

## Input and Output Statements in Java

### Aim:

To understand and use input and output statements in Java using the Scanner class.

### PRE LAB EXERCISE

#### QUESTIONS

What is input in a program?

- Input is the **data given to a program** to process (by the user, file, or another program).

What is output in a program?

- Output is the **result produced by the program** after processing the input.

Which class is used to read input from the user in Java?

- The **Scanner class** (from java.util package) is used to read input from the user.

### IN LAB EXERCISE

#### Objective:

To read input from the user and display the output using Java input and output statements.

#### INPUT STATEMENT:

#### SCANNER CLASS

- ✓ The Scanner class in Java is used to read input from the user through the keyboard.  
It is available in the package java.util.
- ✓ The Scanner object reads different types of input such as integer, float, double, and string and stores them in variables.
- ✓ To use the Scanner class, it must be imported before using it in the program.

#### SYNTAX:

- ✓ `Scanner sc = new Scanner(System.in);`

#### Commonly Used Scanner Methods:

- ✓ `nextInt()` – reads an integer value
- ✓ `nextFloat()` – reads a float value
- ✓ `nextDouble()` – reads a double value

- ✓ `next()` – reads a single word
- ✓ `nextLine()` – reads a complete line of text

## PROGRAMS:

### Program 1: Read and Display Name

#### Source Code:

```
import java.util.Scanner;

class ReadName {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter your name: ");
        String name = sc.nextLine();
        System.out.println("Your name is: " + name);
    }
}
```

#### Output:

Enter your name: Anitha

Your name is: Anitha

```
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> &
Messages' '-cp' 'C:\Users\Paramasivam\AppData\Roaming\Co
s\src_ba227aa1\bin' 'ReadName'
Enter your name: Paramasivam
Your name is: Paramasivam
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> █
```

### Program 2: Read Two Numbers and Print Sum

#### Source Code:

```
import java.util.Scanner;

class SumInput {

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

```
Scanner sc = new Scanner(System.in);
System.out.print("Enter first number: ");
int a = sc.nextInt();
System.out.print("Enter second number: ");
int b = sc.nextInt();
int sum = a + b;
System.out.println("Sum = " + sum);
}
```

### Output:

Enter first number: 5

Enter second number: 3

Sum = 8

```
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> &
Messages' '-cp' 'C:\Users\Paramasivam\AppData\Roaming\Co
s\src_ba227aa1\bin' 'SumInput'
Enter first number: 10
Enter second number: 20
Sum = 30
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> █
```

### Program 3: Read Length and Breadth and Find Area of Rectangle

#### Source Code:

```
import java.util.Scanner;
```

```
class AreaRectangleInput {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter length: ");
        int length = sc.nextInt();
        System.out.print("Enter breadth: ");
```

```
int breadth = sc.nextInt();
int area = length * breadth;
System.out.println("Area of Rectangle = " + area);
}
}
```

### **Output:**

Enter length: 10

Enter breadth: 5

Area of Rectangle = 50

```
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> & 'c
Messages' '-cp' 'C:\Users\Paramasivam\AppData\Roaming\Cod
s\src_ba227aa1\bin' 'AreaRectangleInput'
Enter length: 500
Enter breadth: 600
Area of Rectangle = 300000
PS C:\Users\Paramasivam\OneDrive\oops_lab\java\src> █
```

## **POST LAB EXERCISE**

- ✓ **What is the use of the Scanner class in Java?**

The Scanner class is used to **read input from the user** (keyboard, file, etc.).

- ✓ **Which package contains the Scanner class?**

java.util package.

- ✓ **What does System.in represent?**

System.in represents the **standard input stream** (keyboard input).

- ✓ **What does System.out represent?**

System.out represents the standard output stream (display/console output).

- ✓ **Name any two methods used to read input using Scanner.**

nextInt()  
nextLine()

✓ **What is the difference between next() and nextLine()?**

- next() reads a single word (stops at space).
- nextLine() reads the entire line including spaces.

**Result:**

Thus the input was successfully read from the user and the corresponding output was displayed using Java input and output statements.

**ASSESSMENT**

| Description              | Max Marks | Marks Awarded |
|--------------------------|-----------|---------------|
| Pre Lab Exercise         | <b>5</b>  |               |
| In Lab Exercise          | <b>10</b> |               |
| Post Lab Exercise        | <b>5</b>  |               |
| Viva                     | <b>10</b> |               |
| <b>Total</b>             | <b>30</b> |               |
| <b>Faculty Signature</b> |           |               |