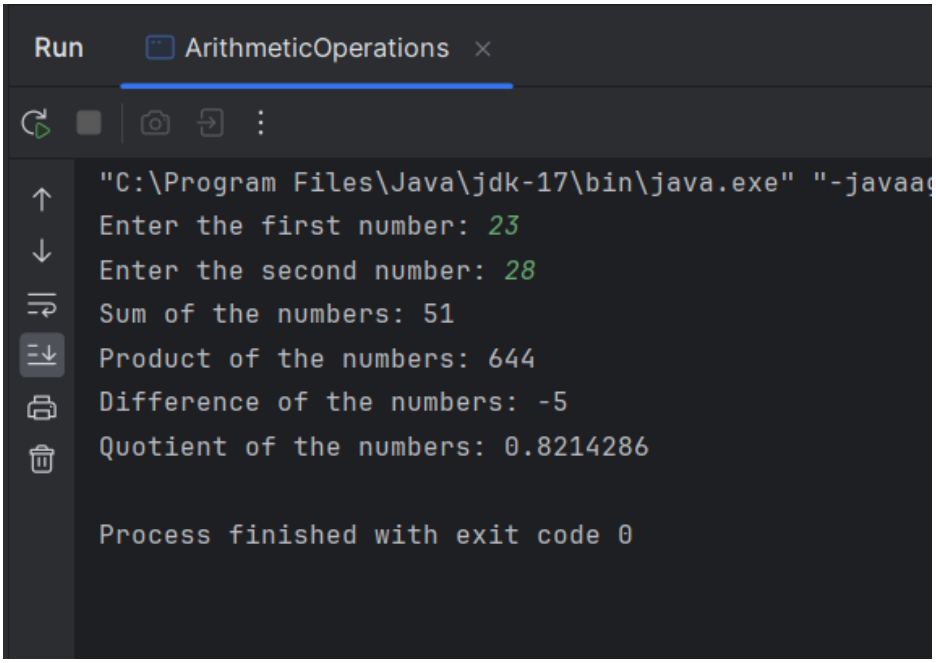
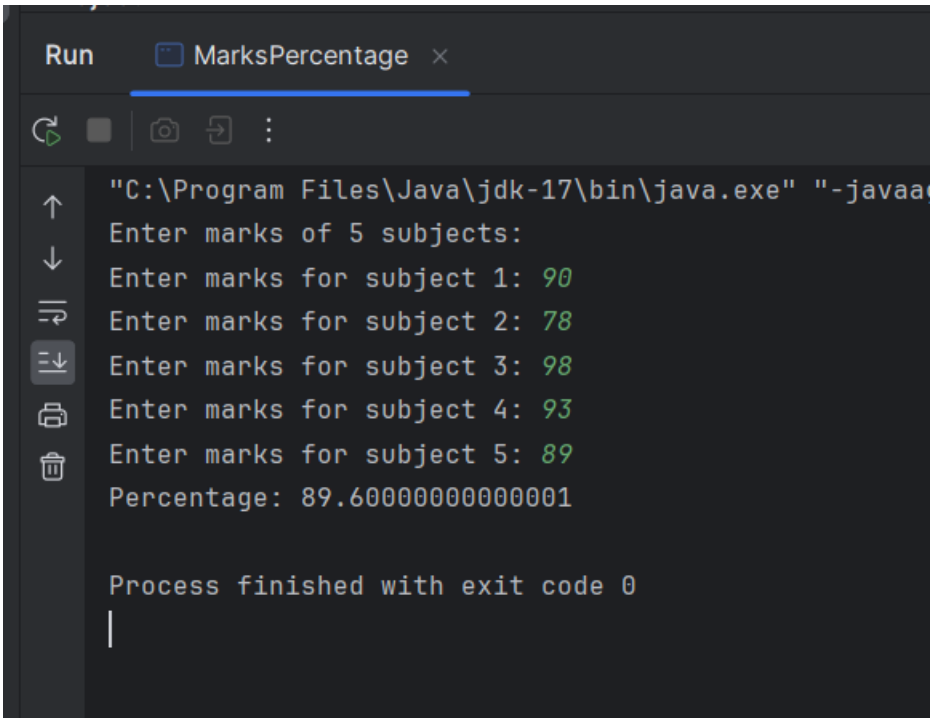
```
//Experiment No 1
//Program 1


Write a program to input 2 numbers from the user and display their addition,
multiplication, subtraction, and division.

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

        System.out.print("Enter the first number: ");
        int num1 = scanner.nextInt();

        System.out.print("Enter the second number: ");
        int num2 = scanner.nextInt();

        int sum = num1 + num2;
        System.out.println("Sum of the numbers: " + sum);

        int product = num1 * num2;
        System.out.println("Product of the numbers: " + product);

        int difference = num1 - num2;
        System.out.println("Difference of the numbers: " + difference);

        float quotient = (float) num1 / num2;
        System.out.println("Quotient of the numbers: " + quotient);
    }
}
```

Output-



```
//Experiment No 1
//Program 2


Write a program to accept value of marks of 5 subjects and calculate percentage and
display it.

import java.util.Scanner;
public class MarksPercentage {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter marks of 5 subjects: ");

        int totalMarks = 0;

        for (int i = 0; i < 5; i++) {
            System.out.print("Enter marks for subject " + (i + 1) + ": ");
            int marks = scanner.nextInt();
            totalMarks += marks;
        }

        double percentage = (double) totalMarks / 500 * 100;

        System.out.println("Percentage: " + percentage);
    }
}
```

