

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

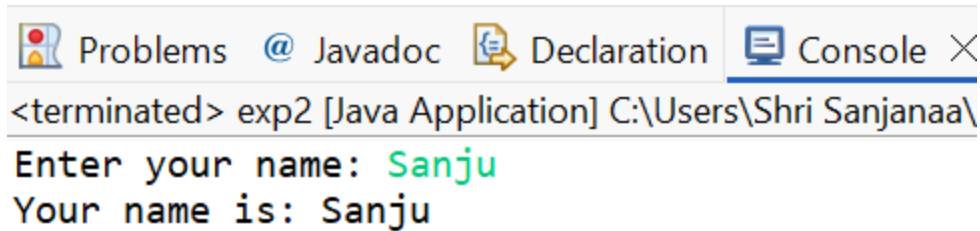
Source Code:

```
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:



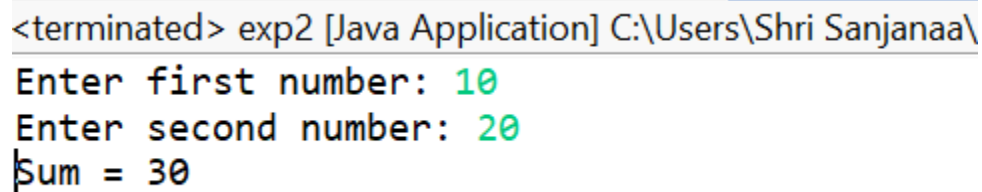
```
<terminated> exp2 [Java Application] C:\Users\Shri Sanjanaa\  
Enter your name: Sanju  
Your name is: Sanju
```

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()`?**

next()	nextLine()
Reads a single word	Reads a complete line
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	5	
In Lab Exercise	10	
Post Lab Exercise	5	
Viva	10	
Total	30	
Faculty Signature		