

## **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 by the user or another source.

What is output in a program?

Output is the result produced by a program after processing the input.

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

The **Scanner** class 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:rakshana

Your name is: Rakshana

```
import java.util.Scanner;
class ReadName {
    Run | Debug
    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);
    }
}
```

```
Enter your name: rakshana
Your name is: rakshana
```

### 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
```

```
1 import java.util.Scanner;
2 class SumInput {
3     public static void main(String[] args) {
4         Scanner sc = new Scanner(System.in);
5         System.out.print("Enter first number: ");
6         int a = sc.nextInt();
7         System.out.print("Enter second number: ");
8         int b = sc.nextInt();
9         int sum = a + b;
10        System.out.println("Sum = " + sum);
11    }
12 }
```

```
Enter first number: 41
Enter second number: 8
Sum = 49
```

### 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

```
1 import java.util.Scanner;
2
3 class AreaRectangleInput {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.print("Enter length: ");
7         int length = sc.nextInt();
8         System.out.print("Enter breadth: ");
9         int breadth = sc.nextInt();
10        int area = length * breadth;
11        System.out.println("Area of Rectangle = " + area);
12    }
13 }
```

Enter length: 10

Enter breadth: 5

Area of Rectangle = 50

**POST LAB EXERCISE**

- ✓ What is the use of the Scanner class in Java?
  - Scanner is used to read user input like integers, decimals, and strings from the keyboard.
- ✓ 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 (monitor/screen output).
- ✓ Name any two methods used to read input using Scanner.
  - nextInt(), nextLine()
- ✓ What is the difference between next() and nextLine()?

○ <b>Method</b>	○ <b>Reads</b>
○ next()	○ Only one word (until space)
○ nextLine()	○ 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**

<b>Description</b>	<b>Max Marks</b>	<b>Marks Awarded</b>
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>		