Experiment Number : 03 **Date:**

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: Selection (if, if-else, switch), Iteration (for, while, do-while), and Jump (break, continue, return).

- ✓ **Difference between for, while, and do-while loops.**
  Difference between for, while, and do-while: *for* is used when the number of iterations is known, *while* checks the condition before execution, and *do-while* executes at least once before checking the condition.

- ✓ **What is the use of break and continue?**
  break exits the loop immediately, while *continue* skips the current iteration and moves to the next.

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

```
cd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin Positive
Number
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");
```

```
}
}
```

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");
}
}
```

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

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

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);
}
}
```

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);
}
}
```

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));
}
}
}
```

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?**
  Use of if statement: It is used to execute a block of code only when a specified condition is true.

- ✓ **Difference between if-else and else-if ladder.**
  Difference between if-else and else-if ladder: *if-else* chooses between two options, while an *else-if ladder* checks multiple conditions sequentially

- ✓ **Why is switch statement used?**
  It is used to select one execution path from many based on a single variable's value.

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

for is used when the number of iterations is known, *while* when it is unknown, and *do-while* executes the loop body at least once.

- ✓ **Which loop executes at least once?**
  The do-while loop executes at least once

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	