

Lesson: 04 (JavaScript Basic)

JavaScript: Introduction

JavaScript is a scripting language used to enable programmatic access to objects within other applications. It is primarily used in the form of client-side JavaScript for the development of dynamic websites. JavaScript is used in millions of Web pages to add functionality, validate forms, detect browsers, and much more.

The syntax of JavaScript is a set of rules that defines what constitutes a valid program in the JavaScript language.

Note: Example One

JavaScript: Comments

JavaScript comments can be used to make the code more readable.

Note: Example Two

JavaScript: Variable

Rules for JavaScript variable names:

- Variable names are case sensitive (y and Y are two different variables)
- Variable names must begin with a letter or the underscore character

JavaScript is case-sensitive, variable names are case-sensitive. Variables can be used to hold values ($x=5$) or expressions ($z=x+y$). Variables declared outside any function, and variables first used within functions without being declared with 'var', are global.

Variables can be declared with a var statement:

```
var x; var carname; var x=5; var carname="Volvo";
```

If you assign values to variables that have not yet been declared, the variables will automatically be declared.

```
x=5; carname="Volvo";
```

 have the same effect as:

```
var x=5; var carname="Volvo";
```

If you redeclare a JavaScript variable, it will not lose its original value.

```
var x=5; var x;
```

Note: Example Three

JavaScript: Operator

Arithmetic

Binary operators

- + Addition
- Subtraction
- * Multiplication
- / Division (returns a floating-point value)
- % Modulus (returns the integer remainder)

Unary operators

- Unary negation (reverses the sign)
- ++ Increment (can be prefix or postfix)
- Decrement (can be prefix or postfix)

Assignment

- = Assign
- += Add and assign
- = Subtract and assign
- *= Multiply and assign
- /= Divide and assign
- %= Modulus and assign

Comparison

- == Equal
- != Not equal
- > Greater than
- >= Greater than or equal to
- < Less than
- <= Less than or equal to

=== Identical (equal and of the same type)

!== Not identical

Boolean

```
Boolean( false );    // returns false
Boolean( 0 );        // returns false
Boolean( 0.0 );      // returns false
Boolean( "" );       // returns false
Boolean( null );     // returns false
Boolean( undefined ); // returns false
Boolean( NaN );      // returns false
// ONLY empty strings return false
Boolean("false");    // returns true
```

`Boolean("0");` `// returns true`

Note: Example Four

JavaScript: Statement

JavaScript is a sequence of statements to be executed by the browser. A JavaScript statement is a command to a browser. The purpose of the command is to tell the browser what to do. JavaScript statements can be grouped together in blocks.

Blocks start with a left curly bracket {, and ends with a right curly bracket}. The purpose of a block is to make the sequence of statements execute together.

```
<script type="text/javascript">
{
document.write("<h1>This is a heading</h1>");
document.write("<p>This is a paragraph.</p>");
document.write("<p>This is another paragraph.</p>");
}
</script>
```

Conditional statements are used to perform different actions based on different conditions. JavaScript have the following conditional statements:

- if statement - use this statement to execute some code only if a specified condition is true
- if...else statement - use this statement to execute some code if the condition is true and another code if the condition is false
- if...else if...else statement - use this statement to select one of many blocks of code to be executed
- switch statement - use this statement to select one of many blocks of code to be executed

If Statement Syntax:

```
if (condition) { code to be executed if condition is true }
```

If...else Statement Syntax:

```
if (condition) { code to be executed if condition is true }
else { code to be executed if condition is not true }
```

If...else if...else Statement Syntax:

```
if (condition1) { code to be executed if condition1 is true }
else if (condition2) { code to be executed if condition2 is true }
else { code to be executed if condition1 and condition2 are not true }
```

Note: Example Five

The JavaScript Switch Statement Syntax:

```
switch(n) {  
  case 1: execute code block 1  
    break;  
  case 2: execute code block 2  
    break;  
  default:  
    code to be executed if n is different from case 1 and 2 }
```

Note: Example Six

The break Statement: The break statement will break the loop and continue executing the code that follows after the loop (if any).