Output



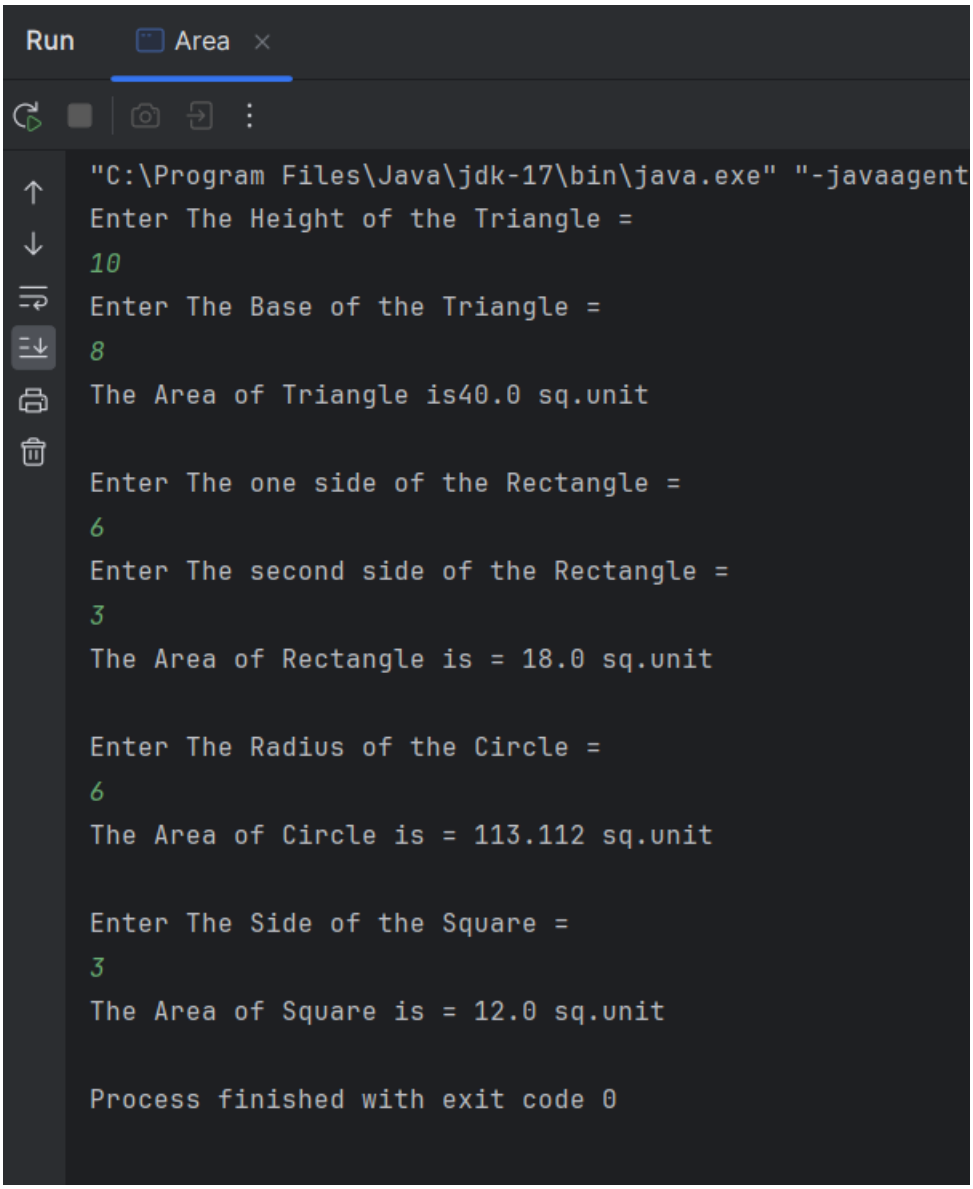
```
//Experiment No 1
//Program 3
```

Write a program to assign value of radius then calculate the area and perimeter of circle, area of triangle and area of rectangle by using method calling (use arithmetic promotion).

```
import java.util.Scanner;
public class Area {

	static double area_of_Triangle()
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter The Height of the Triangle = ");
		double Height = sc.nextDouble();
		System.out.println("Enter The Base of the Triangle = ");
		double Base = sc.nextDouble();

		double area_of_triangle = (Height*Base)/2;
		return (area_of_triangle);
	}

	static double area_of_Rectangle()
	 {
		System.out.println("Enter The one side of the Rectangle = ");
		Scanner sc = new Scanner(System.in);
		double Side_1 = sc.nextDouble();
		System.out.println("Enter The second side of the Rectangle = ");
		double Side_2 = sc.nextDouble();
		double area_of_Rectangle = Side_1*Side_2;
		return (area_of_Rectangle);
	 }

	static double area_of_Circle()
	 {
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter The Radius of the Circle = ");
		double Radius = sc.nextDouble();
		double area_of_Circle = 3.142*Radius*Radius;
		return (area_of_Circle);

	 }

	static double area_of_Square()
	 {
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter The Side of the Square = ");
		double Side = sc.nextDouble();
```

```
                double area_of_Square = Side*4;
                return (area_of_Square);
         }

        public static void main(String[] args)
        {
                System.out.println("The Area of Triangle
is"+Area.area_of_Triangle()+" sq.unit");
                System.out.println("");
                System.out.println("The Area of Rectangle is =
"+Area.area_of_Rectangle()+" sq.unit");
                System.out.println("");
                System.out.println("The Area of Circle is =
"+Area.area_of_Circle()+" sq.unit");
                System.out.println("");
                System.out.println("The Area of Square is =
"+Area.area_of_Square()+" sq.unit");

        }
}
```

Output -

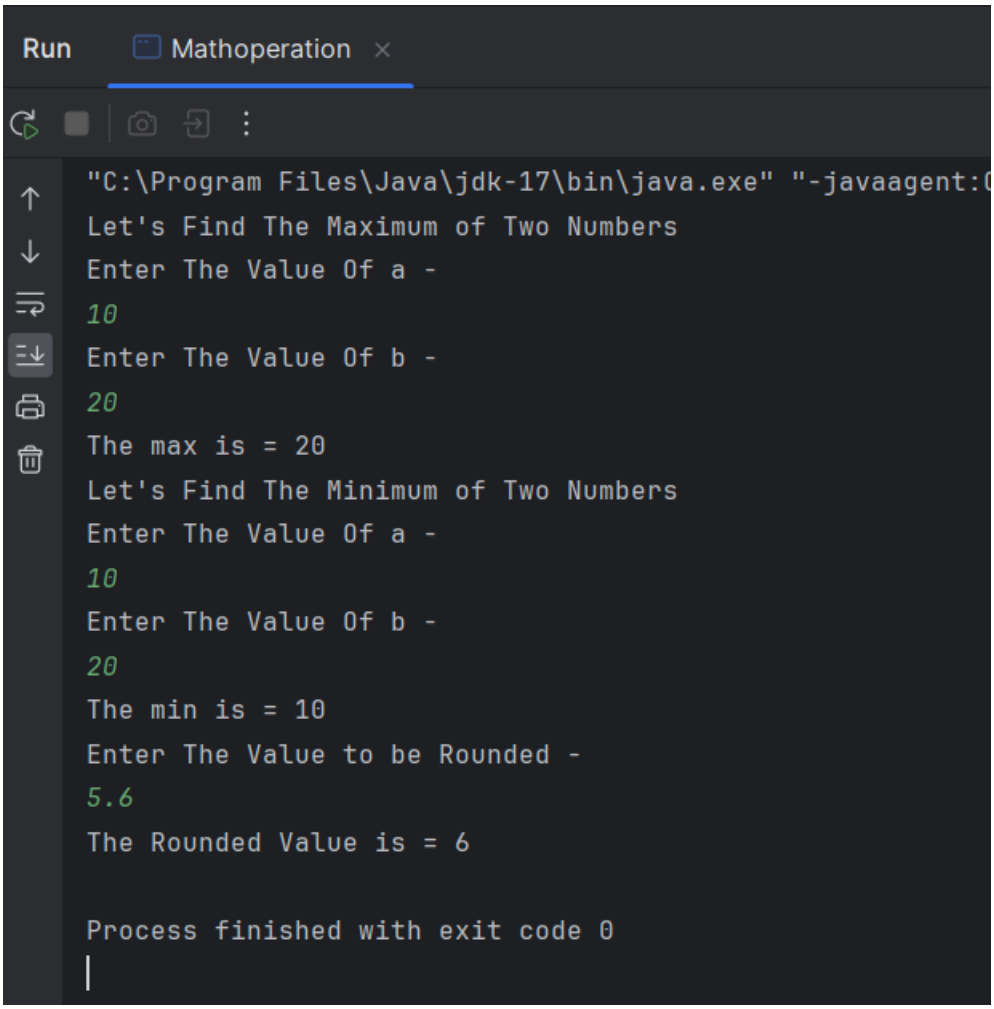

Run
Area
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent
Enter The Height of the Triangle =
10
Enter The Base of the Triangle =
8
The Area of Triangle is40.0 sq.unit
Enter The one side of the Rectangle =
6
Enter The second side of the Rectangle =
3
The Area of Rectangle is = 18.0 sq.unit
Enter The Radius of the Circle =
6
The Area of Circle is = 113.112 sq.unit
Enter The Side of the Square =
3
The Area of Square is = 12.0 sq.unit
Process finished with exit code 0

//Experiment No 2
//Program 1

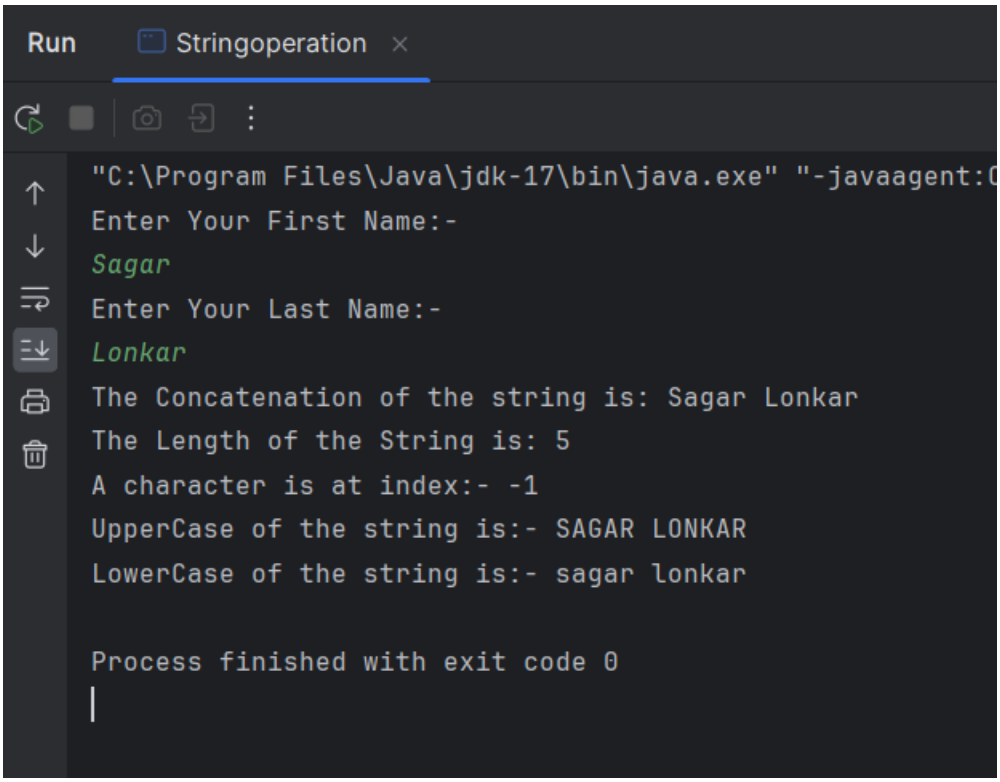
Write a program to perform mathematical operations by using different methods of Math class.

```
import java.util.*;
public class Mathoperationui
{
        static int Max()
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Let's Find The Maximum of Two Numbers");
                System.out.println("Enter The Value Of a - ");
                int a = sc.nextInt();
                System.out.println("Enter The Value Of b - ");
                int b = sc.nextInt();
                return Math.max(a,b);
        }
        static int Min()
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Let's Find The Minimum of Two Numbers");
                System.out.println("Enter The Value Of a - ");
                int a = sc.nextInt();
                System.out.println("Enter The Value Of b - ");
                int b = sc.nextInt();
                return Math.min(a,b);
        }
        static int Roundup()
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter The Value to be Rounded - ");
                float a = sc.nextFloat();
                return Math.round(a);
        }

        public static void main(String[] args)
        {
                System.out.println("The max is = "+ Max());
                System.out.println("The min is = "+ Min());
                System.out.println("The Rounded Value is = "+ Roundup());
        }

}
```

