**Conditional operators: if, '?'**

Sometimes we need to perform different actions based on a condition.

There’s an if operator for that and also the “question mark” operator: "?" for conditional evaluation.

**[The “if” operator](https://javascript.info/ifelse" \l "the-if-operator)**

The “if” operator gets a condition, evaluates it and – if the result is true – executes the code.

For example:

let year = prompt('In which year was ECMAScript-2015 specification published?', '');

if (year == 2015) alert( 'You are right!' );

In the example above, the condition is a simple equality check: year == 2015, but it can be much more complex.

If there’s more than one command to execute – we can use a code block in figure brackets:

if (year == 2015) {

alert( "That's correct!" );

alert( "You're so smart!" );

}

It is recommended to use figure brackets every time with if, even if there’s only one command. That improves readability.

**[Boolean conversion](https://javascript.info/ifelse" \l "boolean-conversion)**

The if (…) operator evaluates the expression in parentheses and converts it to the boolean type.

* A number 0, an empty string "", null, undefined and NaN become false. Because of that they are called “falsy” values.
* Other values become true, so they are called “truthy”.

So, the code under this condition would never execute:

if (0) { // 0 is falsy

...

}

…And inside this condition – always works:

if (1) { // 1 is truthy

...

}

We can also pass a pre-evaluated boolean value to if, like here:

let cond = (year == 2015); // equality evaluates to true or false

if (cond) {

...

}

[**The “else” clause**](https://javascript.info/ifelse#the-else-clause)

The if operator may contain an optional “else” block. It executes when the condition is wrong.

For example:

let year = prompt('In which year was ECMAScript-2015 specification published?', '');

if (year == 2015) {

alert( 'You guessed it right!' );

} else {

alert( 'How can you be so wrong?' ); // any value except 2015

}

**[Several conditions: “else if”](https://javascript.info/ifelse" \l "several-conditions-else-if)**

Sometimes we’d like to test several variants of a condition. There’s an else if clause for that.

For example:

let year = prompt('In which year was ECMAScript-2015 specification published?', '');

if (year < 2015) {

alert( 'Too early...' );

} else if (year > 2015) {

alert( 'Too late' );

} else {

alert( 'Exactly!' );

}

In the code above JavaScript first checks year < 2015, if it is falsy then goes to the next condition year > 2015, and otherwise shows the last alert.

There can be more else if blocks. The ending else is optional.

**[Ternary operator ‘?’](https://javascript.info/ifelse" \l "ternary-operator)**

Sometimes we need to assign a variable depending on a condition.

For instance:

let accessAllowed;

let age = prompt('How old are you?', '');

if (age > 18) {

accessAllowed = true;

} else {

accessAllowed = false;

}

alert(accessAllowed);

The so-called “ternary” or “question mark” operator allows you to do that shorter and simpler.

The operator is represented by a question mark "?". The formal term “ternary” means that the operator has 3 operands. It is actually the one and only operator in JavaScript which has that many.

The syntax is:

let result = condition ? value1 : value2

The condition is evaluated, if it’s truthy then value1 is returned, otherwise – value2.

For example:

let accessAllowed = (age > 18) ? true : false;

Technically, we can omit parentheses around age > 14. The question mark operator has a low precedence. It executes after the comparison >, so that’ll do the same:

// the comparison operator "age > 18" executes first anyway

// (no need to wrap it into parentheses)

let accessAllowed = age > 18 ? true : false;

…But parentheses make the code more readable. So it’s recommended to put them.

**Please note:**

In the example above it’s possible to evade the question mark operator, because the comparison by itself returns true/false:

// the same

let accessAllowed = age > 18;

**[Non-traditional use of ‘?’](https://javascript.info/ifelse" \l "non-traditional-use-of)**

Sometimes the question mark '?' is used as a replacement for if:

let company = prompt('Which company created JavaScript?', '');

(company == 'Netscape') ?

alert('Right!') : alert('Wrong.');

Depending on the condition company == 'Netscape', either the first or the second part after "?" gets executed and shows the alert.

We don’t assign a result to a variable here, the idea is to execute different code depending on the condition.

**It is not recommended to use the question mark operator in this way.**

The notation seem to be shorter than if, that appeals to some programmers. But it is less readable.

Here’s the same with if for comparison:

let company = prompt('Which company created JavaScript?', '');

if (company == 'Netscape') {

alert('Right!');

} else {

alert('Wrong.');

}

Our eyes scan the code vertically. The constructs which span several lines are easier to understand than a long horizontal instruction set.

The idea of a question mark '?' is to return one or another value depending on the condition. Please use it for exactly that. There’s if to execute different branches of the code.

**Questions and Exercises**

1. Will alert be shown?

if (0) {

alert( 'Hello' );

}

No, 0 is falsy.

1. Using the if..else construct, write the code which asks: ‘What is the “official” name of JavaScript?’

If the visitor enters “ECMAScript”, then output “Right!”, otherwise – output: “Didn’t know? ECMAScript!”

let name = prompt (“What is the “official” name of JavaScript?”)

if (name == “ECMAScript”)

{

alert (“Right!”);

}

else

{

alert (“Didn’t know? ECMAScript!”);

}

1. Using if..else, write the code which gets a number via prompt and then shows in alert:

* 1, if the value is greater than zero,
* -1, if less than zero,
* 0, if equals zero.

In this task we assume that the input is always a number.

let number = +prompt ("Enter your number.")

if (number > 0)

{

alert("1");

}

else if (number < 0)

{

alert("-1");

}

else

{

alert("0");

}

1. Write the code which asks for a login with prompt.

If the visitor enters "Admin", then prompt for a password, if the input is an empty line or Esc – show “Canceled.”, if it’s another string – then show “I don’t know you”.

The password is checked as follows:

* If it equals “TheMaster”, then show “Welcome!”,
* Another string – show “Wrong password”,
* For an empty string or cancelled input, show “Canceled.”

Please use nested if blocks. Mind the overall readability of the code.

let login = prompt ("Login.");

if (login == "Admin")

{

let password = prompt ("Enter password.");

if (password == "TheMaster")

{

alert ("Welcome!");

}

else if (password == "")

{

alert ("Canceled.");

}

else

{

alert ("Wrong password.");

}

}

else if (login == "")

{

alert ("Canceled.");

}

else

{

alert ("I don't know you.");

}

1. Rewrite this if using the ternary operator '?':

if (a + b < 4) {

result = 'Below';

} else {

result = 'Over';

}

let a=+prompt("Enter your first number.");

let b=+prompt("Enter you next number.");

let result=a+b<4 ? "below":"above"

alert(result);