Day- 2

Java programming

Course code – csa0998

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1 . Avengers marks 15 students .

Code:-

```
import java.io.*;
class GFG {
	public static void main(String[] args)
	{
		int N = 15, total_marks = 0;
		float percentage;
		int marks[] = {
55,55,55,77,88,99,55,33,15,78,89, 75, 82, 60, 95 };

		for (int i = 0; i < N; i++) {
			total_marks += marks[i];
```

```
            }
            System.out.println("Total Marks : " +
total_marks);

            percentage = (total_marks / (float)N);
            System.out.println(
                  "Total Percentage : " + percentage +
"%");
      }
}
```

Output:-

Total Marks : 1011

Total Percentage : 67.4%

2 . Matrix multiplication .

Code:-

```
public class MatrixMultiplicationExample{
public static void main(String args[]){
int a[][]={{1,1,1},{2,2,2},{3,3,3}};
int b[][]={{1,1,1},{2,2,2},{3,3,3}};
int c[][]=new int[3][3];
```

```
for(int i=0;i<3;i++){
for(int j=0;j<3;j++){
c[i][j]=0;
for(int k=0;k<3;k++)
{
c[i][j]+=a[i][k]*b[k][j];
}
System.out.print(c[i][j]+" ");
}
System.out.println();
}
}}
```

Output:-

6 6 6

12 12 12

18 18 18

3 . Matrix addition .

Code:-

```
public class MatrixAdditionExample{
```

```
public static void main(String args[]){
int a[][]={{1,3,4},{2,4,3},{3,4,5}};
int b[][]={{1,3,4},{2,4,3},{1,2,4}};
int c[][]=new int[3][3];
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();
}
}}
```

Output:-

2 6 8

4 8 6

4 6 9

4 . Matrix subtraction .

Code:-

```
 public class Sub_Matrix
```

```
{
    public static void main(String[] args) {
        int rows, cols;
         int a[][] = {
                        {4, 5, 6},
                        {3, 4, 1},
                        {1, 2, 3}
                    };
         int b[][] = {
                        {2, 0, 3},
                       {2, 3, 1},
                        {1, 1, 1}
                     };
         rows = a.length;
        cols = a[0].length;
        int diff[][] = new int[rows][cols];
        for(int i = 0; i < rows; i++){
            for(int j = 0; j < cols; j++){
                diff[i][j] = a[i][j] - b[i][j];
```

```
            }
        }

        System.out.println("Subtraction of two
matrices: ");
        for(int i = 0; i < rows; i++){
            for(int j = 0; j < cols; j++){
              System.out.print(diff[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

Output:-

Subtraction of two matrices: 2 5 3

1 1 0

0 1 2

5 . Simple interest using oops .

Code:-

```
 public class Main {
```

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

    System.out.print("Principal = 9000: ");
    double principal = 9000;

    System.out.print("rate of interest = 10 : ");
    double rate = 10;

    System.out.print("number of years = 5 : ");
    int years = 5;

    double simpleInterest = (principal * rate * years)
/ 100;
    System.out.println("Simple Interest: " +
simpleInterest);
  }
}
```

Output:-

Principal = 9000: rate of interest = 10 : number of years = 5 : Simple Interest: 4500.0

6 . Area of rectangle using oops concepts .

Code:-

```
import java.util.*;
class Rectangle {
    int length, width;
    Rectangle(int length, int width) {
        this. length = length;
        this.width = width;
    }
    public void area() {
        int areaOfRectangle;
        areaOfRectangle = this.length * this.width;
        System.out.println("Area of rectangle with
the given input is : " + areaOfRectangle);
    }
    public void perimeter() {
        int  perimeterOfRectangle;
        perimeterOfRectangle = 2 * (this.length +
this.width);
```

```
        System.out.println("Perimeter of rectangle
with the given input is : " +
perimeterOfRectangle);
    }
}
public class Main {
    public static void main(String args[]) {
        Rectangle rect_obj = new Rectangle(10,5);
        System.out.println("Length = " +
rect_obj.length);
        System.out.println("Width = " +
rect_obj.width);
        rect_obj.area();
        rect_obj.perimeter();
    }
}
```

Output:-

```
Length = 10
Width = 5
Area of rectangle with the given input is : 50
```

Perimeter of rectangle with the given input is : 30

7 . Area of circle using oops .

Code:-

```
import java.util.Scanner;
public class AreaOfCircle {
   public static void main(String args[]){
      int radius;
      double area;
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter the radius of the
circle ::");
      radius = sc.nextInt();
      area = (radius*radius)*Math.PI;
      System.out.println("Area of the circle is
::"+area);
   }
}
```

Output:-

```
Enter the radius of the circle ::
5
```

Area of the circle is ::78.53981633974483

8 . Area of rectangle using constructors .

Code:-

```
  public class Student {
int id;
String name;

Student(){
System.out.println("this a default constructor");
}

Student(int i, String n){
id = i;
name = n;
}

public static void main(String[] args) {
Student s = new Student();
System.out.println("\nDefault Constructor values:
\n");
```

```
System.out.println("Student Id : "+s.id +
"\nStudent Name : "+s.name);

System.out.println("\nParameterized Constructor
values: \n");

Student student = new Student(10, "David");

System.out.println("Student Id : "+student.id +
"\nStudent Name : "+student.name);

}

}
```

Output:-

```
this a default constructor

Default Constructor values:


Student Id : 0

Student Name : null

Parameterized Constructor values:


Student Id : 10

Student Name : David
```

9 . Area of box in java using class and object .

Code:-

```
class Box {
    double length;
    double width;
    double height;

    // Constructor to initialize the dimensions of the box
    public Box(double length, double width, double height) {
        this.length = length;
        this.width = width;
        this.height = height;
    }

    // Method to calculate the area of the box
    public double calculateArea() {
        // Calculate the surface area of the box
        double area = 2 * ((length * width) + (width * height) + (height * length));
```

```
        return area;
    }
}

public class Main {
    public static void main(String[] args) {
        // Create an object of the Box class
        Box myBox = new Box(5.0, 4.0, 3.0);

        // Calculate the area of the box using the calculateArea() method
        double area = myBox.calculateArea();

        // Print the result
        System.out.println("The surface area of the box is: " + area);
    }
}
```

Output:-

```
The surface area of the box is: 94.0
```