

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 information or data provided by the user to the program.

What is output in a program?

It is the result obtained from the program.

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.

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: Anitha

Your name is: Anitha

The screenshot shows the Visual Studio Code interface. The top half displays a Java file named `ReadName.java` with syntax highlighting and a warning about a resource leak. The bottom half shows a terminal window with the command `java -version` and its output.

```
1 import java.util.Scanner;  ReadName.java is a non-project file, only syntax errors are reported
2
3 < class ReadName {
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);  Resource leak: 'sc' is never closed
7         System.out.print("Enter your name: ");
8         String name = sc.nextLine();
9         System.out.println("Your name is: " + name);
10    }
11 }
```

```
PROBLEMS 2 OUTPUT DEBUG CONSOLE EXPLORER TERMINAL PORTS

PS C:\Users\ragur> & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdw=transport=dt_socket,server=n,suspend=y,address=localhost:60539' '-enable-preview' '-XX:+showCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodews_7b297\jdt_ws\jdt.ls-java-project\bin' 'ReadName'
Enter your name: Ranjith
Your name is: Ranjith
PS C:\Users\ragur>
```

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;  ReadName.java is a non-project file, only syntax errors are reported
2
3 class SumInput {
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);  Resource leak: 'sc' is never closed
7         System.out.print("Enter first number: ");
8         int a = sc.nextInt();
9         System.out.print("Enter second number: ");
10        int b = sc.nextInt();
11        int sum = a + b;
12        System.out.println("Sum = " + sum);
13    }
14 }
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE EXPLORER TERMINAL PORTS

```
PS C:\Users\ragur> & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:57951' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodews_7b297\jdt_ws\jdt_ls-java-project\bin' 'SumInput'
Enter first number: 1
Enter second number: 2
Sum = 3
PS C:\Users\ragur>
```

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;  ReadName.java is a non-project file, only syntax errors are reported
2
3 class AreaRectangleInput {
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);  Resource leak: 'sc' is never closed
7         System.out.print("Enter length: ");
8         int length = sc.nextInt();
9         System.out.print("Enter breadth: ");
10        int breadth = sc.nextInt();
11        int area = length * breadth;
12        System.out.println("Area of Rectangle = " + area);
13    }
14 }
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE EXPLORER TERMINAL PORTS

```
PS C:\Users\ragur> & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:6269 e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodews_7b297\jdt_ws\jdt.ls-java-project\bin' 'Area
put'
Enter length: 5
Enter breadth: 5
Area of Rectangle = 25
PS C:\Users\ragur>
```

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 numbers, strings, and characters.
- ✓ 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**, usually the **keyboard**.
- ✓ What does System.out represent?
 - **System.out** represents the **standard output stream**, usually the **monitor/console**.
- ✓ Name any two methods used to read input using Scanner.
 - ✓ • nextInt()
 - ✓ • nextLine()
 - ✓

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

next() - Reads **one word** (stops at space)

nextLine() - Reads the **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

Description	Max Marks	Marks Awarded
Pre Lab Exercise	5	
In Lab Exercise	10	
Post Lab Exercise	5	
Viva	10	
Total	30	
Faculty Signature		