**Experiment Number : 03** **Date: 28/01/26**

## 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);
}
}
}
```


**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** | |