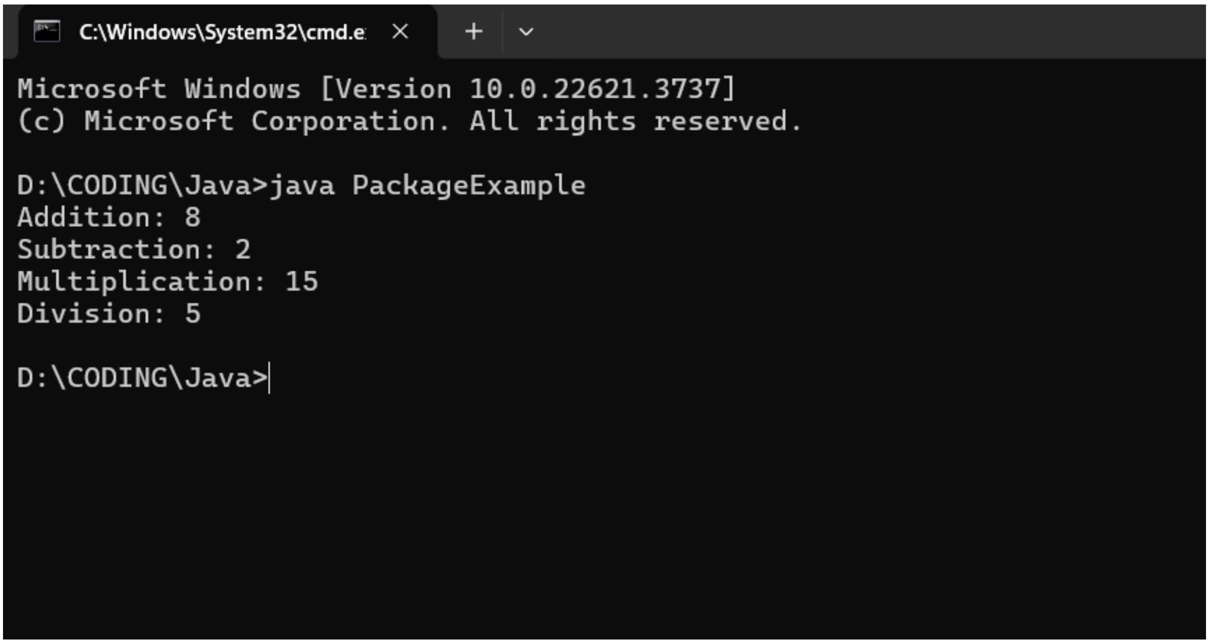
RESULT :

Thus , the above program has executed successfully .

PROGRAM 2

```
class Calculator {
public int add(int a, int b) {
return a + b;
}
public int subtract(int a, int b) {
return a - b;
}
public int multiply(int a, int b) {
return a * b;
}
public int divide(int a, int b) {
if (b != 0) {
return a / b;
} else {
throw new ArithmeticException("Cannot divide by zero!");
}
}
}
public class PackageExample {
public static void main(String[] args) {
Calculator calculator = new Calculator();
int result = calculator.add(5, 3);
System.out.println("Addition: " + result);
result = calculator.subtract(5, 3);
System.out.println("Subtraction: " + result);
result = calculator.multiply(5, 3);
System.out.println("Multiplication: " + result);
result = calculator.divide(10, 2);
System.out.println("Division: " + result);
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22621.3737]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java>java PackageExample
Addition: 8
Subtraction: 2
Multiplication: 15
Division: 5

D:\CODING\Java>
```

RESULT :

Thus , the above program has executed successfully .