Output -

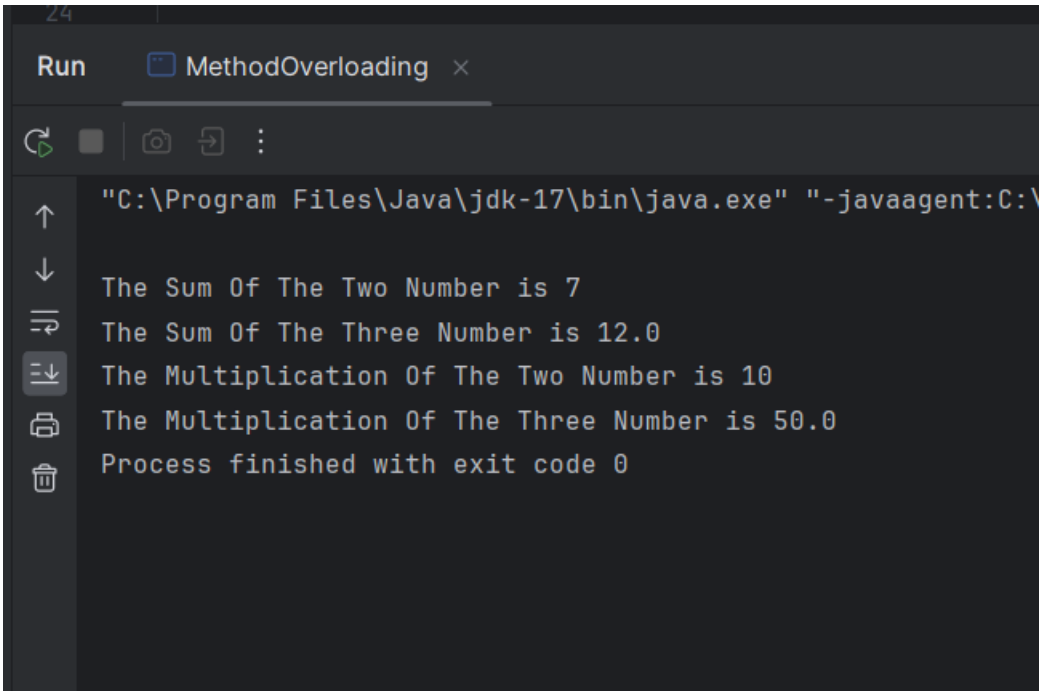

Run
Mathoperation
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:
Let's Find The Maximum of Two Numbers
Enter The Value Of a -
10
Enter The Value Of b -
20
The max is = 20
Let's Find The Minimum of Two Numbers
Enter The Value Of a -
10
Enter The Value Of b -
20
The min is = 10
Enter The Value to be Rounded -
5.6
The Rounded Value is = 6
Process finished with exit code 0

```
//Experiment No 2
//Program 2

Write a program to accept the string from the user to perform string related
operations by using different methods of String class.

import java.util.*;
class Stringoperation {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Your First Name:-");
        String str1 = sc.nextLine();
        System.out.println("Enter Your Last Name:- ");
        String str2 = sc.nextLine();

    // Concatenate two strings
    String str3 = str1 + " " + str2;
    System.out.println("The Concatenation of the string is: " + str3);

    // Get the length of a string
    int length = str1.length();
    System.out.println("The Length of the String is: " + length);

    // Find the index of a character in a string
    int index = str1.indexOf('A');
    System.out.println("A character is at index:- " + index);

    // Convert a string to uppercase
    String str4 = str3.toUpperCase();
    System.out.println("UpperCase of the string is:- " + str4);

    // Convert a string to lowercase
    String str5 = str3.toLowerCase();
    System.out.println("LowerCase of the string is:- " + str5); // Outputs hello,
world!
    sc.close();
    }
}

----------Output----------
```

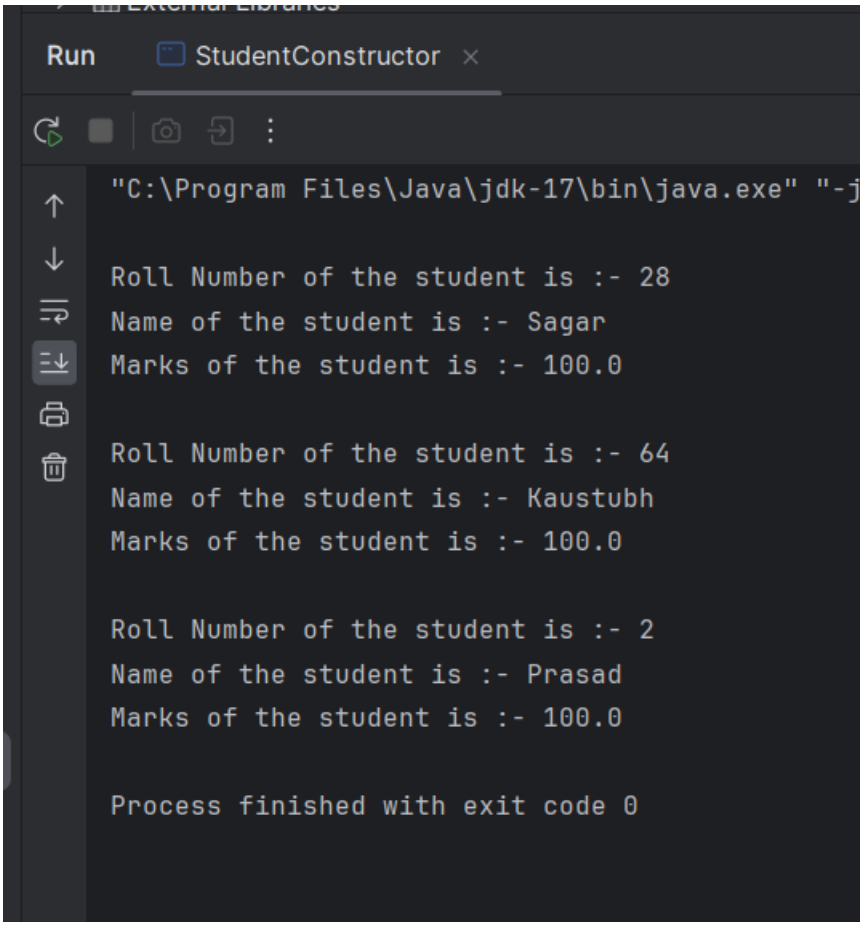

Run
Stringoperation
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C
Enter Your First Name:-
Sagar
Enter Your Last Name:-
Lonkar
The Concatenation of the string is: Sagar Lonkar
The Length of the String is: 5
A character is at index:- -1
UpperCase of the string is:- SAGAR LONKAR
LowerCase of the string is:- sagar lonkar
Process finished with exit code 0

```
//Experiment No 3
//Program 1 & 2

1.Write a program to perform addition by changing the number of arguments using
function overloading.
2.Write a program to perform multiplication by changing the data types using
function overloading.


public class MethodOverloading {
        public static int sum(int a,int b)
        {
                int c = a + b;
                return c;
        }
        public static double sum(double a,double b,double c)
        {
                double d = a + b + c;
                return d;
        }

        public static int multiplication(int a,int b)
        {
                int c = a*b;
                return c;
        }

        public static double multiplication(double a,double b,double c)
        {
                double d = a*b*c;
                return d;
        }

        public static void main(String[] args) {

                System.out.print("\nThe Sum Of The Two Number is " +
MethodOverloading.sum(5, 2));
                System.out.print("\nThe Sum Of The Three Number is " +
MethodOverloading.sum(5, 2, 5));
                System.out.print("\nThe Multiplication Of The Two Number is " +
MethodOverloading.multiplication(5, 2));
                System.out.print("\nThe Multiplication Of The Three Number is " +
MethodOverloading.multiplication(5, 2, 5));

        }

}
```

