Experiment Number : 03 **Date: 29 – 01 -2026**

Control Statements in Java

Aim:

To understand and implement decision-making and looping control statements in Java.

PRE LAB EXERCISE

QUESTIONS

1. List different control statements in Java.
   Control statements are used to control the flow of execution of a program.

   Types of Control Statements:

   A. Selection (Decision-making) Statements
   - if
   - if-else
   - else-if
   - switch

   B. Iteration (Looping) Statements
   - for
   - while
   - do-while
   - for-each

   C. Jump (Branching) Statements
   - break
   - continue
   - return

2. **Difference between for, while, and do-while loops.**
   for loop:
   - The condition is checked before the loop execution.
   - Used when the number of iterations is known.
   - Initialization, condition, and increment/decrement are written in one line.

   while loop:
   - The condition is checked before the loop execution.
   - Used when the number of iterations is not known.
   - If the condition is false, the loop will not execute.

do-while loop

- The condition is checked after the loop execution.
- The loop executes at least once even if the condition is false.
- The condition is written at the end of the loop.

3. What is the use of break and continue?

Break:

- Immediately terminates the loop or switch statement.
- Control moves to the statement after the loop.
  Example:
  Used to stop looping when a condition is met.

Continue:

- Skips the current iteration of the loop.
- Continues with the next iteration.

Example:
Used to skip specific values without ending the loop.

IN LAB EXERCISE

Objective:

To implement if-else and looping 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:

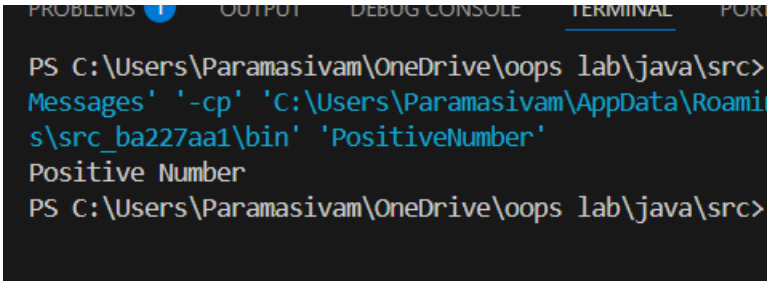
Program 1: Check Whether a Number is Positive

```
class PositiveNumber {
public static void main(String[] args) {
int n = 5;
if (n > 0) {
System.out.println("Positive Number");
}
}
}
```

Output:

Positive Number

OUTPUT:



Program 2: Check Whether a Number is Even or Odd

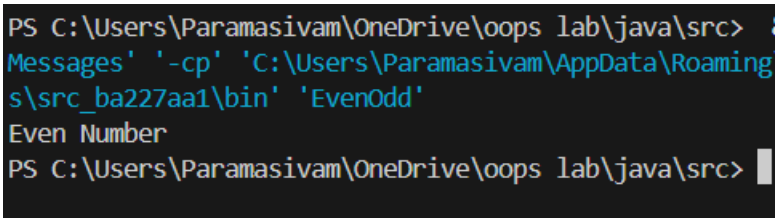
```
class EvenOdd {
public static void main(String[] args) {
```

```
int n = 6;
if (n % 2 == 0)
System.out.println("Even Number");
else
System.out.println("Odd Number");
}
}
```

Output:

Even Number

OUTPUT:



Program 3: Find Largest of Two Numbers

```
class LargestTwo {
public static void main(String[] args) {
int a = 10, b = 20;
if (a > b)
System.out.println("A is largest");
else
System.out.println("B is largest");
}
}
```

Output:

B is largest

Program 4: Grade Calculation

```
class Grade {
```

```
public static void main(String[] args) {
int marks = 75;
if (marks >= 90)
System.out.println("Grade A");
else if (marks >= 75)
System.out.println("Grade B");
else if (marks >= 50)
System.out.println("Grade C");
else
System.out.println("Fail");
}
}
```

Output:

Grade B

OUTPUT:

```
PS C:\Users\Paramasivam\OneDrive\oops lab\java\src>
Messages' '-cp' 'C:\Users\Paramasivam\AppData\Roaming
s\src_ba227aa1\bin' 'Grade'
Grade B
PS C:\Users\Paramasivam\OneDrive\oops lab\java\src>
```

Program 5: Day of the Week

```
class DaySwitch {
public static void main(String[] args) {
int day = 3;
switch (day) {
case 1: System.out.println("Monday"); break;
case 2: System.out.println("Tuesday"); break;
case 3: System.out.println("Wednesday"); break;
case 4: System.out.println("Thursday"); break;
```

```
case 5: System.out.println("Friday"); break;
default: System.out.println("Invalid Day");
}
}
}
```

Output:

Wednesday

OUTPUT:

```
PS C:\Users\Paramasivam\OneDrive\oops lab\java\src>  & '
Messages' '-cp' 'C:\Users\Paramasivam\AppData\Roaming\Co
s\src_ba227aa1\bin' 'DaySwitch'
Wednesday
PS C:\Users\Paramasivam\OneDrive\oops lab\java\src>
```

