Theory: Ternary operator

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The **ternary operator** is an operator which evaluates a condition and chooses one of two cases to execute. It is also called the **conditional operator**. The operator can be considered as a form of the `if` -then-`else` statement. The ternary operator should not be confused with the conditional statement, despite their ideological similarity. This operator can be used in places where an expression is expected.

Sometimes **the ternary operator** is more readable and concise than the corresponding **if statement**.

Let's start learning this operator with an example. Suppose we have to find the maximum of two int variables, `a` and `b` . It is easy to write using a conditional statement:

```
int a = ...;
int b = ...;
int max = ...;

if (a > b) {
    max = a;
} else {
    max = b;
}
```

The equal ternary operator looks like:

```
int max = a > b ? a : b;
```

This code is more concise than the code above, isn't it?

The general syntax of the ternary operator is the following:

```
result = condition ? trueCase : elseCase;
```

It includes two special symbols `?` and `:` .

Here, the `condition` is a Boolean expression that evaluates to either `true` or `false` . If this expression is `true` , the ternary operator evaluates `trueCase` , otherwise `elseCase` is evaluated. It is important that `trueCase` and `elseCase` are expressions which can be reduced to a common type. This type determines the type of the `result` .

Let's consider another example that prints whether a number is even or odd.

```
int num = ...;  // it's initialized by a value
System.out.println(num % 2 == 0 ? "even" : "odd");
```

This ternary operator consists of three operands: the value of the expression `num % 2 == 0` , and two string literals `"even"` and `"odd"` . The result type of it is `String` .

Note, Java allows us to nest one ternary operator into another one, but it can be less readable than the corresponding conditional statement. If you do this, be careful.