

Java - If-Else

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<https://github.com/wbombardellis/java-unterricht>

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Organization

1 If-Else

2 Summary

If

- Write a program that reads a double value and prints if it is positive.

If

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```
if (a > 0) {  
    System.out.println(a + " is positive.");  
}
```

If-Else

- Write a program that reads a double value and tells whether it is positive or not.

```
if (a > 0) {  
    System.out.println(a + " is positive.");  
} else {  
    System.out.println(a + " is not positive.");  
}
```

If-Else-Else

- Write a program that reads a double value and tells whether it is positive, negative or zero.

```
if (a > 0) {  
    System.out.println(a + " is positive.");  
} else if (a < 0) {  
    System.out.println(a + " is negative.");  
} else {  
    System.out.println(a + " is zero.");  
}
```

Exercises

- 1 Write a program that greets the user correctly according to the current time. The rule is the following:
 - If current time is before 12a.m., then greet him/her with “good morning”.
 - If current time is between 12a.m. and 16p.m., then greet him/her with “good afternoon”.
 - If current time is after 16p.m, then greet him/her with “good evening”.

Exercises

- 2 Extend your assignment's program further using If or If-Else.

If-Else-Else Grammar Rules

```
if (⟨Boolean condition⟩) {  
    ...  
} [else if (⟨Boolean condition⟩) {  
    ...  
}] [else {  
    ...  
}]
```

Exercises

- 1 Implement the following algorithm for finding real solutions of a quadratic polynomial $ax^2 + bx + c$ in Java.
 - Read a , b and c .
 - Calculate $\Delta := b^2 - 4ac$
 - If $\Delta \geq 0$ then print solutions x_1 and x_2
 - $x_1 = \frac{-b+\sqrt{\Delta}}{2a}$, $x_2 = \frac{-b-\sqrt{\Delta}}{2a}$
 - Otherwise print that there is no real solutions for this polynomial.

Exercises

- 2 Write a program that gets a positive integer number as input and writes whether that number is even or odd.
- Tip 1: An number $n \in \mathbb{N}$ is even if, and only if, n divided by 2 gives remainder 0.
 - Tip 2: In Java $a \% b$ results in the remainder of the whole division of a by b .
 - Also: Ensure that the input is positive. If it is not, then reject user's input.

Exercises

- 3 Write a program that reads two numbers and a character representing the operation to perform over those numbers, and print the result accordingly. Example for an execution:

Please provide the first number:

2

Please provide the operation:

+

Please provide the second number:

3

The result of $2 + 3$ is 5

Summary

- IF-Else allows you to control the flow of your program.
- Next Lesson: Boolean Algebra

References

- W3C Tutorial:
 - https://www.w3schools.com/java/java_conditions.asp
- Exercises:
 - <https://www.w3schools.com/java/exercise.asp>
 - Java If...Else