



Java – Control Statements

B.Sc. 2nd Semester (Paper Code-CC3)

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Topics to
be
covered



If-else



Switch-case



Ternary operator

Introduction



Decision Making in Java helps to write decision driven statements and execute a particular set of code based on certain conditions.



If-else



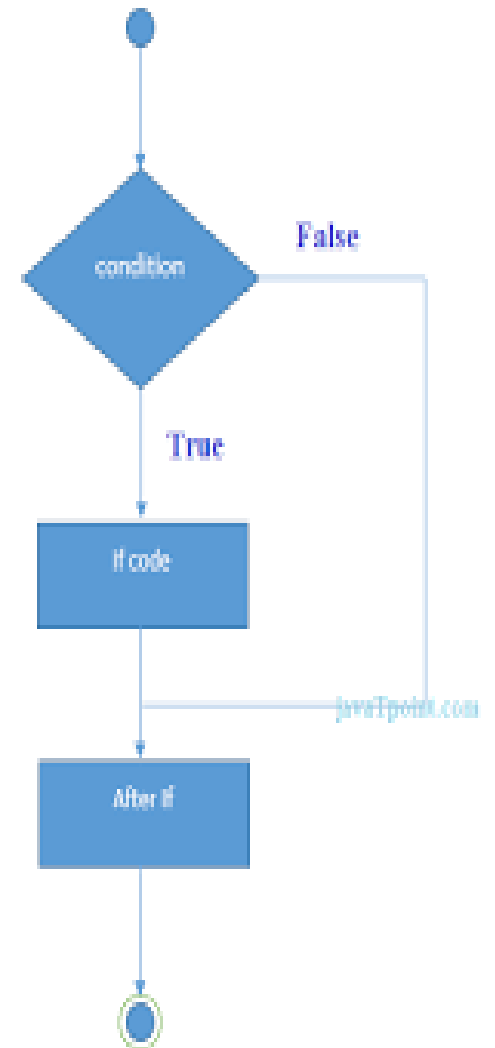
Switch-case



Ternary operators

If-else

- ▶ The **if statement** alone tells us that if a condition is true it will execute a block of statements and if the condition is false it won't. But what if we want to do something else if the condition is false. Here comes the **else statement**. We can use the else statement with if statement to execute a block of code when the condition is false.

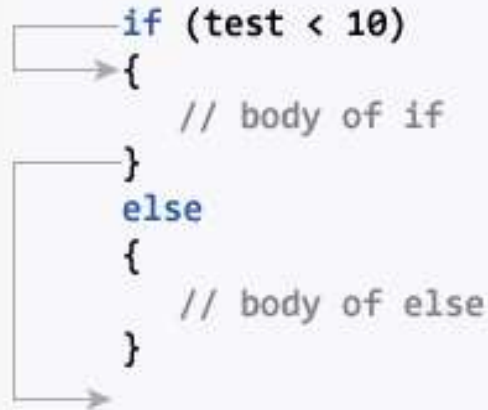


Example

Expression is true.

```
int test = 5;

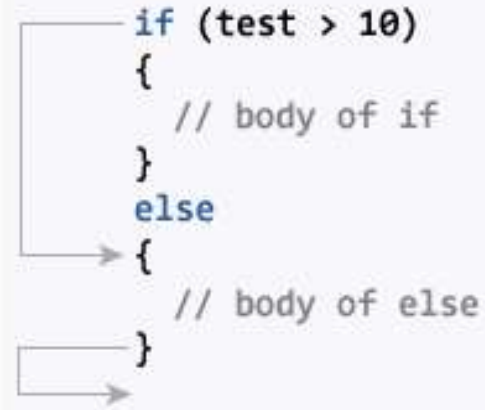
if (test < 10)
{
    // body of if
}
else
{
    // body of else
}
```

A flowchart illustrating the execution of the code when the expression is true. It starts with a box pointing to the 'if (test < 10)' line. An arrow points down into the 'if' block, then another arrow points down to the 'else' block, and finally an arrow points down from the end of the 'else' block.

Expression is false.

```
int test = 5;

if (test > 10)
{
    // body of if
}
else
{
    // body of else
}
```

A flowchart illustrating the execution of the code when the expression is false. It starts with a box pointing to the 'if (test > 10)' line. An arrow points down into the 'if' block, then another arrow points down to the 'else' block, and finally an arrow points down from the end of the 'else' block.

