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24BCS285

CSE-A1

### **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.  
if, if-else, else-if, switch, for, while, do-while, break, continue.
- ✓ Difference between for, while, and do-while loops.
  - `for` loop: Used when number of iterations is known.
  - `while` loop: Condition checked before execution.
  - `do-while` loop: Condition checked after execution and runs at least once.
- ✓ What is the use of break and continue?

`break`: Terminates the loop or switch statement.

`continue`: Skips the current iteration and moves to the next iteration.

#### **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

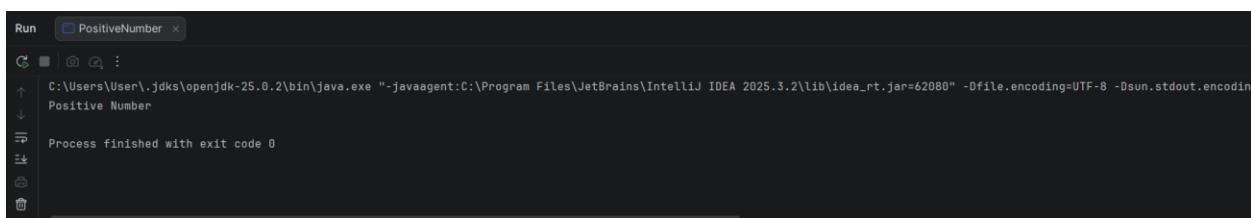
## PROGRAMS:

### 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



The screenshot shows a terminal window titled "Run" with the project name "PositiveNumber". The command entered is "C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe -javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea\_rt.jar=62080 -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8 Positive Number". The output displayed is "Positive Number" followed by "Process finished with exit code 0".

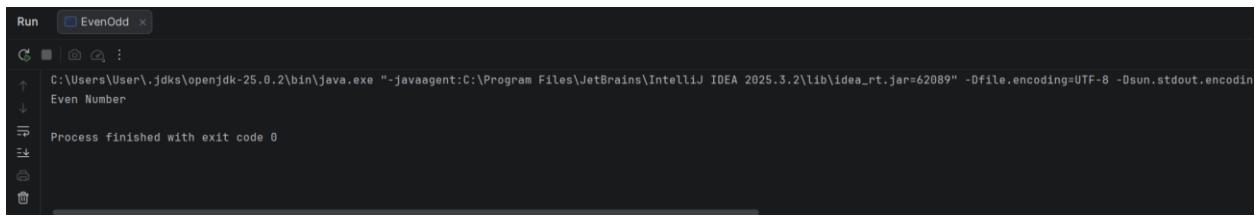
### Program 2: Check Whether a Number is Even or Odd

```
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



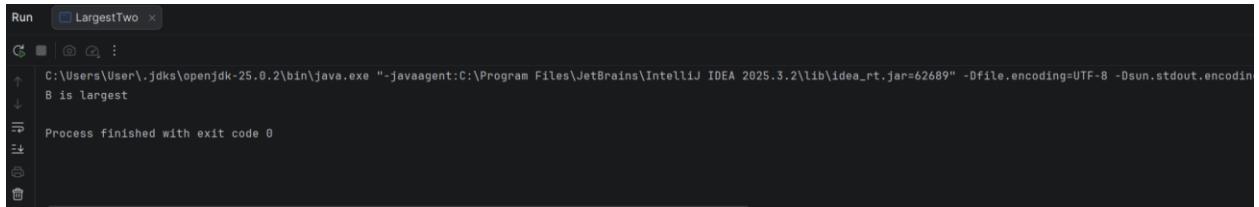
The screenshot shows a terminal window from an IDE. The title bar says "Run EvenOdd". The main area displays the output of the Java application. It starts with the command used to run the application: "C:\Users\User\jdks\openjdk-25.0.2\bin\java.exe -javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea\_rt.jar=62089 -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8". Below that, the text "Even Number" is printed, followed by "Process finished with exit code 0".

**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



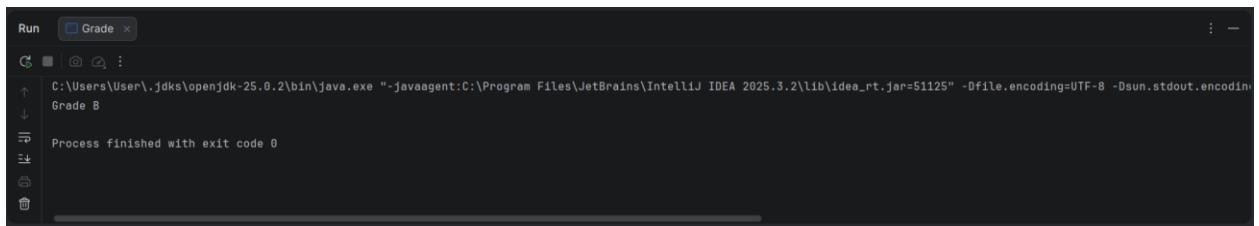
```
Run [ LargestTwo ] : 
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=62689" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8
↑
B is largest
↓
→ Process finished with exit code 0
←
↻
⟳
⟳
```

#### 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