EX NO. 6 DATE :	**WRITE A JAVA PROGRAM TO SIMULATE CONTINGUOUS MEMORY ALLOCATION TECHNIQUES**

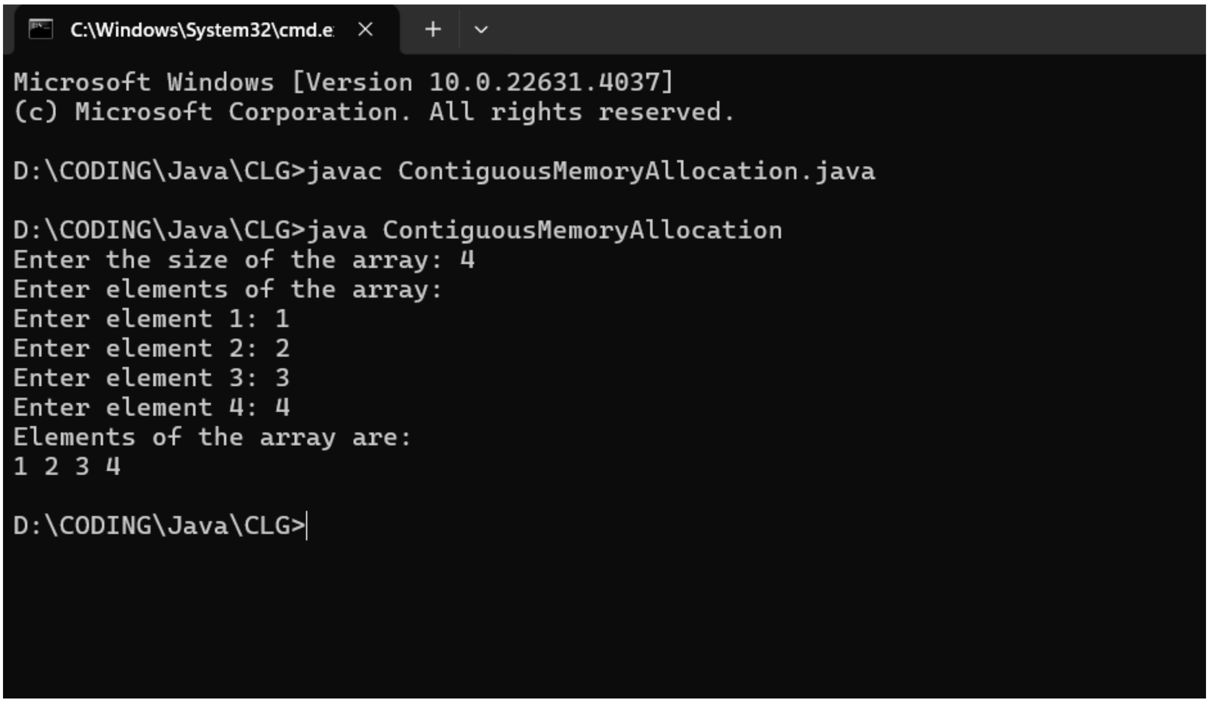
AIM :

ALGORITHM :

PROGRAM 1

```
import java.util.Scanner;

public class ContiguousMemoryAllocation {

public static void main(String[] args) { Scanner scanner = new
Scanner(System.in);

// Input the size of the array System.out.print("Enter the size of the array: ");
int size = scanner.nextInt();

// Declare an array of integers int[] arr = new int[size];

// Input elements into the array System.out.println("Enter elements of the
array:"); for (int i = 0; i < size; ++i) { System.out.print("Enter element " + (i + 1) +
": "); arr[i] = scanner.nextInt(); }

// Display elements of the array System.out.println("Elements of the array
are:"); for (int i = 0; i < size; ++i) { System.out.print(arr[i] + " ");
}
System.out.println();
// Close the scanner scanner.close();
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG>javac ContiguousMemoryAllocation.java

D:\CODING\Java\CLG>java ContiguousMemoryAllocation
Enter the size of the array: 4
Enter elements of the array:
Enter element 1: 1
Enter element 2: 2
Enter element 3: 3
Enter element 4: 4
Elements of the array are:
1 2 3 4

D:\CODING\Java\CLG>
```

RESULT :

Thus , the above program has executed successfully

EX NO. 7 DATE :	**WRITE A JAVA PROGRAM USING THREADS AN ASSIGN THREE DIFFERENT PRIORITIES TO THEM.**

AIM :

