Experiment Number : 02 **Date:**

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 any data or information that is sent **into** a program for processing. Think of it as the "raw material" the program needs to do its job.

- **Examples:** Typing text on a keyboard, clicking a button with a mouse, or a program reading data from a file or a sensor.

What is output in a program?

Output is the information or data that a program **sends out** after it has processed the input. It is the "finished product" or result of the program's logic.

- **Examples:** Text displayed on a screen, a document sent to a printer, or a sound played through speakers.

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

The most common and beginner-friendly class used to read user input is the **`Scanner`** class.

- **Package:** It is part of the `java.util` package.
- **Usage:** To use it, you typically create an object like this: `Scanner myObj = 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: rifa

Your name is: rifa

Program 2: Read Two Numbers and Print Sum

Source Code:

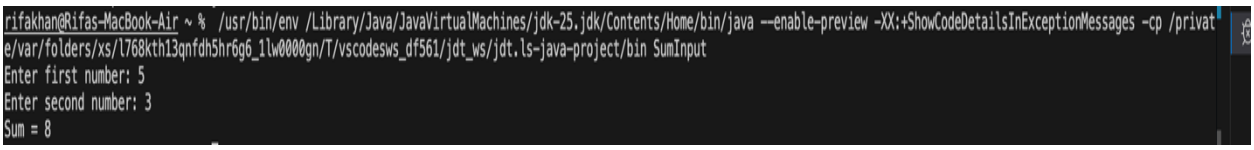
```
import java.util.Scanner;

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



Program 3: Read Length and Breadth and Find Area of Rectangle

Source Code:

```
import java.util.Scanner;
```

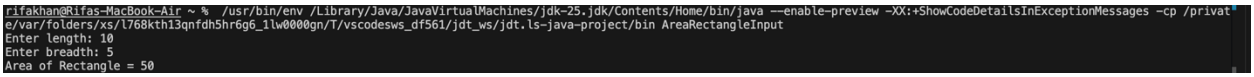
```
class AreaRectangleInput {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.print("Enter length: ");
int length = sc.nextInt();
System.out.print("Enter breadth: ");
int breadth = sc.nextInt();
int area = length * breadth;
System.out.println("Area of Rectangle = " + area);
}
}
```

Output:

Enter length: 10

Enter breadth: 5

Area of Rectangle = 50



POST LAB EXERCISE

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

It is used to get user input by parsing primitive types (like integers and doubles) and strings using regular expressions.

- ✓ Which package contains the Scanner class?

The `java.util` package. You must include `import java.util.Scanner;` at the top of your code to use it.

- ✓ What does System.in represent?

It represents the **standard input stream**, which is typically the keyboard.

- ✓ What does System.out represent?

It represents the **standard output stream**, which is typically the console or monitor screen.

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

Two common methods to read input:

1. **`nextInt()`**: Reads an integer value from the user.
2. **`nextDouble()`**: Reads a fractional or decimal value from the user.

- ✓ What is the difference between next() and nextLine()?
- ✓ This is a common point of confusion for new Java developers! Here is how they differ:

Method	Behavior	Result
next()	Reads the input until it finds a **whitespace** (space, tab, or newline).	Only gets the **first word** of a sentence.
nextLine()	Reads the input until it finds a **line separator** (the Enter key).	Gets the **entire line** of text, 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	