Output


Run
MethodOverloading
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\
The Sum Of The Two Number is 7
The Sum Of The Three Number is 12.0
The Multiplication Of The Two Number is 10
The Multiplication Of The Three Number is 50.0
Process finished with exit code 0

```
//Experiment No 3
//Program 3

Write a program to declare class student having data member id and name,
initialized it using default constructor for two object of class and display all
records.

public class StudentConstructor {
        int Roll_No;
        String name;
        float marks;
        StudentConstructor(int RN, String N, float M)
        {
                Roll_No = RN;
                name = N;
                marks = M;
        }

        void display()
        {
                System.out.print("\nRoll Number of the student is :- " + Roll_No);
                System.out.print("\nName of the student is :- " + name);
                System.out.print("\nMarks of the student is :- " + marks);
                System.out.print("\n");
        }


        public static void main(String[] args)
        {
                StudentConstructor s1 = new StudentConstructor(02,"Sudarshan",100);
                StudentConstructor s2 = new StudentConstructor(10,"Shubham",99);
                StudentConstructor s3 = new StudentConstructor(02,"Prasad",98);
                s1.display();
                s2.display();
                s3.display();

        }

}

.....-Output.....
```


Run
StudentConstructor
"C:\Program Files\Java\jdk-17\bin\java.exe" "-j
Roll Number of the student is :- 28
Name of the student is :- Sagar
Marks of the student is :- 100.0
Roll Number of the student is :- 64
Name of the student is :- Kaustubh
Marks of the student is :- 100.0
Roll Number of the student is :- 2
Name of the student is :- Prasad
Marks of the student is :- 100.0
Process finished with exit code 0

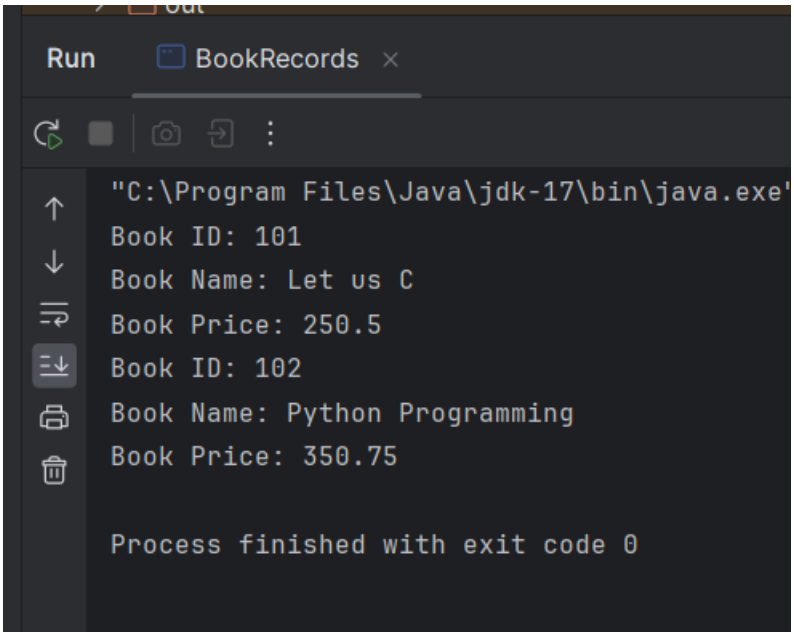
//Experiment 3

//Program 4

Write a program to declare class Book having data member id, name and price, initialized it using parameterized constructor for two object of class and display all records

```
class Book {
    int id;
    String name;
    double price;

    public Book(int id, String name, double price) {
        this.id = id;
        this.name = name;
        this.price = price;
    }

    public void display() {
        System.out.println("Book ID: " + id);
        System.out.println("Book Name: " + name);
        System.out.println("Book Price: " + price);
    }
}

public class BookRecords {
    public static void main(String[] args) {
        Book book1 = new Book(101, "Let us C", 250.50);
        Book book2 = new Book(102, "Python Programming", 350.75);

        book1.display();
        book2.display();
    }
}
```

Output -


Run
BookRecords
"C:\Program Files\Java\jdk-17\bin\java.exe"
Book ID: 101
Book Name: Let us C
Book Price: 250.5
Book ID: 102
Book Name: Python Programming
Book Price: 350.75
Process finished with exit code 0

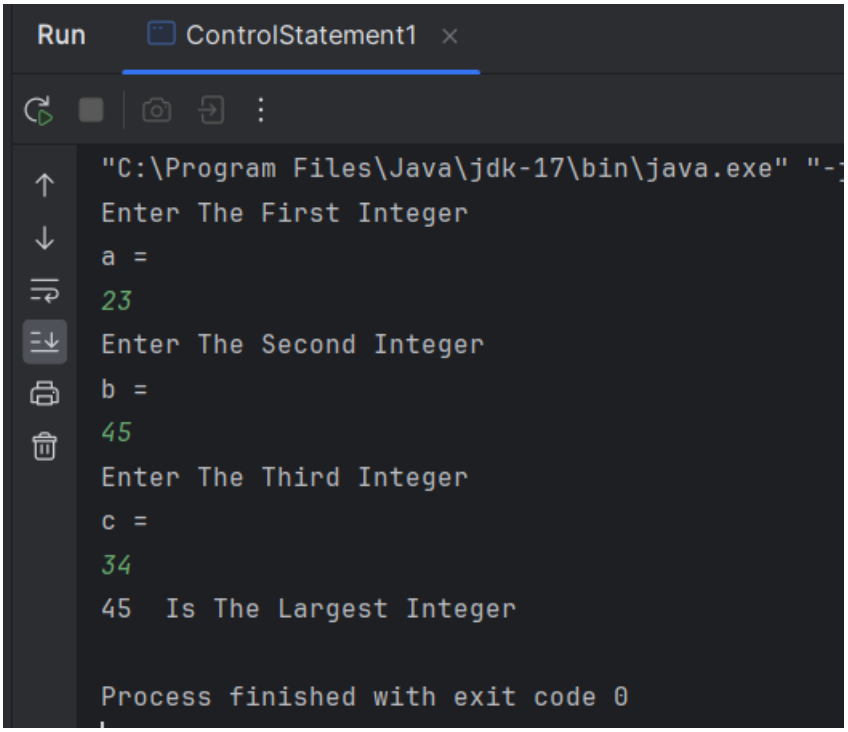
//Experiment 4

//Program 1

Write a program to accepts three numbers from user and find largest number.