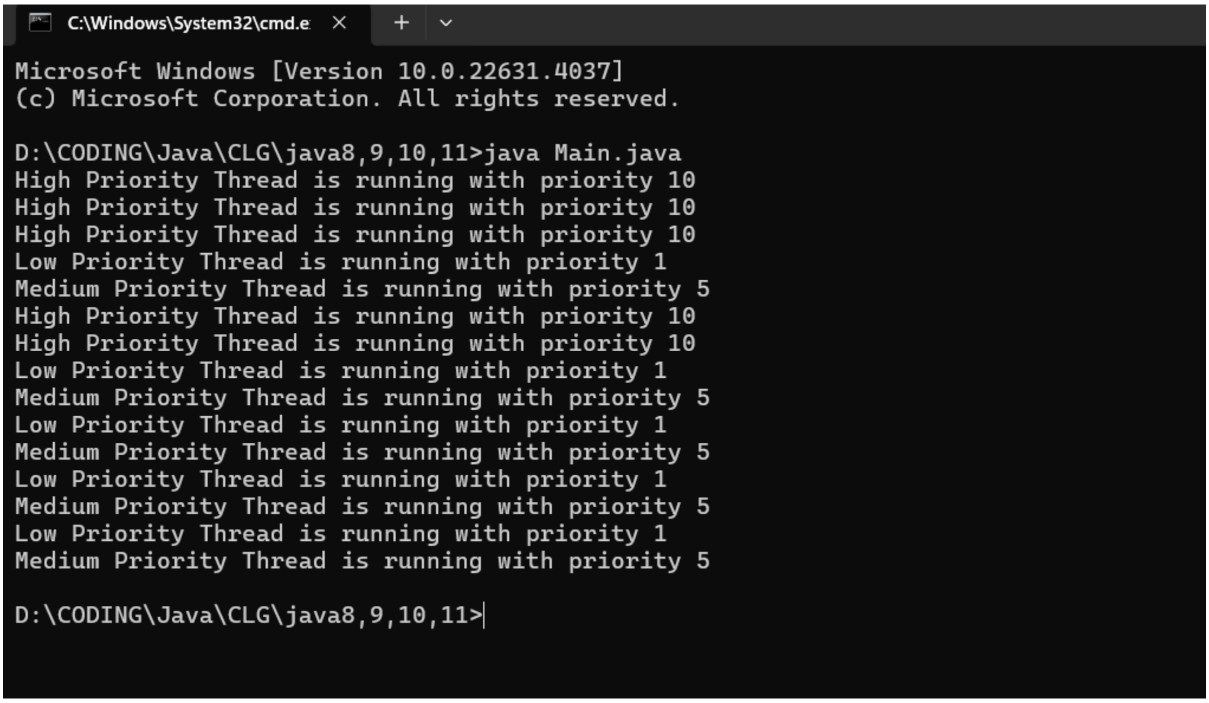
ALGORITHM :

PROGRAM 1

```
class PriorityThread extends Thread {
  public PriorityThread(String name) {
    super(name); // Calls the constructor of superclass Thread
  }

  public void run() {
    for (int i = 0; i < 5; i++) {
      System.out.println(getName() + " is running with priority " +
getPriority());
    }
  }
}

public class Main {
  public static void main(String[] args) {
    // Creating three threads with different priorities
    PriorityThread thread1 = new PriorityThread("Low Priority Thread");
    PriorityThread thread2 = new PriorityThread("Medium Priority Thread");
    PriorityThread thread3 = new PriorityThread("High Priority Thread");

    // Set thread priorities
    thread1.setPriority(Thread.MIN_PRIORITY);  // Priority = 1
    thread2.setPriority(Thread.NORM_PRIORITY); // Priority = 5
    thread3.setPriority(Thread.MAX_PRIORITY);  // Priority = 10

    // Start the threads
    thread1.start();
    thread2.start();
```

```
        thread3.start();
      }
  }
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG\java8,9,10,11>java Main.java
High Priority Thread is running with priority 10
High Priority Thread is running with priority 10
High Priority Thread is running with priority 10
Low Priority Thread is running with priority 1
Medium Priority Thread is running with priority 5
High Priority Thread is running with priority 10
High Priority Thread is running with priority 10
Low Priority Thread is running with priority 1
Medium Priority Thread is running with priority 5
Low Priority Thread is running with priority 1
Medium Priority Thread is running with priority 5
Low Priority Thread is running with priority 1
Medium Priority Thread is running with priority 5
Low Priority Thread is running with priority 1
Medium Priority Thread is running with priority 5

D:\CODING\Java\CLG\java8,9,10,11>
```

