

Control Statements in Java

Aim:

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

PRE LAB EXERCISE

QUESTIONS

✓ **List different control statements in Java.**

Control statements in Java are used to control the flow of execution of a program. They include selection statements (if, if-else, switch), iteration statements (for, while, do-while), and jump statements (break, continue, return).

✓ **Difference between for, while, and do-while loops.**

- for loop is used when the number of iterations is known in advance.
- while loop checks the condition before execution and is used when iterations are not fixed.
- do-while loop executes the loop body at least once, as the condition is checked after execution.

✓ **What is the use of break and continue?**

break is used to terminate the loop or switch statement immediately.

continue is used to skip the current iteration and move to the next iteration of 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);

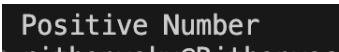
Commonly Used Scanner Methods:

- ✓ 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");  
        }  
    }  
}
```



Positive Number

Output:

Positive Number

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");  
}  
}
```

Even Number

Output:

Even Number

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");  
    }  
}
```

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");  
}  
}
```

Grade B

Output:

Grade B

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");  
}  
}  
}
```

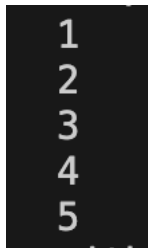
Wednesday

Output:

Wednesday

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);  
        }  
    }  
}
```



1
2
3
4
5

Output:

1
2
3
4
5

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

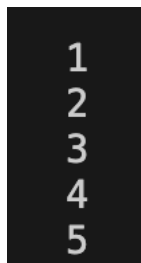
3

4

5

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);  
    }  
}
```



1
2
3
4
5

Output:

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);  
    }  
}
```

Sum = 15

Output:

Sum = 15

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));  
        }  
    }  
}
```

```
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:

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

POST LAB EXERCISE

✓ **What is the use of if statement?**

The if statement is used to execute a block of code when a given condition is true.
It helps in decision making by controlling the flow of a program.

✓ **Difference between if-else and else-if ladder.**

if-else is used to choose between two alternatives.

else-if ladder is used to test multiple conditions one after another.

✓ **Why is switch statement used?**

The switch statement is used to select one execution path from multiple choices.
It improves readability when comparing a variable against many constant values.

✓ **Difference between for, while, and do-while loops.**

- for loop is used when the number of iterations is known.
- while loop checks the condition before execution.
- do-while loop checks the condition after execution.

✓ **Which loop executes at least once?**

The do-while loop executes at least once.

This is because the condition is checked only after the loop body is executed.

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		