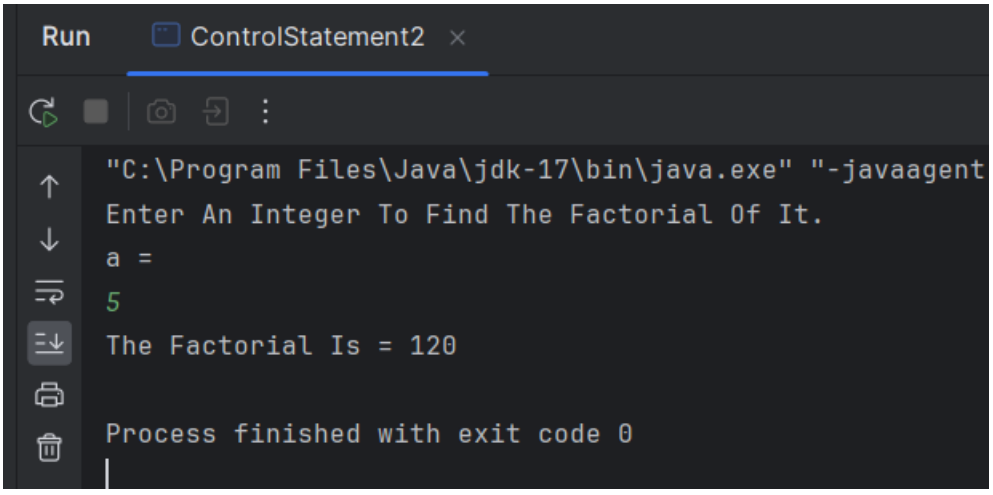
```
import java.util.*;
public class ControlStatement1
{
        public static void main(String[] args)
        {
        System.out.println("Enter The First Integer\na = ");
        Scanner sc = new Scanner(System.in);
        int a = sc.nextInt();
        System.out.println("Enter The Second Integer\nb = ");
        int b = sc.nextInt();
        System.out.println("Enter The Third Integer\nc = ");
        int c = sc.nextInt();
        sc.close();

        if(a>b) {
                if(b>c) {System.out.println(a + " Is The Largest Number");}
                else {System.out.println(c + " Is The Largest Number");}
                }
        else {
                if(b>c) {System.out.println(b + " Is The Largest Integer ");}
                else {System.out.println(c + " Is The Largest Number");}
             }
        }

}
```

Output


Run
ControlStatement1
"C:\Program Files\Java\jdk-17\bin\java.exe" "-
Enter The First Integer
a =
23
Enter The Second Integer
b =
45
Enter The Third Integer
c =
34
45 Is The Largest Integer
Process finished with exit code 0

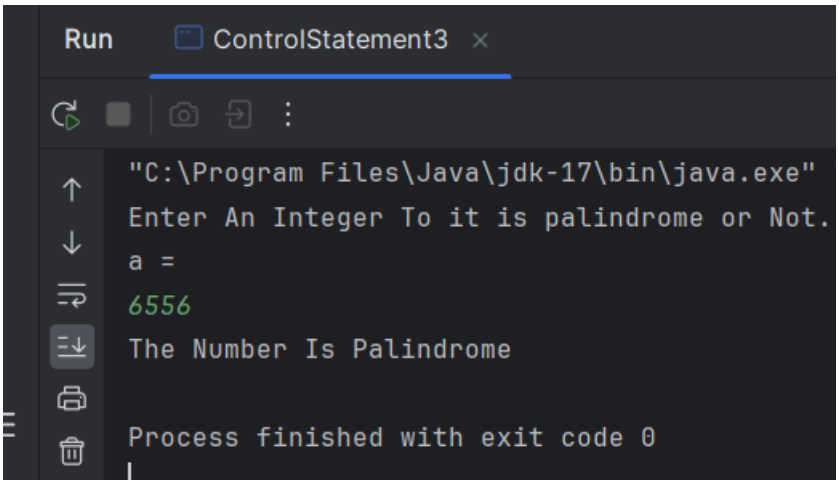
```
//Experiment 4
//Program 2

Write a program to accept number from user and calculate factorial of given number.

import java.util.*;
public class ControlStatement2 {
public static void main(String[] args) {
System.out.println("Enter An Integer To Find The Factorial Of It.\na = ");
                Scanner sc = new Scanner(System.in);
                int a = sc.nextInt();
                sc.close();
                int fact = 1;
                int i;
                for(i=a;i>0;i--)
                {
                    fact = fact*i;
                }
                System.out.println("The Factorial Is = " + fact);
        }

}
```

-Output-



```
//Experiment 4
//Program 3


Write a program to accept number from user and check number is palindrome or not.

import java.util.Scanner;

public class ControlStatement3 {

public static void main(String[] args) {
System.out.println("Enter An Integer To it is palindrome or Not.\na = ");
                Scanner sc = new Scanner(System.in);
                int a = sc.nextInt();
                sc.close();
                String original = String.valueOf(a);
                String rev = "";
                char ch ;
                for(int i=0; i<original.length(); i++)
                {
                        ch= original.charAt(i);
                        rev= ch+rev;
                }
//              System.out.println(original);
//              System.out.println(rev);
if(original.equals(rev)) {System.out.println("The Number Is Palindrome");}
else {System.out.println("The number is not palindrome");}
        }

}
```

Output-



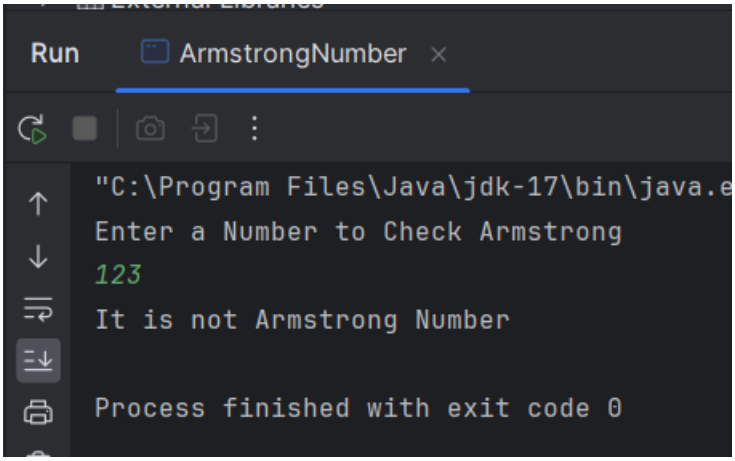
//Experiment 4

//Program 4

Write a program to accept number from user and check number is Armstrong or not.

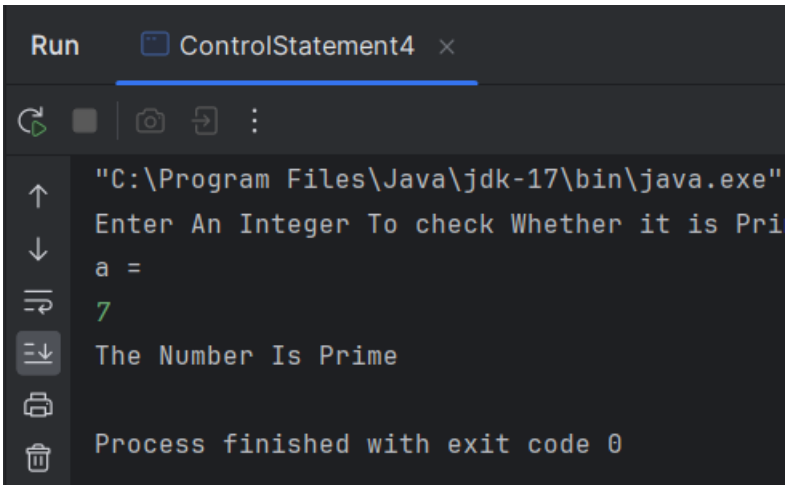
```
import java.util.Scanner;

public class ArmstrongNumber {
public static void main(String[] args) {
int num,org_no,r,res=0;
Scanner sc=new Scanner(System.in);
System.out.println("Enter a Number to Check Armstrong ");
num=sc.nextInt();
org_no=num;
while(org_no!=0)
{
r=org_no%10;
res+=Math.pow(r,3);
org_no/=10;
}
if(res==num)
{
System.out.println("It is Armstrong Number");
}
else
{
System.out.println("It is not Armstrong Number");
}
}
}
```

Output



```
//Experiment 4
//Program 5

Write a program to accept number from user and check number is prime or not.

import  java.util.Scanner;
public class ControlStatement4 {
public static void main(String[] args)
{
System.out.println("Enter An Integer To check Whether it is Prime or Not.\na = ");
                Scanner sc = new Scanner(System.in);
                int a = sc.nextInt();
                sc.close();
                int prime = 1;
                for(int i = 2;i<a;i++)
                {
                        if(a%i==0)
                        {
                                prime = 0;
                                break;
                        }
                }
                if(prime==0) {System.out.println("The Number Is Not Prime");}
                else {System.out.println("The Number Is Prime");}
        }
}
```