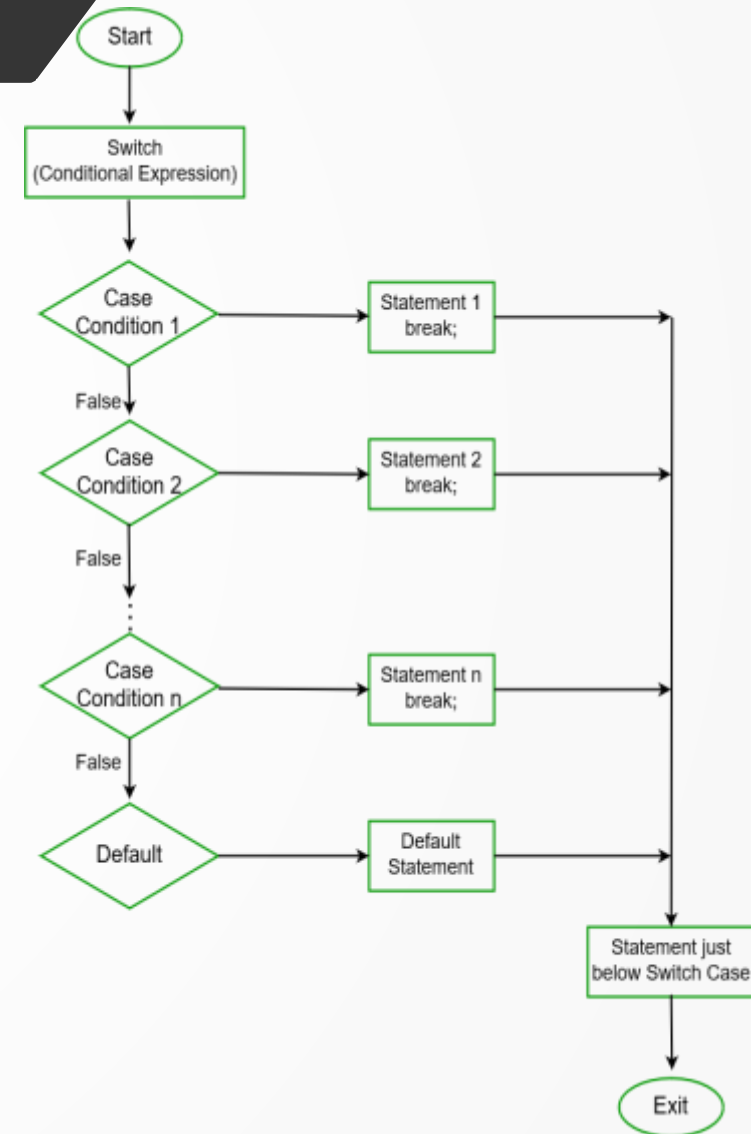
If-else-if Ladder

- ➔ **Java if-else-if ladder** is used to decide among multiple options. The if statements are executed from the top down. As soon as one of the conditions controlling the if is true, the statement associated with that if is executed, and the rest of the ladder is bypassed. If none of the conditions is true, then the final else statement will be executed.

```
public class IfThenElseExample {  
  
    public static void main(String[] args) {  
  
        int examScore = 82;  
        char grade;  
  
        if (examScore >= 90){  
            grade = 'A';  
        }  
        else if (examScore >= 80){  
            grade = 'B';  
        }  
        else if (examScore >= 70){  
            grade = 'C';  
        }  
        else if (examScore >= 60){  
            grade = 'D';  
        }  
        else {  
            grade = 'F';  
        }  
  
        System.out.println("The grade is" + grade);  
  
    }  
}
```

Switch-case

- The switch statement is a multi-way branch statement. It provides an easy way to dispatch execution to different parts of code based on the value of the expression. Basically, the expression can be byte, short, char, and int primitive data types or a String type of data.



Example

```
char Grade = 'A';  
switch(Grade) // switch(statement)  
{  
case 'A':  
    System.out.println("Excellent");  
    break;  
case 'B':  
    System.out.println("Very good");  
    break;  
case 'C':  
    System.out.println("Good");  
case 'D':  
    System.out.println("Average");  
    break;  
default:  
    System.out.println("Enter the value between A - D");  
}
```

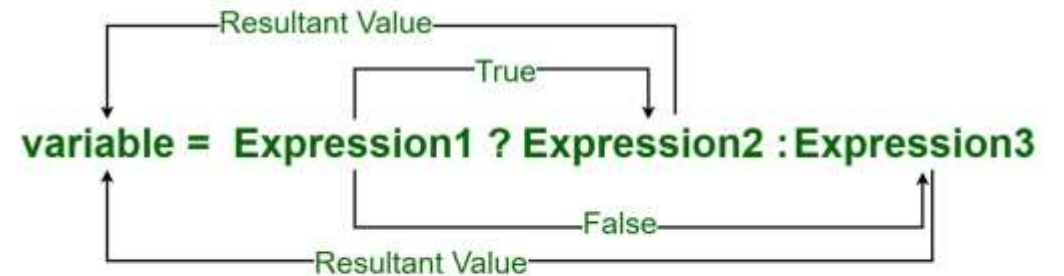

Ternary Operator

- Java ternary operator is the only conditional operator that takes three operands. It's a one-liner replacement for if-then-else statement and used a lot in Java programming. We can use the ternary operator in place of if-else conditions or even switch conditions using nested ternary operators. Although it follows the same algorithm as of if-else statement, the conditional operator takes less space and helps to write the if-else statements in the shortest way possible.

Syntax:

Variable= Expression 1 ? Expression 2 : Expression 3

Conditional or Ternary Operator (?:) in Java



Example

```
/**
 * Java Program to Find Largest of Three Numbers
 *
 * Source: https://www.webrewrite.com
 */

public class LargestOfThree {

    public static void main(String[] args) {

        int a = 55;
        int b = 95;
        int c = 75;

        int result = ( a > b ) ? ( a > c ? a : c ) : ( b > c ? b : c );

        System.out.println(result);

    }

}
```