```
Run [ Grade ] : 
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=51125" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8
Grade B
↓
→ Process finished with exit code 0
←
↻
⟳
⟳
```

#### 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

The screenshot shows a terminal window titled "Run" with the tab "DaySwitch". The window displays the command run: "C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea\_rt.jar=61664" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8". Below the command, the input "Wednesday" is shown. At the bottom, the message "Process finished with exit code 0" is displayed.

**Program 6: Print Numbers from 1 to 5**

```

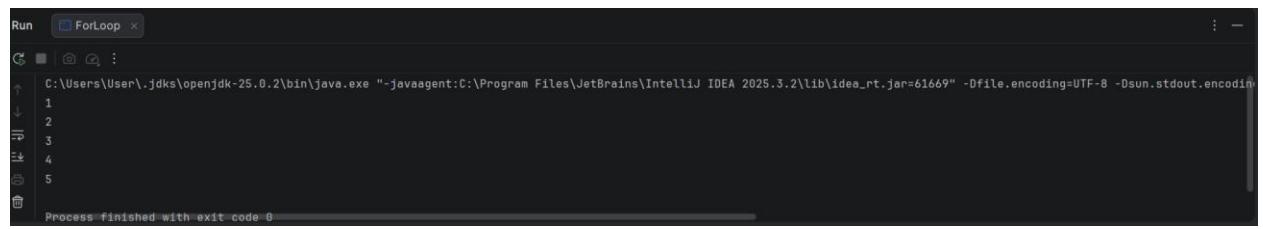
class ForLoop {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            System.out.println(i);
        }
    }
}

```

**Output:**

1

```
2  
3  
4  
5
```



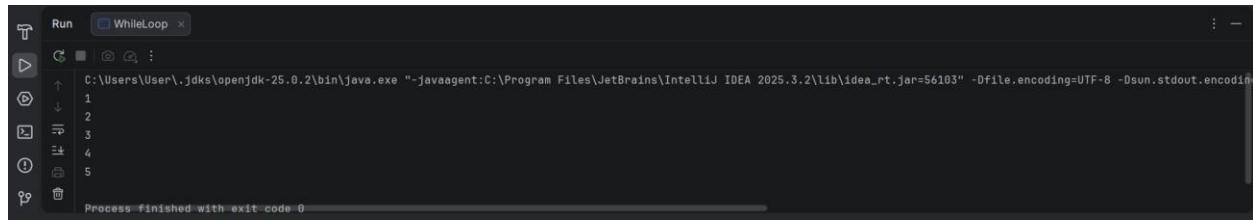
```
Run ForLoop : -  
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=61669" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8  
1  
2  
3  
4  
5  
Process finished with exit code 0
```

### 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
```



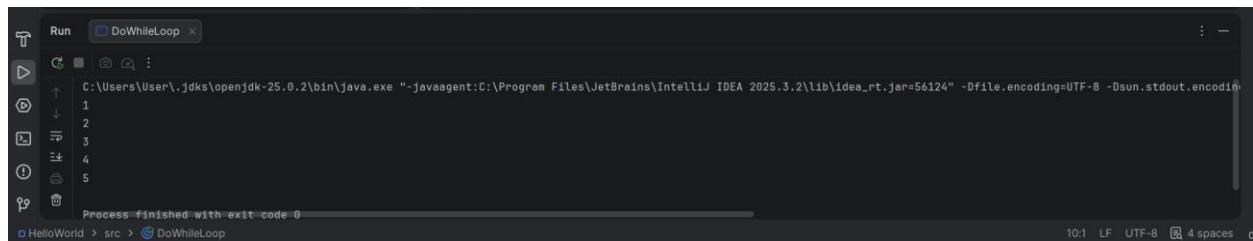
```
Run WhileLoop x
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=56103" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8
1
2
3
4
5
Process finished with exit code 0
```

