Assignment Day-2

1.Primitive Data Types

Task: Create a program that accepts age, height, and weight of a person and prints them with appropriate data types.

Sample Input:

Age: 25

Height: 5.9

Weight: 68.5

Sample Output:

Age: 25 Height:

5.9 Weight: 68.5

Program:

```
package tasks;
import java.util.Scanner;
public class task1 {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		   Scanner sc = new Scanner(System.in);
		   System.out.print("Enter age: ");
		   int age = sc.nextInt();
		   System.out.print("Enter height: ");
		   float height = sc.nextFloat();
		   System.out.print("Enter weight: ");
		   float weight = sc.nextFloat();

		   System.out.println("Age: " + age);
		   System.out.println("Height: " + height);
		   System.out.println("Weight: " + weight);
	    }

}
```

2. Variables

Task: Declare and initialize different types of variables to store a student's information: ID, name, marks, and grade. Print them.

Sample Input:

ID: 101

Name: Arun

Marks: 89.5

Grade: A

Sample Output:

Student ID: 101

Name: Arun

Marks: 89.5 Grade: A

Program:

```
package tasks;

import java.util.Scanner;

public class task2 {

	public static void main(String[] args) {
		// TODO Auto-generated method stub

	  Scanner sc = new Scanner(System.in);
	  System.out.print("Enter ID: ");
	  int id = sc.nextInt();
	  System.out.print("Enter Name: ");
	  String name = sc.next();
	  System.out.print("Enter Marks: ");
	  float marks = sc.nextFloat();
	  System.out.print("Enter Grade: ");
	  char grade = sc.next().charAt(0);

	  System.out.println("Student ID: " + id);
	  System.out.println("Name: " + name);
	  System.out.println("Marks: " + marks);
	  System.out.println("Grade: " + grade);


	}

}
```

3. Operators

Task: Accept two numbers and perform arithmetic, relational, and logical operations on them.

Sample Input:

Number1: 10

Number2: 20

Sample Output:

Addition: 30

Greater number: 20

Are both positive? True

Program:

```
package tasks;
import java.util.Scanner;
public class task3 {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		  Scanner sc = new Scanner(System.in);
		  System.out.print("Enter Number1: ");
		  int a = sc.nextInt();
		  System.out.print("Enter Number2: ");
		  int b = sc.nextInt();

		  System.out.println("Addition: " + (a + b));
		  System.out.println("Greater number: " + (a > b ? a : b));
		  System.out.println("Are both positive? " + (a > 0 && b >
0));

	}

}
```

4. String Concatenation

Task: Create a greeting message using first name and last name entered by the user.

Sample Input:

First Name: Ravi

Last Name: Kumar

Sample Output:

Hello, Ravi Kumar! Welcome to the system.

Program:

```
package tasks;
import java.util.Scanner;
public class task4 {
   public static void main(String[] args) {
   Scanner sc = new Scanner(System.in);
    System.out.print("Enter First Name: ");
    String first = sc.next();
    System.out.print("Enter Last Name: ");
    String last = sc.next();

    System.out.println("Hello, " + first + " " + last + "! Welcome to
the system.");
}

}
```

5. StringBuilder

Task: Accept a sentence and reverse it using StringBuilder.

Sample Input:

Input: Hello Java Learners

Sample Output:

Original: Hello Java Learners

Reversed: srenraeL avaJ olleH

Program:

```
package tasks;
import java.util.Scanner;
public class task5 {
      public static void main(String[] args) {
         Scanner sc = new Scanner(System.in);
         System.out.print("Enter a sentence: ");
         String input = sc.nextLine();

         StringBuilder sb = new StringBuilder(input);
         System.out.println("Original: " + input);
         System.out.println("Reversed: " + sb.reverse());
    }
}
```

6. String API

Task: Count how many times a specific character appears in a string.

Sample Input:

String: banana

Character: a

Sample Output:

Character 'a' appears 3 times

Program:

```
package tasks;
import java.util.Scanner;
public class task6 {
      public static void main(String[] args) {
         Scanner sc = new Scanner(System.in);
         System.out.print("Enter a string: ");
         String str = sc.next();
         System.out.print("Enter a character to count: ");
         char ch = sc.next().charAt(0);

         long count = str.chars().filter(c -> c == ch).count();
         System.out.println("Character '" + ch + "' appears " + count +
" times.");
    }

}
```

7. Date, Time, and Numeric Objects

Task: Display the current date and format it as DD-MM-YYYY. Also, show a formatted currency
value.

Sample Input:
Date: [current system date]
Amount: 12345.678

Sample Output:
Current Date: 20-07-2025
Formatted Amount: ₹12,345.68

Program:

```
package tasks;

import java.text.NumberFormat;
import java.time.LocalDate;

public class task7 {
    public static void main(String[] args) {
        LocalDate date = LocalDate.now();
        System.out.println("Current Date: " + date.getDayOfMonth() + "-
" + date.getMonthValue() + "-"
+ date.getYear());
        double amount = 12345.678;
        NumberFormat nf = NumberFormat.getCurrencyInstance();
        System.out.println("Formatted Amount: " + nf.format(amount));
    }
}
```

8. Flow Control

Task: Based on a number entered, print whether it's positive, negative, or zero.

Sample Input:

Number: -5

Sample Output:

The number is negative.

Program:

```
package tasks;
import java.util.Scanner;
public class task8 {
      public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        if (num > 0)
            System.out.println("The number is positive.");
```

```
        else if (num < 0)
            System.out.println("The number is negative.");
        else
            System.out.println("The number is zero.");
    }
}
```

9. Conditions

Task: Accept marks and display the grade using if-else.