Output



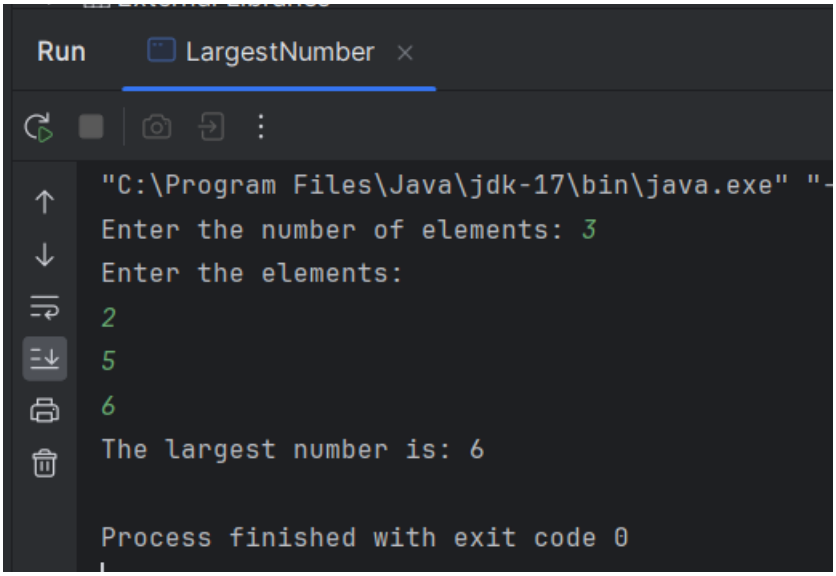
//Experiment 5

//Program 1

Write a program to accept ‘n’ number from user to store in array and finds largest number in an array.

```
import java.util.Scanner;

public class LargestNumber {

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

        System.out.print("Enter the number of elements: ");
        int n = scanner.nextInt();

        int[] arr = new int[n];

        System.out.println("Enter the elements:");
        for (int i = 0; i < n; i++) {
            arr[i] = scanner.nextInt();
        }

        int max = arr[0];
        for (int i = 1; i < arr.length; i++) {
            if (arr[i] > max) {
                max = arr[i];
            }
        }

        System.out.println("The largest number is: " + max);
    }
}
```

-Output


Run
LargestNumber
"C:\Program Files\Java\jdk-17\bin\java.exe" "-
Enter the number of elements: 3
Enter the elements:
2
5
6
The largest number is: 6
Process finished with exit code 0

//Experiment 5

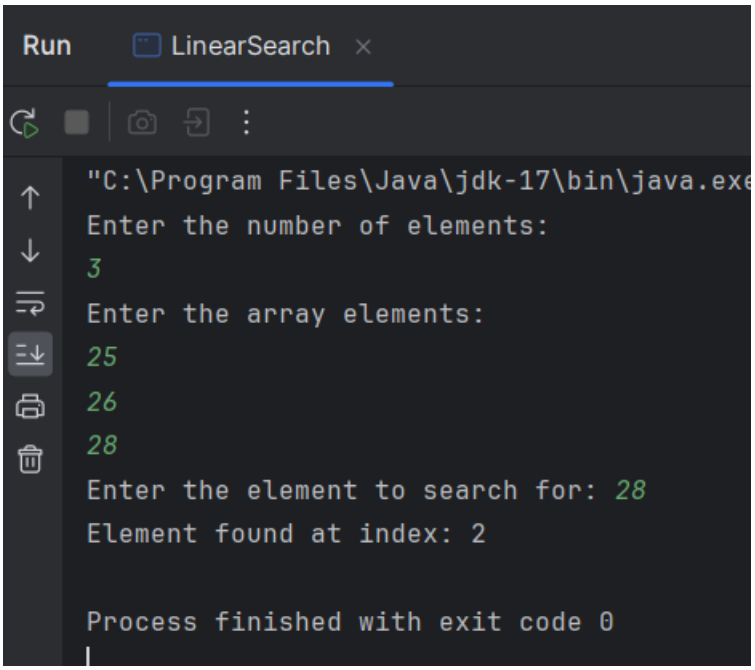
//Program 2

Write a program accept ‘n’ number store in array and perform linear search.

```
import java.util.Scanner;

public class LinearSearch {

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

        // Get the number of elements in the array
        System.out.print("Enter the number of elements: \n");
        int n = scanner.nextInt();

        // Create an array of size n
        int[] arr = new int[n];

        // Read the array elements
        System.out.print("Enter the array elements: \n");
        for (int i = 0; i < n; i++) {
            arr[i] = scanner.nextInt();
        }

        // Get the element to search for
        System.out.print("Enter the element to search for: ");
        int key = scanner.nextInt();

        // Perform linear search
        int index = linearSearch(arr, key);

        // Check if the element was found
        if (index != -1) {
            System.out.println("Element found at index: " + index);
        } else {
            System.out.println("Element not found.");
        }
    }

    public static int linearSearch(int[] arr, int key) {
        for (int i = 0; i < arr.length; i++) {
            if (arr[i] == key) {
                return i;
            }
        }
        return -1;
    }
```

```
}
```

Output


Run
LinearSearch
"C:\Program Files\Java\jdk-17\bin\java.exe
Enter the number of elements:
3
Enter the array elements:
25
26
28
Enter the element to search for: 28
Element found at index: 2
Process finished with exit code 0

//Experiment No 5
//Program 3

Write a program to accept 3x3 Matrix and calculate addition of two matrixes and display it.

```
import java.util.*;
public class Matrix {
                public static void main(String[] args)
                {
                        int A[][] =new int[3][3];
                        int B[][] =new int[3][3];
                        int C[][] =new int[3][3];

                        Scanner SC = new Scanner(System.in);

                        System.out.println("Enter The Elements Of Matrix A");
                        for(int i=0; i<3;i++) {
                                for(int j=0; j<3;j++) {
                                        A[i][j] = SC.nextInt();
                                        }
                        }

                        System.out.println("Enter The Elements Of Matrix B");
                        for(int i=0; i<3;i++) {
                                for(int j=0; j<3;j++) {
                                        B[i][j] = SC.nextInt();
                                        }
                        }

                        System.out.println("Display Matrix A");
                        for(int i=0; i<3;i++) {
                                for(int j=0; j<3;j++) {
                                        System.out.print(A[i][j] +" ");

                                        }
                                System.out.println();
                        }

                        System.out.println("Display Matrix B");
                        for(int i=0; i<3;i++)
                        {
                                for(int j=0; j<3;j++)
                                {
                                        System.out.print(B[i][j] +" ");
                                }
                                System.out.println();
                 }
```

```
                        System.out.println("Addition of the matrix A and B:");
                        for(int i=0;i<3 ; i++) {
                                for(int j=0;j<3;j++){
                                        C[i][j]=A[i][j]+B[i][j];
                                        System.out.print(C[i][j]+" ");
                                }
                                System.out.println();
                        }
                        SC.close();
        }
}
```