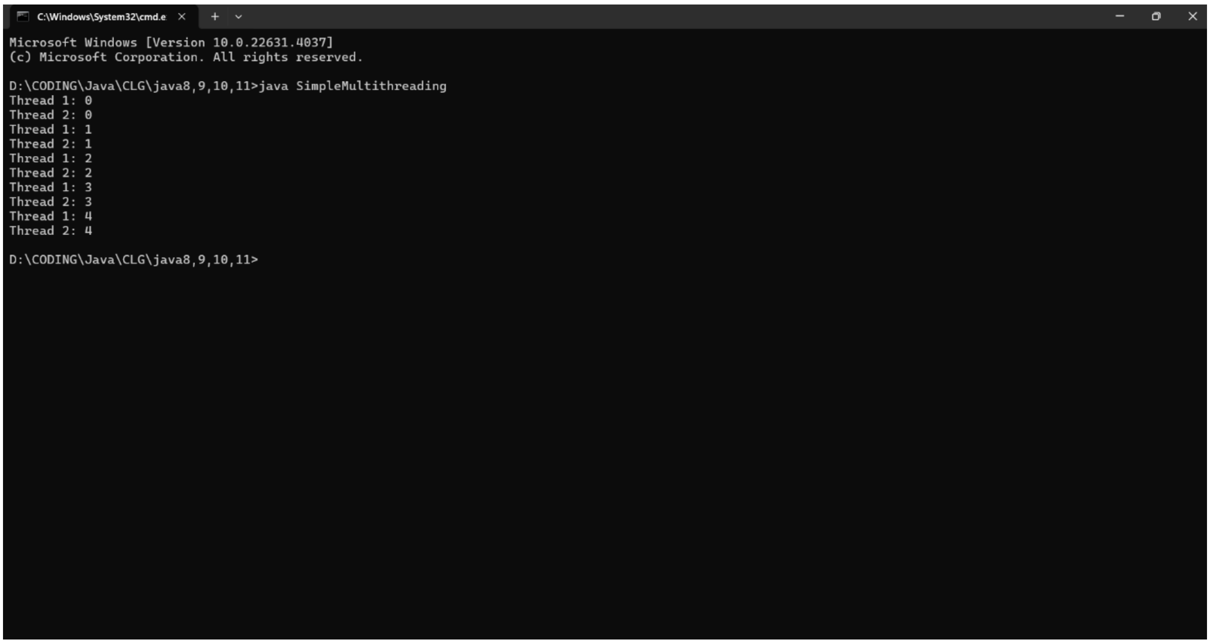
RESULT :

Thus , the above program has executed successfully

PROGRAM 2

```
public class SimpleMultithreading {
    public static void main(String[] args) {
        Thread thread1 = new Thread(() -> {
            for (int i = 0; i < 5; i++) {
                System.out.println("Thread 1: " + i);
                try {
                    Thread.sleep(500); // Sleep for 0.5 seconds
                } catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        });
        Thread thread2 = new Thread(() -> {
            for (int i = 0; i < 5; i++) {
                System.out.println("Thread 2: " + i);
                try {
                    Thread.sleep(500); // Sleep for 0.5 seconds
                } catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        });
        thread1.start();
        thread2.start();
    }
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG\java8,9,10,11>java SimpleMultithreading
Thread 1: 0
Thread 2: 0
Thread 1: 1
Thread 2: 1
Thread 1: 2
Thread 2: 2
Thread 1: 3
Thread 2: 3
Thread 1: 4
Thread 2: 4

D:\CODING\Java\CLG\java8,9,10,11>
```

RESULT :

Thus , the above program has executed successfully

EX NO. 8

DATE :

WRITE JAVA PROGRAMS USING APPLET TO DESIGN A WEB PAGE

AIM :

ALGORITHM :