Sample Input:

Marks: 76

Sample Output:

Grade: B

Program:

```
package tasks;
import java.util.Scanner;
public class task9 {
      public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter marks: ");
        int marks = sc.nextInt();

        if (marks >= 90)
            System.out.println("Grade: A");
        else if (marks >= 75)
            System.out.println("Grade: B");
        else if (marks >= 60)
            System.out.println("Grade: C");
        else if (marks >= 40)
            System.out.println("Grade: D");
        else
            System.out.println("Grade: F");
    }
}
```

10. Switch

Task: Build a simple calculator using switch to perform operations (+, -, *, /).

Sample Input:

Number1: 10

Number2: 5

Operation: *

Sample Output:

Result: 50

Program:

```
package tasks;
import java.util.Scanner;
public class task10 {
      public static void main(String[] args) {
         Scanner sc = new Scanner(System.in);
         System.out.print("Enter number1: ");
         int a = sc.nextInt();
         System.out.print("Enter number2: ");
         int b = sc.nextInt();
         System.out.print("Enter operation (+, -, *, /): ");
         char op = sc.next().charAt(0);

         switch (op) {
             case '+': System.out.println("Result: " + (a + b)); break;
             case '-': System.out.println("Result: " + (a - b)); break;
             case '*': System.out.println("Result: " + (a * b)); break;
             case '/':
                 if (b != 0)
                     System.out.println("Result: " + (a / b));
                 else
                     System.out.println("Cannot divide by zero.");
                 break;
             default:
                 System.out.println("Invalid operation.");
         }
     }

}
```

11. Loops and Branching

Task: Print the first N even numbers using a loop.

Sample Input:

N = 5

Sample Output:

0 2 4 6 8

Program:

```
package tasks;
import java.util.Scanner; class task11 {
      public static void main(String[] args) {
         Scanner sc = new Scanner(System.in);
         System.out.print("Enter N: ");
         int N = sc.nextInt();
         int count = 0;

         for (int i = 0; count < N; i++) {
             if (i % 2 == 0) {
                 System.out.print(i + " ");
                 count++;
```

```
            }
        }
    }
}
```

12. Arrays

Task: Accept 5 numbers, store them in an array, and display their average.

Sample Input:

Numbers: 10, 20, 30, 40, 50

Sample Output:

Average: 30.0

Program:

```
package tasks;
import java.util.Scanner;
public class task12 {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		double[] arr = new double[5];
		double sum = 0;

		System.out.println("Enter 5 numbers:");
		for (int i = 0; i < 5; i++) {
		    arr[i] = sc.nextDouble();
		    sum += arr[i];
		}

		System.out.println("Average: " + (sum / 5));
	  }
}
```

13. Enum

Task: Create an enum for days of the week. Print a message depending on the day.

Sample Input:

Day: MONDAY

Sample Output:

Start of the work week!

Program:

```
package tasks;
import java.util.Scanner;
enum Day {
    MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY
}
public class task13 {
```

```
      public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter day (e.g., MONDAY): ");
        Day day = Day.valueOf(sc.next().toUpperCase());

        switch (day) {
            case MONDAY: System.out.println("Start of the work week!");
break;
            case FRIDAY: System.out.println("Weekend is coming!");
break;
            case SUNDAY: System.out.println("Relax, it's Sunday!");
break;
            default: System.out.println("Just another day...");
        }
    }
}
```

14. OOPs Concepts

Task: Create a Student class with fields for name and marks. Create an object and display its data.

Sample Input:

Name: Riya

Marks: 87

Sample Output:

Student Name: Riya

Marks: 87

Program:

```
import java.util.Scanner;
class Student {
    String name;
    int marks;

    Student(String name, int marks) {
        this.name = name;
        this.marks = marks;
    }
    void display() {
        System.out.println("Student Name: " + name);
        System.out.println("Marks: " + marks);
    }
}
public class OOPS {
        public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            System.out.print("Name: ");
            String name = scanner.nextLine();

            System.out.print("Marks: ");
            int marks = scanner.nextInt();
            Student student = new Student(name, marks);
```

```
            student.display();
        }
    }
```

In OOPS class

```
package Assignments;
import java.util.Scanner;
class Student {
    String name;
    int marks;

    Student(String name, int marks) {
        this.name = name;
        this.marks = marks;
    }
    void display() {
        System.out.println("Student Name: " + name);
        System.out.println("Marks: " + marks);
    }
}
public class OOPS {
        public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            System.out.print("Name: ");
            String name = scanner.nextLine();

            System.out.print("Marks: ");
            int marks = scanner.nextInt();
            Student student = new Student(name, marks);
            student.display();
        }
    }
```

15. Inheritance

Task: Create a class Employee and a subclass Manager that extends Employee and adds department information.

Sample Input:

Name: Raj

Salary: 50000

Department: Sales

Sample Output:

Name: Raj

Salary: 50000

Department: Sales

Program:

```
package tasks;
```

```
class Employee {
    String name;
    double salary;

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

class Manager extends Employee {
    String department;

    Manager(String name, double salary, String department) {
        super(name, salary);
        this.department = department;
    }

    void displayInfo() {
        System.out.println("Name: " + name);
        System.out.println("Salary: " + salary);
        System.out.println("Department: " + department);
    }
}


public class task15 {
      public static void main(String[] args) {
        Manager m = new Manager("Raj", 50000, "Sales");
        m.displayInfo();
}}
```