

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 instructions provided to a program from the user or another source, which the program uses for processing and decision making.

What is output in a program?

. Output is the processed result or information produced by a program after executing instructions, usually displayed on the screen or stored.

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

The **Scanner** class from the **java.util** package is used to read different types of input (int, float, string, etc.) 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: PARTHIPAN

Your name is:PARTHIPAN

```
1 import java.util.Scanner;
2 class ReadName {
3 public static void main(String[] args) {
4 Scanner sc = new Scanner(System.in);
5 System.out.print("Enter your name: ");
6 String name = sc.nextLine();
7 System.out.println("Your name is: " + name);
8 }
9 }
```

```
Enter your name: PARTHIPAN
Your name is: PARTHIPAN
```

=== Code Execution Successful

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: 7

Enter second number: 8

Sum = 15

<pre>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 }</pre>	<pre>Enter first number: 7 Enter second number: 8 Sum = 15 === Code Execution Successful</pre>
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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: 15

Enter breadth: 5

Area of Rectangle = 180

<pre>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 }</pre>	<pre>Enter length: 15 Enter breadth: 12 Area of Rectangle = 180 === Code Execution Successful</pre>
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POST LAB EXERCISE

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

The Scanner class in Java is used to take input from the user through the keyboard and to read different types of data such as integers, decimals, and strings

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

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

✓ **What does System.in represent?**

System.in represents the standard input stream and is used to receive input from the keyboard

✓ **What does System.out represent?**

System.out represents the standard output stream and is used to display output on the screen.

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

Two methods used to read input using Scanner are nextInt() and nextLine().

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

The next() method reads only a single word and stops when it finds a space, whereas the nextLine() method reads the entire line including spaces until the Enter key is pressed.

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		