### 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
```



```
Run DoWhileLoop x
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=56124" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8
1
2
3
4
5
Process finished with exit code 0
HelloWorld > src > DoWhileLoop
10:1  LF  UTF-8  4 spaces
```

### Program 9: Sum of First 5 Natural Numbers

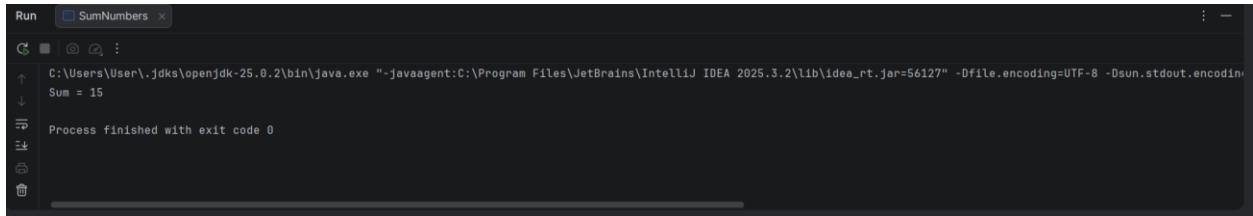
```

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



The screenshot shows a terminal window titled 'Run' with the session name 'SumNumbers'. The output text is as follows:

```

C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=56127" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8
Sum = 15
Process finished with exit code 0

```

**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

$5 \times 3 = 15$

$5 \times 4 = 20$

$5 \times 5 = 25$

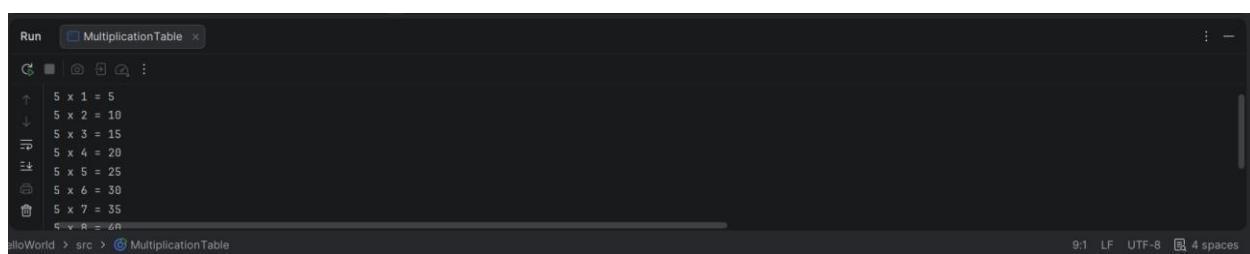
$5 \times 6 = 30$

$5 \times 7 = 35$

$5 \times 8 = 40$

$5 \times 9 = 45$

$5 \times 10 = 50$



A screenshot of a terminal window titled "Run MultiplicationTable". The window displays the following text 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
```

The terminal interface includes standard navigation keys (Up, Down, Left, Right) and a search bar at the top. The bottom status bar shows "9:1 LF UTF-8 4 spaces".

## POST LAB EXERCISE

- ✓ What is the use of if statement?  
Used to execute a block of code only when a condition is true.
  
- ✓ Difference between if-else and else-if ladder.
  - `if-else` checks only one condition.
  - `else-if` ladder checks multiple conditions one by one.
  
- ✓ Why is switch statement used?  
Used to select and execute one block of code from multiple choices based on a value.
  
- ✓ Difference between for, while, and do-while loops.
  - `for` loop: Used when the number of iterations is known.
  - `while` loop: Condition is checked before execution; iterations not fixed.
  - `do-while` loop: Condition is checked after execution.
  
- ✓ Which loop executes at least once?

do-while loop.

**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	
<b>Total</b>	<b>30</b>	
<b>Faculty Signature</b>		