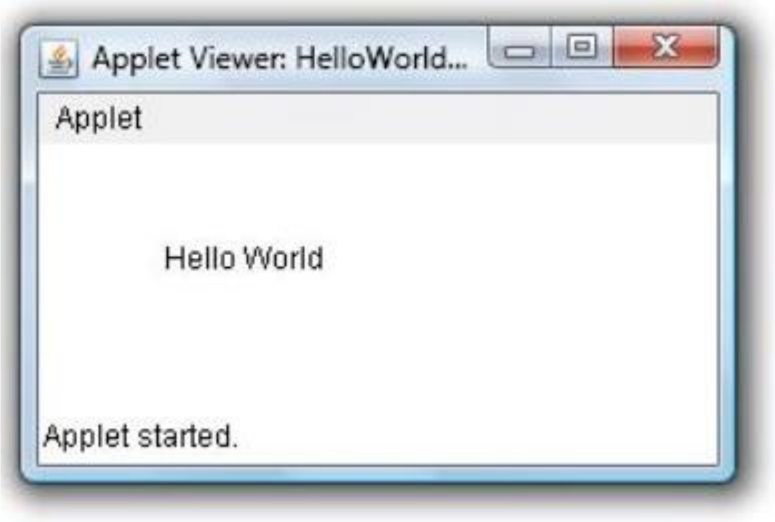
PROGRAM 1

```
import java.applet.Applet;
import java.awt.Graphics;



public class HelloWorld extends Applet
{

    @Override
    public void paint(Graphics g)
    {
        g.drawString("Hello World", 20, 20);
    }

}
```

HTML

```
<html>
<body>
<applet code="HelloWorld" width=200 height=60>
</applet>
</body>
</html>
```

OUTPUT :



Hello World

Applet started.

RESULT :

Thus , the above program has executed successfully

EX NO. 9

DATE :

WRITE JAVA PROGRAMS TO DRAW SEVERAL SHAPES IN THE CREATED WINDOWS.

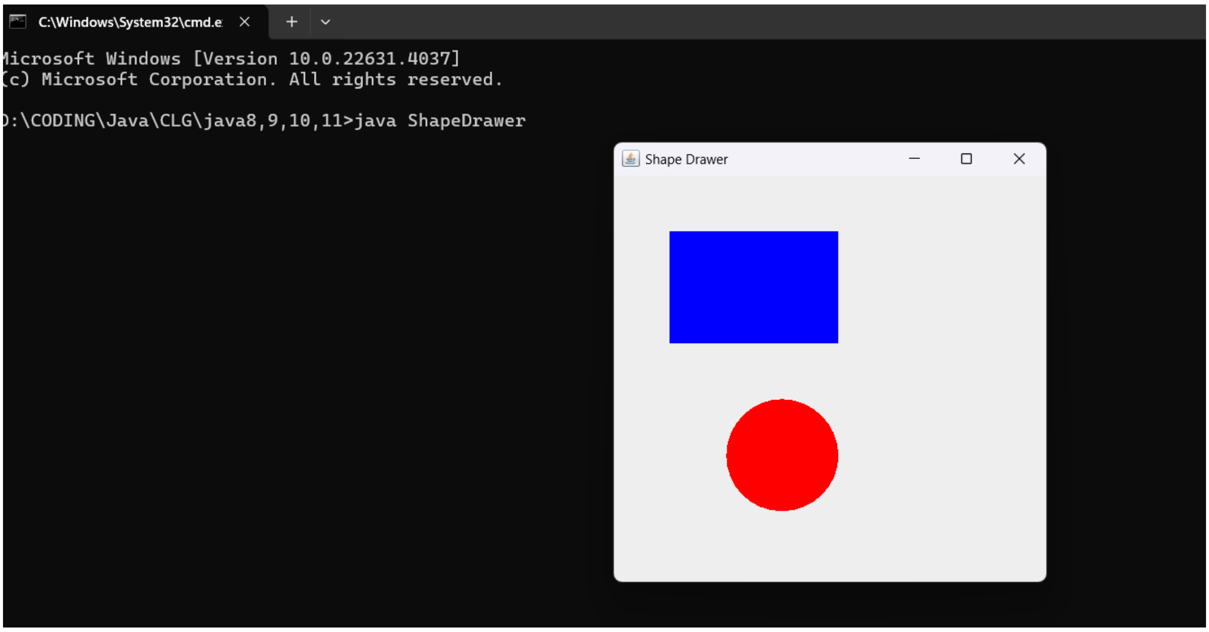
AIM :

ALGORITHM :

PROGRAM 1

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

public class ShapeDrawer extends JPanel {

    @Override
    protected void paintComponent(Graphics g) {
        super.paintComponent(g);

        // Draw a filled rectangle
        g.setColor(Color.BLUE);
        g.fillRect(50, 50, 150, 100);