Program 6: Print Numbers from 1 to 5

```
class ForLoop {
public static void main(String[] args) {
for (int i = 1; i <= 5; i++) {
System.out.println(i);
}
}
}
```

Output:

1

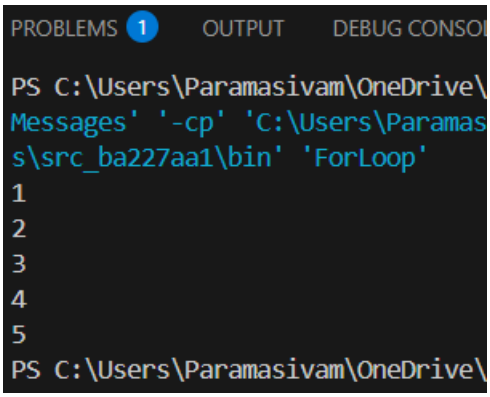
2

3

4

5

OUTPUT:



Program 7: Print Numbers from 1 to 5

```
class WhileLoop {
public static void main(String[] args) {
int i = 1;
while (i <= 5) {
System.out.println(i);
i++;
}
}
}
```

Output:

1

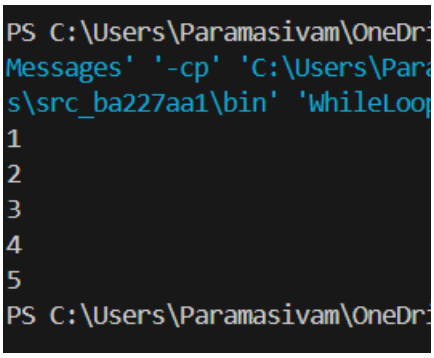
2

3

4

5

OUTPUT:



Program 8: Print Numbers from 1 to 5

```
class DoWhileLoop {
public static void main(String[] args) {
int i = 1;
do {
System.out.println(i);
i++;
} while (i <= 5);
}
}
```

Output:

1

2

3

4

5

OUTPUT:

```
PS C:\Users\Paramasivam\OneDri
Messages' '-cp' 'C:\Users\Para
s\src_ba227aa1\bin' 'DoWhileLo
1
2
3
4
5
```

Program 9: Sum of First 5 Natural Numbers

```
class SumNumbers {
public static void main(String[] args) {
int sum = 0;
for (int i = 1; i <= 5; i++) {
sum = sum + i;
}
System.out.println("Sum = " + sum);
}
}
```

Output:

Sum = 15

OUTPUT:

```
Java\jdk-17\bin\java.exe
Storage\8bdbe496e72a1f96
Sum = 15
PS C:\Users\Paramasivam\
```

Program 10: Multiplication Table of a Number

```
class MultiplicationTable {
public static void main(String[] args) {
int n = 5;
for (int i = 1; i <= 10; i++) {
System.out.println(n + " x " + i + " = " + (n * i));
```

```
}
}
}
```

Output:

5 x 1 = 5

5 x 2 = 10

5 x 3 = 15

5 x 4 = 20

5 x 5 = 25

5 x 6 = 30

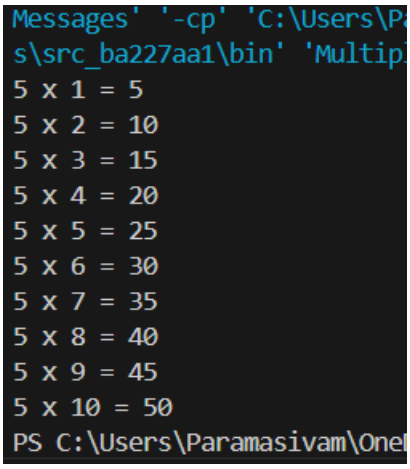
5 x 7 = 35

5 x 8 = 40

5 x 9 = 45

5 x 10 = 50

OUTPUT:



POST LAB EXERCISE

1. **What is the use of if statement?**

   - The `if` statement is used to test a condition.
   - If the condition is true, the given block of code is executed.
   - It helps in decision-making in a program.

2. **Difference between if-else and else-if ladder.**
   - `if-else` is used to choose between **two conditions**.
   - `else-if` ladder is used to check **multiple conditions**.
   - In `else-if`, conditions are checked one after another.

3. **Why is switch statement used?**
   - The `switch` statement is used to select one option from many choices.
   - It improves readability when there are multiple conditions.
   - It is faster and cleaner than multiple `if-else` statements in some cases.

4. **Difference between for, while, and do-while loops.**
   - `for` loop is used when the number of iterations is known.
   - `while` loop is used when the number of iterations is not known.
   - `do-while` loop executes at least once because the condition is checked after execution.

5. **Which loop executes at least once?**
   - The **`do-while` loop** executes at least once.
   - This is because the condition is checked after the loop body runs.

Result:

Thus the different control statements were executed successfully with expected output.

ASSESSMENT

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