JavaScript HTML DOM

With the HTML DOM, JavaScript can access and change all the elements of an HTML document.

## The HTML DOM (Document Object Model)

## When a web page is loaded, the browser creates a **D**ocument **O**bject **M**odel of the page.

The **HTML DOM** model is constructed as a tree of **Objects**:



With the object model, JavaScript gets all the power it needs to create dynamic HTML:

* JavaScript can change all the HTML elements in the page
* JavaScript can change all the HTML attributes in the page
* JavaScript can change all the CSS styles in the page
* JavaScript can remove existing HTML elements and attributes
* JavaScript can add new HTML elements and attributes
* JavaScript can react to all existing HTML events in the page
* JavaScript can create new HTML events in the page

## What is the DOM?

The DOM is a W3C (World Wide Web Consortium) standard.

The DOM defines a standard for accessing documents:

*"The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."*

## What is the HTML DOM?

The HTML DOM is a standard **object** model and **programming interface** for HTML. It defines:

* The HTML elements as **objects**
* The **properties** of all HTML elements
* The **methods** to access all HTML elements
* The **events** for all HTML elements

In other words:**The HTML DOM is a standard for how to get, change, add, or delete HTML elements.**

# HTML DOM Methods

HTML DOM methods are **actions** you can perform (on HTML Elements).

HTML DOM properties are **values** (of HTML Elements) that you can set or change.

## The DOM Programming Interface

The HTML DOM can be accessed with JavaScript (and with other programming languages).

In the DOM, all HTML elements are defined as **objects**.

The programming interface is the properties and methods of each object.

A **property** is a value that you can get or set (like changing the content of an HTML element).

A **method** is an action you can do (like add or deleting an HTML element).

<!DOCTYPE html>

<html>

<body>

<h2>My First Page</h2>

<p id="demo"></p>

<script>

document.getElementById("demo").innerHTML = "Hello World!";

</script>

</body>

</html>

getElementById is a **method**, while innerHTML is a **property**.

## The getElementById Method

The most common way to access an HTML element is to use the id of the element.

In the example above the getElementById method used id="demo" to find the element.

## The innerHTML Property

The easiest way to get the content of an element is by using the innerHTML property.

The innerHTML property is useful for getting or replacing the content of HTML elements.

The innerHTML property can be used to get or change any HTML element, including <html> and <body>.

The HTML DOM document object is the owner of all other objects in your web page.

## The HTML DOM Document Object

The document object represents your web page.

If you want to access any element in an HTML page, you always start with accessing the document object.

Below are some examples of how you can use the document object to access and manipulate HTML.

## Finding HTML Elements

|  |  |
| --- | --- |
| **Method** | **Description** |
| document.getElementById(id) | Find an element by element id |
| document.getElementsByTagName(name) | Find elements by tag name |
| document.getElementsByClassName(name) | Find elements by class name |

## Changing HTML Elements

|  |  |
| --- | --- |
| **Property** | **Description** |
| *element*.innerHTML =  *new html content* | Change the inner HTML of an element |
| *element*.*attribute = new value* | Change the attribute value of an HTML element |
| *element*.style.*property = new style* | Change the style of an HTML element |
| **Method** | **Description** |
| *element*.setAttribute*(attribute, value)* | Change the attribute value of an HTML element |

## Finding HTML Elements

Often, with JavaScript, you want to manipulate HTML elements.

To do so, you have to find the elements first. There are several ways to do this:

* Finding HTML elements by id
* Finding HTML elements by tag name
* Finding HTML elements by class name
* Finding HTML elements by CSS selectors
* Finding HTML elements by HTML object collections

# JavaScript HTML DOM Events

HTML DOM allows JavaScript to react to HTML events:

## Reacting to Events

A JavaScript can be executed when an event occurs, like when a user clicks on an HTML element.

To execute code when a user clicks on an element, add JavaScript code to an HTML event attribute:

onclick=*JavaScript*

Examples of HTML events:

* When a user clicks the mouse
* When a web page has loaded
* When an image has been loaded
* When the mouse moves over an element
* When an input field is changed
* When an HTML form is submitted
* When a user strokes a key

# JavaScript Popup Boxes

JavaScript has three kind of popup boxes: Alert box, Confirm box, and Prompt box.

## Alert Box

An alert box is often used if you want to make sure information comes through to the user.

When an alert box pops up, the user will have to click "OK" to proceed.

## Confirm Box

A confirm box is often used if you want the user to verify or accept something.

When a confirm box pops up, the user will have to click either "OK" or "Cancel" to proceed.

If the user clicks "OK", the box returns **true**. If the user clicks "Cancel", the box returns **false**.

## Prompt Box

A prompt box is often used if you want the user to input a value before entering a page.

When a prompt box pops up, the user will have to click either "OK" or "Cancel" to proceed after entering an input value.

If the user clicks "OK" the box returns the input value. If the user clicks "Cancel" the box returns null.