        // Draw a filled circle (use fillOval, not filloval)
        g.setColor(Color.RED);
        g.fillOval(100, 200, 100, 100);
    }

    public static void main(String[] args) {
        JFrame frame = new JFrame("Shape Drawer");

        ShapeDrawer panel = new ShapeDrawer();
        frame.add(panel);

        frame.setSize(400, 400);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
              } }
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG\java8,9,10,11>java ShapeDrawer
```

RESULT :

Thus , the above program has executed successfully

EX NO. 10 DATE :	**WRITE JAVA PROGRAMS FOR HANDLING MOUSE EVENTS.**

AIM :

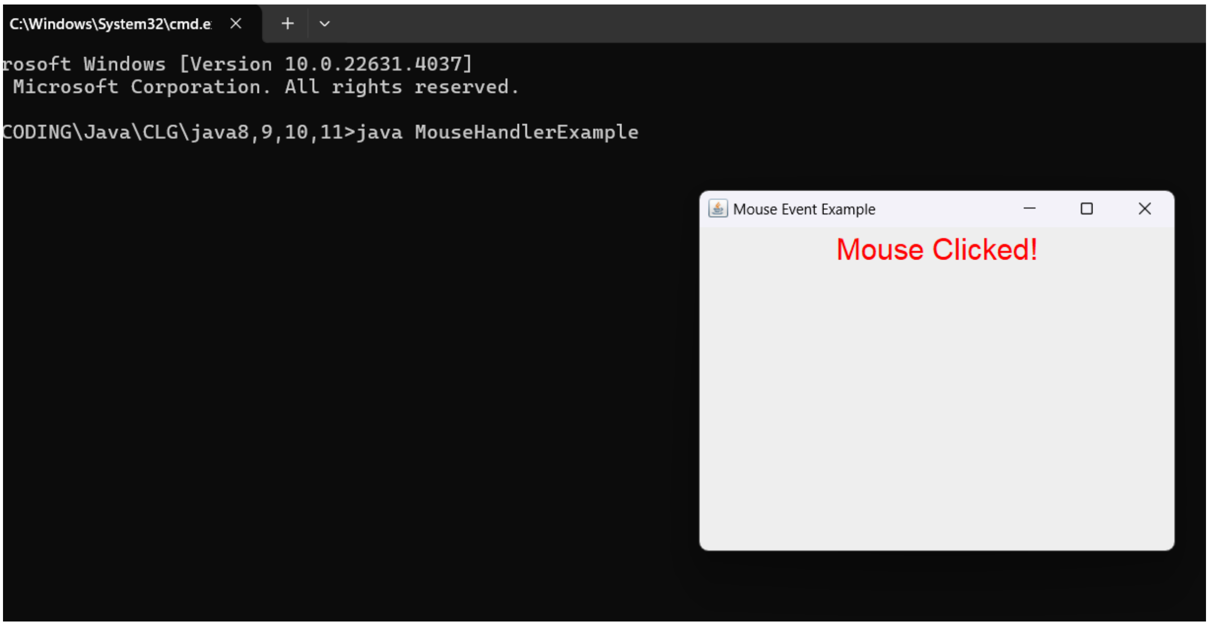
ALGORITHM :

PROGRAM 1

```
import javax.swing.*;

import java.awt.*;

import java.awt.event.MouseEvent;

import java.awt.event.MouseListener;


public class MouseHandlerExample extends JFrame implements MouseListener
{


  private JLabel label;


  public MouseHandlerExample() {

    // Set up the frame

    setTitle("Mouse Event Example");

    setSize(400, 300);

    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

    setLayout(new FlowLayout());


    // Create a label

    label = new JLabel("Interact with the mouse!");

    label.setFont(new Font("Arial", Font.PLAIN, 24));

    add(label);


    // Add mouse listener to the frame

    addMouseListener(this);


    // Make the frame visible

    setVisible(true);

  }
```

```
    @Override
    public void mouseClicked(MouseEvent e) {
        label.setText("Mouse Clicked!");
        label.setForeground(Color.RED);
    }

    @Override
    public void mousePressed(MouseEvent e) {
        label.setText("Mouse Pressed!");
        label.setForeground(Color.BLUE);
    }

