

Conditional statement

1. The if-else statement

Programs wouldn't be very useful if they always did the same thing, regardless of how external circumstances change. A program needs to be able to adapt to different situations and take certain actions in some situations, and to act differently in others.

In Java, this is done with a *conditional statement*, which uses a special keyword that lets you execute different blocks of commands depending on the truth value of a condition.

A conditional statement consists of three parts: *condition*, *statement 1* and *statement 2*. If the *condition* is true, then *statement 1* is executed. Otherwise *statement 2* is executed. Both commands are never executed. Here's the general appearance of this kind of statement:

```
if ( condition )  
    statement 1;  
else  
    statement 2;
```

The `if-else` conditional statement

It is quite understandable when written in plain English like this:

```
If condition is true, then  
    execute statement 1;  
otherwise  
    execute statement 2;
```

The `if-else` statement in plain language

Examples:

Code	Explanation
<pre>int age = 17; if (age < 18) System.out.println("You are still a child"); else System.out.println("You are now an adult");</pre>	<p>The screen output will be: You are still a child</p>
<pre>int temperature = 5; if (temperature < 0) System.out.println("It's freezing outside"); else System.out.println("It's warm");</pre>	<p>The screen output will be: It's warm</p>
<pre>int age = 18; if (age == 18) System.out.println("You've been drafted for military service"); else System.out.println("Report for duty anyway");</pre>	<p>The screen output will be: You've been drafted for military serv</p>

2. Block of statements

If the condition is satisfied (or not) and you want your program to execute several commands, you can combine them into a *block*.

To combine commands into a block, you "wrap" them in *curly braces*. Here's how it looks in general:

```
{
    statement 1;
    statement 2;
    statement 3;
}
```

You can have as many statements as you want in a block. Or even none.

Examples of an *if-e/else* statement combined with a block of statements:

Code	Explanation
<pre> int age = 17; if (age < 18) { System.out.println("You are still a child"); System.out.println("Don't talk back to adults"); } else { System.out.println("You are now an adult"); System.out.println("And thus ends your youth"); } </pre>	<p>The screen output will be: You are still a child Don't talk back to adults</p>
<pre> int temperature = 5; if (temperature < 0) { System.out.println("It's freezing outside"); System.out.println("Put on a hat"); } else { System.out.println("It's warm"); } </pre>	<p>The screen output will be: It's warm</p>
<pre> int age = 21; if (age == 18) System.out.println("You've been drafted for military service"); else { } </pre>	<p>The empty block will be executed. The code will run fine, but <u>nothing</u> will be displayed.</p>

3. Abbreviated form of the if statement

Sometimes it you need to *execute one or statements if the condition is true* but *nothing should be done* if it is false.

For example, we can specify this command: **If Bus No. 62 has arrived**, then **get aboard**, but don't react if the bus isn't here. In Java, this scenario lets us use an abbreviated form: an **if** statement without an else block.

In other words, if statements(s) needs to be executed only if **the condition is true** and there are no commands to be executed when the condition is false, then you should use the **if** statement, which is concise and omits the else block. It looks like this:

```
if (condition)
    statement 1;
```

The `if` conditional statement

Below are three examples of equivalent code:

Code	Explanation
<pre>int age = 18; if (age == 18) { System.out.println("You've been drafted for military service"); } else { }</pre>	<p>The screen output will be:</p> <p>You've been drafted for military serv</p>

The program has an `else` block, but it is empty (there are no statements between the curly braces). You can simply remove it. Nothing will change in the program.

Code	Explanation
<pre>int age = 18; if (age == 18) { System.out.println("You've been drafted for military service"); }</pre>	<p>The screen output will be:</p> <p>You've been drafted for military serv</p>
<pre>int age = 18; if (age == 18) System.out.println("You've been drafted for military service");</pre>	<p>The screen output will be:</p> <p>You've been drafted for military serv</p>