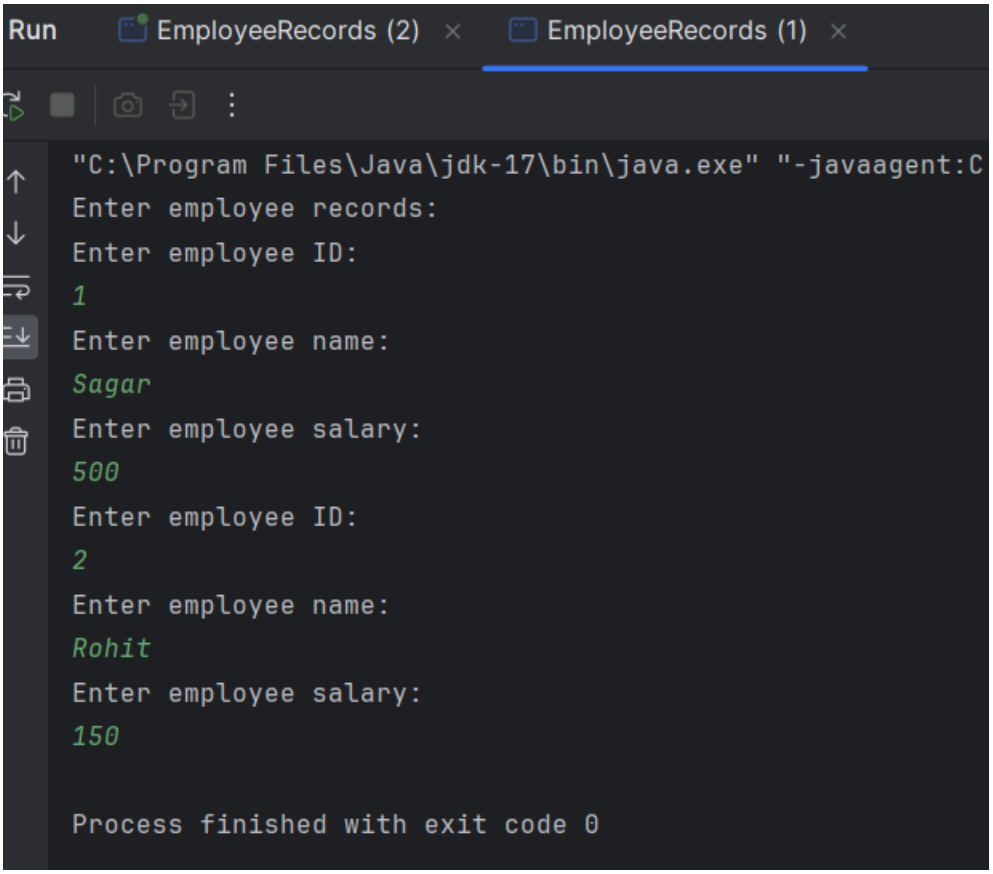
Output-

```
Enter The Elements Of Matrix A
1
2
3
4
5
6
7
8
9
Enter The Elements Of Matrix B
9
8
7
6
5
4
3
2
1
Display Matrix A
1 2 3
4 5 6
7 8 9
Display Matrix B
9 8 7
6 5 4
3 2 1
Addition of the matrix A and B:
10 10 10
10 10 10
10 10 10
```

```
//Experiment No 5
//Program 4

Write a program to declare class Employee having data member emp_id, name and
salary. Accept records for 5 employee and display that records whose salary is
greater than 5000.

import java.util.Scanner;
class Employee {
    int employee_id;
    String name;
    double salary;

    Employee(int id, String name, double salary) {
        this.employee_id = id;
        this.name = name;
        this.salary = salary;
    }

    public void displayEmployeeDetails() {
        System.out.println("Employee ID: " + employee_id);
        System.out.println("Name: " + name);
        System.out.println("Salary: " + salary);
        System.out.println();
    }
}

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

        System.out.println("Enter employee records:");

        for (int i = 0; i < 2; i++) {

            System.out.println("Enter employee ID: ");
            int id = sc.nextInt();

            System.out.println("Enter employee name: ");
            String name = sc.nextLine();
            sc.nextLine();

            System.out.println("Enter employee salary: ");
            double salary = sc.nextDouble();

            Employee employee = new Employee(id, name, salary);
            if (employee.salary > 5000) {
                employee.displayEmployeeDetails();
```

```
        }
        }

        sc.close();
    }
}
```

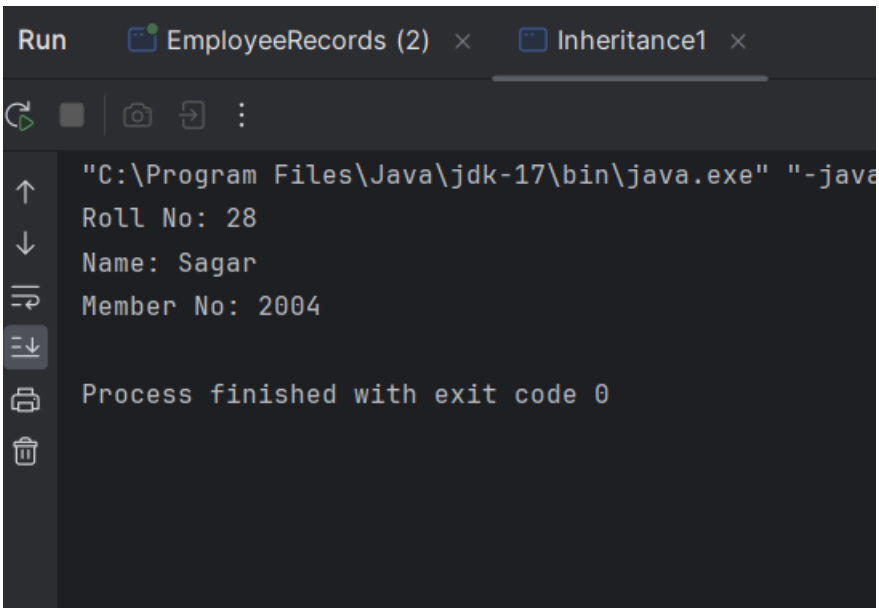
Output



```
//Experiment No 6
//Program 1

Write a program to implement following inheritance. Assume suitable methods.
Superclass
      Class Name: Student
      Member variables: Roll_no, Name
Subclass:
      Class Name: Library
      Member variables: Member_No

class Student {
    private int roll_no;
    private String name;

    public Student(int roll_no, String name) {
        this.roll_no = roll_no;
        this.name = name;
    }

    public int getRoll_no() {
        return roll_no;
    }

    public void setRoll_no(int roll_no) {
        this.roll_no = roll_no;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }
}

class Library extends Student {
    private int member_no;

    public Library(int roll_no, String name, int member_no) {
        super(roll_no, name);
        this.member_no = member_no;
    }

    public int getMember_no() {
        return member_no;
```

```
    }

    public void setMember_no(int member_no) {
        this.member_no = member_no;
    }
}

public class Inheritance1 {
    public static void main(String[] args) {
        Library student1 = new Library(02, "Sudarshan", 2003);

        System.out.println("Roll No: " + student1.getRoll_no());
        System.out.println("Name: " + student1.getName());
        System.out.println("Member No: " + student1.getMember_no());
    }
}
```

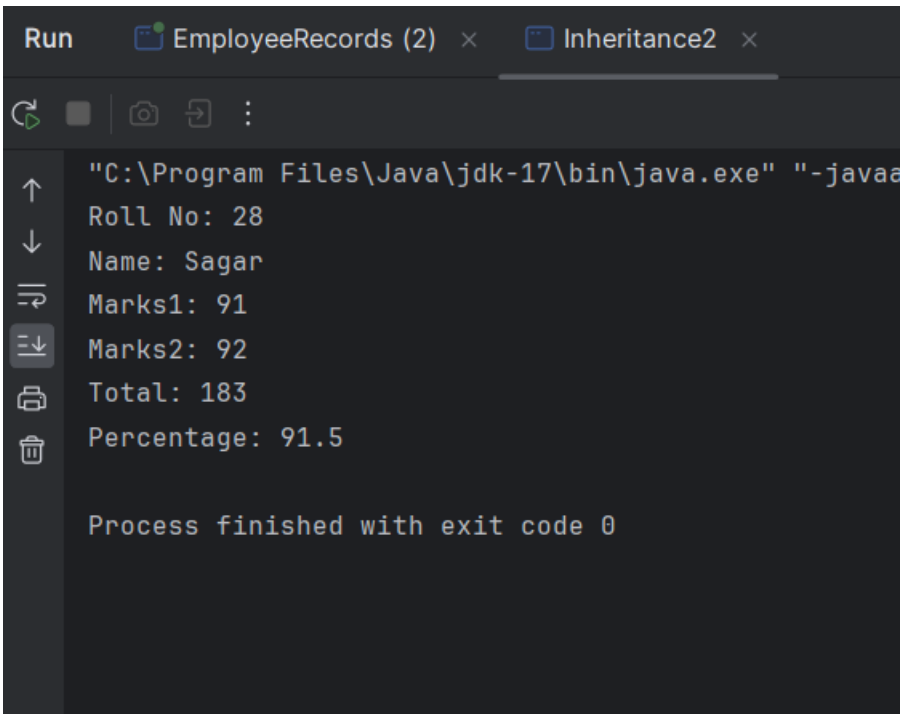
Output



```
//Experiment No 6
//Program 2

Write a program to implement following multilevel inheritance. Assume suitable
methods.
                  a. Class Name: Student
                   Member variables: Roll_no, Name
                   b. Class Name: Marks
                   Member variables: Marks1, Marks2,Total
                  c. Class Name: Result
                    Member variables: Percentage


class Student {
    int roll_no;
    String name;

    Student(int roll_no, String name) {
        this.roll_no = roll_no;
        this.name = name;
    }
}

class Marks extends Student {
    int marks1;
    int marks2;
    int total;

    Marks(int roll_no, String name, int marks1, int marks2) {
        super(roll_no, name);
        this.marks1 = marks1;
        this.marks2 = marks2;
        this.total = marks1 + marks2;
    }
}

class Result extends Marks {
    double percentage;

    Result(int roll_no, String name, int marks1, int marks2) {
        super(roll_no, name, marks1, marks2);
        this.percentage = (double) this.total / 200 * 100;
    }

    void display() {
        System.out.println("Roll No: " + roll_no);
        System.out.println("Name: " + name);
        System.out.println("Marks1: " + marks1);
```

```
        System.out.println("Marks2: " + marks2);
        System.out.println("Total: " + total);
        System.out.println("Percentage: " + percentage);
    }
}

public class Inheritance2 {
    public static void main(String[] args) {
        Result s1 = new Result(2, "Sudarshan", 91, 92);
        s1.display();
    }
}
```