    @Override
    public void mouseReleased(MouseEvent e) {
        label.setText("Mouse Released!");
        label.setForeground(Color.GREEN);
    }

    @Override
    public void mouseEntered(MouseEvent e) {
        label.setText("Mouse Entered!");
        label.setForeground(Color.ORANGE);
    }

    @Override
    public void mouseExited(MouseEvent e) {
        label.setText("Mouse Exited!");
        label.setForeground(Color.MAGENTA);
    }


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

OUTPUT :



```
rosoft Windows [Version 10.0.22631.4037]
 Microsoft Corporation. All rights reserved.

CODING\Java\CLG\java8,9,10,11>java MouseHandlerExample
```

Mouse Clicked!

RESULT :

Thus , the above program has executed successfully

EX NO. 11 DATE :	**WRITE JAVA PROGRAMS TO CREATE FRAME WITH FIELDS FOR NAME, AGE AND QUALIFICATION AND A TEXT FIELD FOR MULTIPLE LINE FOR ADDRESS.**

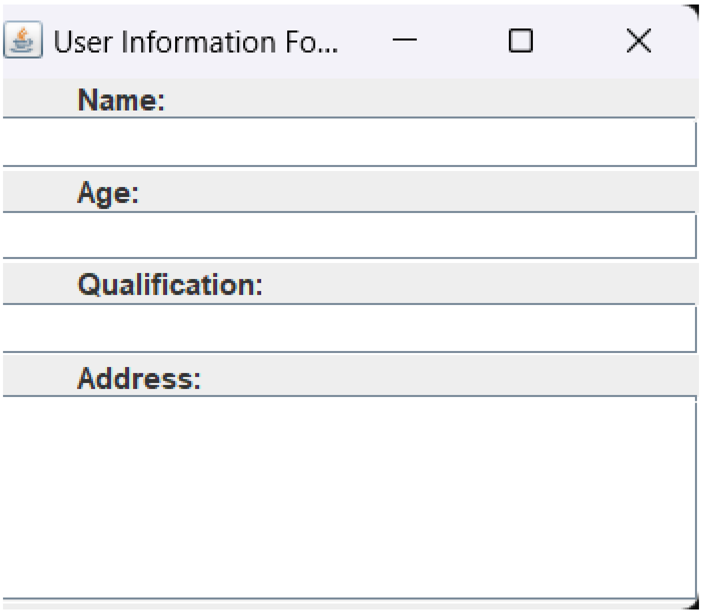
AIM :

ALGORITHM :

PROGRAM 1

```
import javax.swing.*;

public class UserInfoFrame extends JFrame {
    public UserInfoFrame() {
        setTitle("User Information Form");
        setLayout(new BoxLayout(getContentPane(), BoxLayout.Y_AXIS));

        add(new JLabel("Name:"));
        add(new JTextField(20));

        add(new JLabel("Age:"));
        add(new JTextField(20));

        add(new JLabel("Qualification:"));
        add(new JTextField(20));

        add(new JLabel("Address:"));
        add(new JScrollPane(new JTextArea(5, 20)));

        setSize(300, 250);
        setLocationRelativeTo(null);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setVisible(true);
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(UserInfoFrame::new);
    }  }
```

OUTPUT :



RESULT :

Thus , the above program has executed successfully

EX NO. 12 DATE :	WRITE JAVA PROGRAMS TO OPEN AN EXISTING FILE AND APPEND TEXT TO THAT FILE .

