# JavaScript Tutorial

JavaScript Can Change HTML Content and can also change HTML attribute values and styles

One of many JavaScript HTML methods is getElementById().

JavaScript was invented by Brendan Eich in 1995, and became an ECMA standard in 1997.

ECMA-262 is the official name of the standard. ECMAScript is the official name of the language.

# JavaScript Where To

In HTML, JavaScript code is inserted between <script> and </script> tags.

This can be placed either in head or in body

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Placing scripts at the bottom of the <body> element improves the display speed, because script interpretation slows down the display.

# JavaScript Statements

A computer program is a list of "instructions" to be "executed" by a computer.In a programming language, these programming instructions are called statements.

JavaScript statements are composed of:

Values, Operators, Expressions, Keywords, and Comments.

# Keywords

|  |  |
| --- | --- |
| **Keyword** | **Description** |
| var | Declares a variable |
| let | Declares a block variable |
| const | Declares a block constant |
| if | Marks a block of statements to be executed on a condition |
| switch | Marks a block of statements to be executed in different cases |
| for | Marks a block of statements to be executed in a loop |
| function | Declares a function |
| return | Exits a function |
| try | Implements error handling to a block of statements |

A JavaScript name must begin with:

* A letter (A-Z or a-z)
* A dollar sign ($)
* Or an underscore (\_)

Subsequent characters may be letters, digits, underscores, or dollar signs.

Numbers are not allowed as the first character in names. This way JavaScript can easily distinguish identifiers from numbers.

JavaScript does not interpret LET or Let as the keyword let.

Hyphens are not allowed in JavaScript. They are reserved for subtractions.

# JavaScript Character Set

JavaScript uses the **Unicode** character set. Unicode covers (almost) all the characters, punctuations, and symbols in the world.

# JavaScript Variables

4 Ways to Declare a JavaScript Variable:

* Using var
* Using let
* Using const
* Using nothing

Text

Description automatically generated

Variables defined with let cannot be Redeclared. With var we can

Variables defined with let must be Declared before use.

Variables defined with let have Block Scope.

Before ES6 (2015), JavaScript had only **Global Scope** and **Function Scope**.

ES6 introduced two important new JavaScript keywords: let and const.

These two keywords provide **Block Scope** in JavaScript.

Variables declared inside a { } block cannot be accessed from outside the block:

Chart

Description automatically generated with medium confidence

# Redeclaring Variables

Redeclaring a variable using the var keyword can impose problems.

Redeclaring a variable inside a block will also redeclare the variable outside the block:

Graphical user interface, text, application, chat or text message

Description automatically generated

Redeclaring a variable using the let keyword can solve this problem.

Redeclaring a variable inside a block will not redeclare the variable outside the block:

Graphical user interface, text, application, chat or text message

Description automatically generated

With let, redeclaring a variable in the same block is NOT allowed:

Graphical user interface, text, application

Description automatically generated

Redeclaring a variable with let, in another block, IS allowed:

Graphical user interface, text, application

Description automatically generated

# Let Hoisting

Variables defined with var are **hoisted** to the top and can be initialized at any time.

Meaning: You can use the variable before it is declared:

Graphical user interface, text, application

Description automatically generated

Variables defined with let are also hoisted to the top of the block, but not initialized.

Meaning: Using a let variable before it is declared will result in a ReferenceError:

Graphical user interface, application

Description automatically generated

# JavaScript Const

A screenshot of a computer

Description automatically generated with medium confidence

JavaScript const variables must be assigned a value when they are declared:

A picture containing graphical user interface

Description automatically generated

Graphical user interface, text

Description automatically generated

# Constant Objects and Arrays

The keyword const is a little misleading.

It does not define a constant value. It defines a constant reference to a value.

Because of this you can NOT:

* Reassign a constant value
* Reassign a constant array
* Reassign a constant object

But you CAN:

* Change the elements of constant array
* Change the properties of constant object

You can change the elements of a constant array: Graphical user interface, text

Description automatically generated

But you can NOT reassign the array:

A picture containing calendar

Description automatically generated

You can change the properties of a constant object:

Graphical user interface, text, application

Description automatically generated

But you can NOT reassign the object:

Graphical user interface, text

Description automatically generated

Declaring a variable with const is similar to let when it comes to **Block Scope**.

The x declared in the block, in this example, is not the same as the x declared outside the block:

Graphical user interface, text, application, chat or text message

Description automatically generated

Variables defined with var are **hoisted** to the top and can be initialized at any time.

Variables defined with const are also hoisted to the top, but not initialized.

Meaning: Using a const variable before it is declared will result in a ReferenceError:

Graphical user interface, application

Description automatically generated