Output



Write a Java program to create a base class Bank with method with interest_rate (). Create two subclasses SBI and ICICI. Override the interest_rate () method to find out interest rate.

```
class Bank {
    public void interestRate() {
        System.out.println("Base Bank Interest Rate: 5%");
    }
}

class SBI extends Bank {
    public void interestRate() {
        System.out.println("SBI Interest Rate: 8%");
    }
}

class ICICI extends Bank {
    public void interestRate() {
        System.out.println("ICICI Interest Rate: 7%");
    }
}

public class IntrestRate {
    public static void main(String[] args) {
        Bank sbi = new SBI();
        sbi.interestRate();

        Bank icici = new ICICI();
        icici.interestRate();
    }
}
```

Output-

```
SBI Interest Rate: 8%
ICICI Interest Rate: 7%
```

//Experiment 7

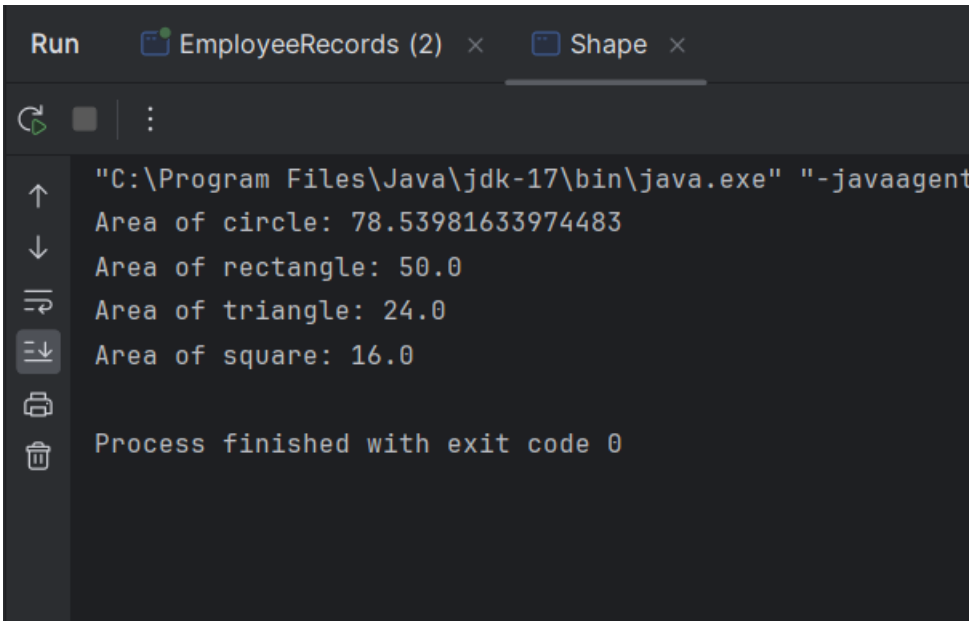
//Program 1

Write a program to declare class Shape then calculate Area of circle, Area of Triangle, Area of Rectangle and area of Square using Constructor overloading.

```
public class Shape {

    private double radius, length, width, base, height;

    // Constructor for circle
    public Shape(double radius) {
        this.radius = radius;
    }

    // Constructor for rectangle
    public Shape(int length, int width) {
        this.length = length;
        this.width = width;
    }

    // Constructor for triangle
    public Shape(double base, double height) {
        this.base = base;
        this.height = height;
    }

    // Constructor for square
    public Shape(int side) {
        this.length = side;
        this.width = side;
    }

    // Method to calculate area of circle
    public double calculateAreaCircle() {
        return Math.PI * radius * radius;
    }

    // Method to calculate area of rectangle
    public double calculateAreaRectangle() {
        return length * width;
    }

    // Method to calculate area of triangle
    public double calculateAreaTriangle() {
        return 0.5 * base * height;
    }
```

```
    // Method to calculate area of square
    public double calculateAreaSquare() {
        return length * length;
    }

    public static void main(String[] args) {
        // Create objects for circle, rectangle, triangle, and square
        Shape circle = new Shape(5.0);
        Shape rectangle = new Shape(10, 5);
        Shape triangle = new Shape(6.0, 8.0);
        Shape square = new Shape(4);

        // Calculate and display the area of each shape
        System.out.println("Area of circle: " + circle.calculateAreaCircle());
        System.out.println("Area of rectangle: " +
rectangle.calculateAreaRectangle());
        System.out.println("Area of triangle: " +
triangle.calculateAreaTriangle());
        System.out.println("Area of square: " + square.calculateAreaSquare());
    }
}
```

Output-

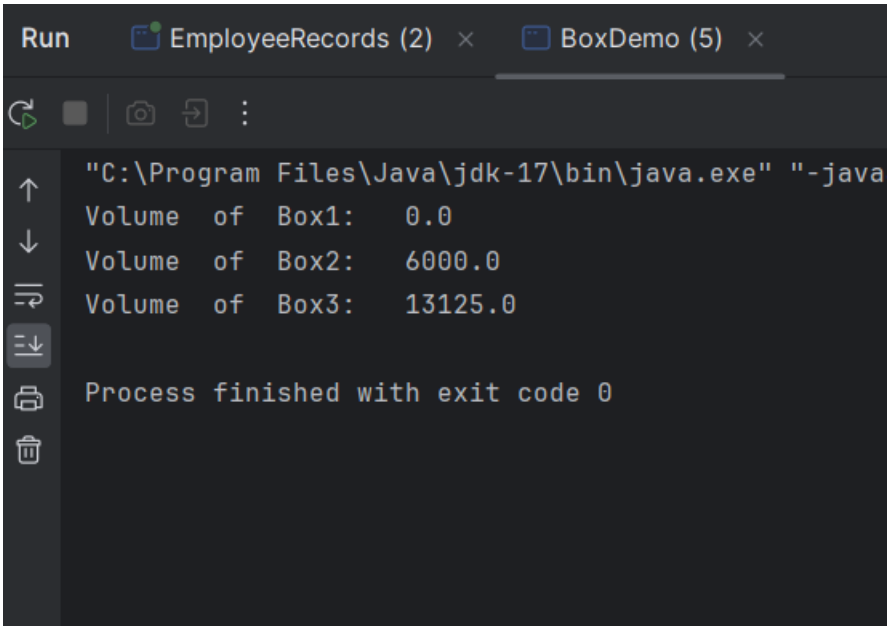


```
//Experiment No 7
//Program 3
```

Write a program to declare class Box with data member length, width, height, initialized three object using different constructors and calculate Volume of Box and display records.

```
class Box {
    // Data members
    double length;
    double width;
    double height;

    // Default constructor
    Box() {
        length = 0.0;
        width = 0.0;
        height = 0.0;
    }

    // Parameterized constructor
    Box(double l, double w, double h) {
        length = l;
        width = w;
        height = h;
    }

    // Method to calculate volume of the box
    double volume() {
        return length * width * height;
    }
}

public class BoxDemo {
    public static void main(String[] args) {
        // Create three objects using different constructors
        Box box1 = new Box(); // Default constructor
        Box box2 = new Box(10.0, 20.0, 30.0); // Parameterized constructor
        Box box3 = new Box(15.0, 25.0, 35.0); // Parameterized constructor

        // Calculate and display volume of each box
        System.out.println("Volume of Box1: " + box1.volume());
        System.out.println("Volume of Box2: " + box2.volume());
        System.out.println("Volume of Box3: " + box3.volume());
    }
}
```

----------Output----------


Run
EmployeeRecords (2)
BoxDemo (5)
"C:\Program Files\Java\jdk-17\bin\java.exe" "-java
Volume of Box1: 0.0
Volume of Box2: 6000.0
Volume of Box3: 13125.0
Process finished with exit code 0