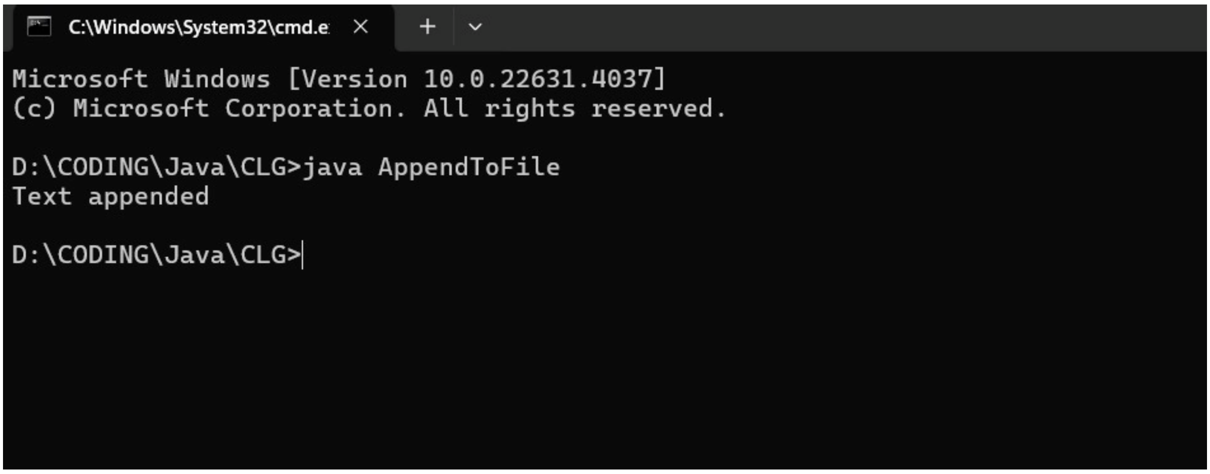
AIM :

ALGORITHM :

PROGRAM 1

```
import java.io.FileWriter;
import java.io.IOException;

public class AppendToFile{
 public static void main(String[] args)
{
 String filePath = "D:/V.txt";
String textToAppend = "This is the Text";
try(FileWriter fileWriter = new FileWriter(filePath,true))
{
 fileWriter.write(textToAppend);
 fileWriter.write(System.lineSeparator());
 System.out.println("Text appended ");

}
catch (IOException e){
System.out.println("An error occured while appending to the file ");
e.printStackTrace();
}
}
}
```

OUTPUT :



```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

D:\CODING\Java\CLG>java AppendToFile
Text appended

D:\CODING\Java\CLG>
```

RESULT :

Thus , the above program has executed successfully

EX NO. 13

DATE :

WRITE JAVA PROGRAMS TO ESTABLISH A JDBC A JDBC CONNECTIVITY AND INSERT AND DELETE VALUES IN DATABASE

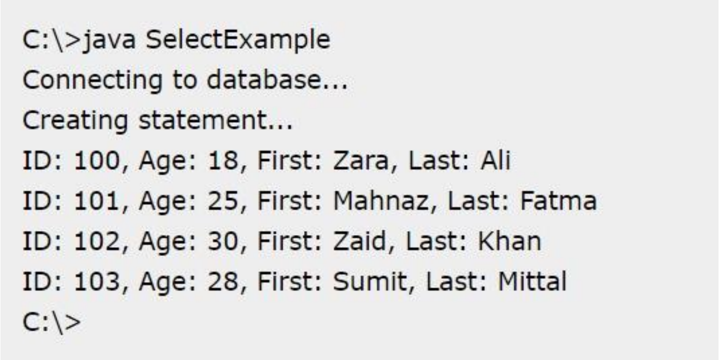
AIM :

ALGORITHM :

PROGRAM 1

```
import java.sql.*;

public class SelectExample {
  static final String DB_URL = "jdbc:mysql://localhost/TUTORIALSPOINT";
  static final String USER = "guest";
  static final String PASS = "guest123";
  static final String QUERY = "SELECT id, first, last, age FROM Employees";

  public static void main(String[] args) {
    // Open a connection
    try(Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);
      Statement stmt = conn.createStatement();
      ResultSet rs = stmt.executeQuery(QUERY);) {
      // Extract data from result set
      while (rs.next()) {
        // Retrieve by column name
        System.out.print("ID: " + rs.getInt("id"));
        System.out.print(", Age: " + rs.getInt("age"));
        System.out.print(", First: " + rs.getString("first"));
        System.out.println(", Last: " + rs.getString("last"));
      }
    } catch (SQLException e) {
      e.printStackTrace();
    }
  }
}
```

OUTPUT :



```
C:\>java SelectExample
Connecting to database...
Creating statement...
ID: 100, Age: 18, First: Zara, Last: Ali
ID: 101, Age: 25, First: Mahnaz, Last: Fatma
ID: 102, Age: 30, First: Zaid, Last: Khan
ID: 103, Age: 28, First: Sumit, Last: Mittal
C:\>
```

RESULT :

Thus , the above program has executed successfully