The continue Statement: The continue statement will break the current loop and continue with the next value.

JavaScript: Loops

Loops execute a block of code a specified number of times, or while a specified condition is true.

JavaScript Loops

There are two different kinds of loops:

- for - loops through a block of code a specified number of times
- while - loops through a block of code while a specified condition is true

The for Loop Syntax:

```
for (var=startvalue;var<=endvalue;var=var+increment)  
{ code to be executed }
```

Note: Example Seven

The while Loop Syntax:

```
while (var<=endvalue)  
{ code to be executed }
```

Note: Example Eight

The do...while Loop Syntax:

```
do {  
    code to be executed }  
while (var<=endvalue);
```

Note: Example Nine

JavaScript: Functions

function will be executed by an event or by a call to the function.

Functions Syntax:

```
function functionname(var1,var2,...,varX)  
  
    { some code }
```

The return Statement: The return statement is used to specify the value that is returned from the function. So, functions that are going to return a value must use the return statement.

Note: Example Ten

<pre><!--Example One--> <html> <body> <script type="text/javascript"> document.write("This is my first JavaScript!"); </script> </body> </html></pre>	<pre><!--Example Two--> <html> <body> <script type="text/javascript"> // Write a heading document.write("<h1>This is a heading</h1>"); // Write two paragraphs: document.write("<p>This is a paragraph.</p>"); document.write("<p>This is another paragraph.</p>"); /* document.write("<h1>This is a heading</h1>"); document.write("<p>This is a paragraph.</p>"); document.write("<p>This is another paragraph.</p>"); */ </script> </body> </html></pre>
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<pre><!--Example Three--> <html> <body> <script type="text/javascript"> var firstname; firstname="Saahil"; document.write(firstname); document.write("
"); lastname="Talha"; document.write(lastname); </script> </body> </html></pre>	<pre><!--Example Four--> <html> <body> <script type="text/javascript"> x=5+5; document.write(x); document.write("
"); x="5"+"5"; document.write(x); document.write("
"); x=5+"5"; document.write(x); document.write("
"); x="5"+5; document.write(x); document.write("
"); </script> </body> </html></pre>
<pre><!--Example Five--> <html> <body> <script type="text/javascript"> var d = new Date(); var time = d.getHours(); if (time<10) { document.write("Good morning"); } else if (time>=10 && time<16) { document.write("Good day"); } else { document.write("Hello World!"); } </script> </body> </html></pre>	<pre><!--Example Six--> <html> <body> <script type="text/javascript"> var d = new Date(); theDay=d.getDay(); switch (theDay) { case 5: document.write("Finally Friday"); break; case 6: document.write("Super Saturday"); break; case 0: document.write("Sleepy Sunday"); break; case 1: document.write("Working Monday"); break; default: document.write("I'm really looking forward to this weekend!"); } </script> </body></pre>

<pre><!--Example Seven--> <html> <body> <script type="text/javascript"> for (i = 0; i <= 5; i++) { document.write("The number is " + i); document.write("
"); } </script> </body> </html></pre>	<pre></html> <!--Example Eight--> <html> <body> <script type="text/javascript"> i=0; while (i<=5) { document.write("The number is " + i); document.write("
"); i++; } </script> </body> </html></pre>
<pre><!--Example Nine--> <html> <body> <script type="text/javascript"> i = 0; do { document.write("The number is " + i); document.write("
"); i++; } while (i <= 5) </script> </body> </html></pre>	<pre><!--Example Ten--> <html> <head> <script type="text/javascript"> function displaymessage() { alert("Hello World!"); } function product(a,b) { return a*b; } </script> </head> <body> <form> <input type="button" value="Click me!" onclick="displaymessage()" /> </form> <script type="text/javascript"> document.write(product(4,3)); </script> </body> </html></pre>