

## 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 or information given to a program** so that it can perform a task or calculation.

Example: numbers, text, or choices entered by the user.

What is output in a program?

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

Example: displaying a result, message, or calculated value on the screen.

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**.

Example: `Scanner sc = new Scanner(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:

Enter your name: Sanjula

Your name is: Sanjula

```
[qwaesz@archlinux JAVA]$ /usr/bin/env /usr/lib/jvm/java-25
--enable-preview -XX:+ShowCodeDetailsInExceptionMessages -
hat.java/jdt_ws/JAVA_18a41016/bin ReadName
Enter your name: Sanjula
Your name is: Sanjula
[qwaesz@archlinux JAVA]$
```

## Program 2: Read Two Numbers and Print Sum

### Source Code:

```
import java.util.Scanner;

class SumInput {

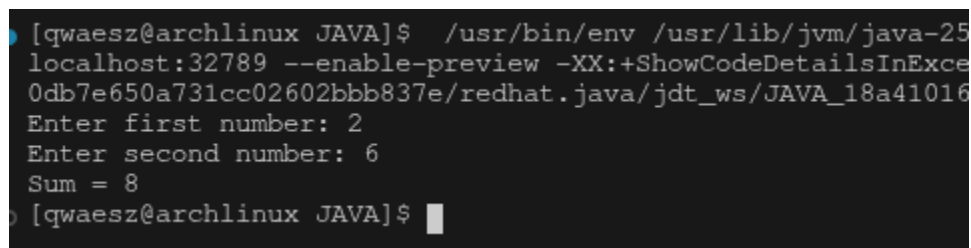
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter first number: ");
        int a = sc.nextInt();
        System.out.print("Enter second number: ");
        int b = sc.nextInt();
        int sum = a + b;
        System.out.println("Sum = " + sum);
    }
}
```

### Output:

Enter first number: 2

Enter second number: 6

Sum = 8



```
[qwaesz@archlinux JAVA]$ /usr/bin/env /usr/lib/jvm/java-25-0db7e650a731cc02602bbb837e/redhat.java/jdt_ws/JAVA_18a41016
Enter first number: 2
Enter second number: 6
Sum = 8
[qwaesz@archlinux JAVA]$
```

## 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) {
```

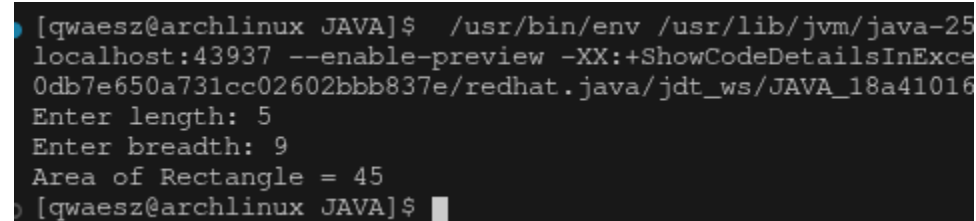
```
Scanner sc = new Scanner(System.in);  
System.out.print("Enter length: ");  
int length = sc.nextInt();  
System.out.print("Enter breadth: ");  
int breadth = sc.nextInt();  
int area = length * breadth;  
System.out.println("Area of Rectangle = " + area);  
}  
}
```

### **Output:**

Enter length: 5

Enter breadth: 9

Area of Rectangle = 45



```
[qwaesz@archlinux JAVA]$ /usr/bin/env /usr/lib/jvm/java-25-0db7e650a731cc02602bbb837e/redhat.java/jdt_ws/JAVA_18a41016  
Enter length: 5  
Enter breadth: 9  
Area of Rectangle = 45  
[qwaesz@archlinux JAVA]$
```

## POST LAB EXERCISE

1. What is the use of the Scanner class in Java?

The Scanner class is used to **read input from the user** (such as integers, strings, floating-point numbers, etc.) during program execution.

2. Which package contains the Scanner class?

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

3. What does System.in represent?

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

4. What does System.out represent?

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

5. Name any two methods used to read input using Scanner.

- nextInt()
- nextLine()

6. What is the difference between next() and nextLine()?

<b>next()</b>	<b>nextLine()</b>
Reads <b>only one word</b>	Reads the <b>entire line</b>
Stops at space	Reads text including spaces
Does not move to next line	Moves to the next line

### 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>		

