

## **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**

##### **1.What is input in a program?**

Input is the data that we give to a program so it can process it.  
It can be given by the user, a file, or another program.

##### **Example:**

Entering a number, name, or marks from the keyboard.

##### **2.What is output in a program?**

Output is the result produced by the program after processing the input.  
It is usually shown on the screen, or stored in a file.

##### **Example:**

Displaying the sum of two numbers on the screen.

##### **3.Which class is used to read input from the user in Java?**

The **Scanner** class is used to read input from the user in Java.

- It belongs to the package: java.util
- It reads input from the keyboard using System.in

### **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:**

```
<terminated> exp2 [Java Application] C:\Users\Shri Sanjanaa\
Enter your name: Sanju
Your name is: Sanju
```

### 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:

```
<terminated> exp2 [Java Application] C:\Users\Shri Sanjanaa\
Enter first number: 10
Enter second number: 20
Sum = 30
```

### 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:**

```
<terminated> exp2 [Java Application] C:\Users\Shri Sanjanaa\  
Enter length: 10  
Enter breadth: 20  
Area of Rectangle = 200
```

**POST LAB EXERCISE:**

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

The Scanner class is used to read input from the user such as integers, floating-point numbers, characters, and strings.

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

The Scanner class is present in the java.util package.

✓ **What does System.in represent?**

System.in represents the standard input stream, which is used to take input from the keyboard.

✓ **What does System.out represent?**

System.out represents the standard output stream, which is used to display output on the screen (console).

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

Two commonly used Scanner methods are:

- `nextInt()` – reads an integer value
- `nextLine()` – reads a line of text  
(Other examples: `nextFloat()`, `nextDouble()`, `next()`)

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

<b>next()</b>	<b>nextLine()</b>
Reads a <b>single word</b>	Reads a <b>complete line</b>
Stops at space	Reads text including spaces
Cannot read spaces	Can read spaces

**Example:**

Input: Hello Java World

- `next()` → Hello
- `nextLine()` → Hello Java World

**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>		