## JavaScript - How to Manipulate DOM Elements?

In [**web development**](https://www.geeksforgeeks.org/web-development/), one of the main features to enable interactivity is [**DOM Manipulation**](https://www.geeksforgeeks.org/dom-document-object-model/). [**DOM manipulation**](https://www.geeksforgeeks.org/dom-document-object-model/) allows developers to interact and modify the structure, style, and content of web pages dynamically.

The below list contains different methods to manipulate DOM

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## DOM Element Selectors

There are multiple methods available in **DOM** to select the [**HTML elements**](https://www.geeksforgeeks.org/html-elements/) and manipulate them as listed below:

* **querySelector() method:** The **querySelector( ) method**is used to select the first element that matches the specified selector provided as an argument.
* **querySelectorAll() method:**The **querySelectorAll() method** returns a Node List which contains all elements that match the selector within the document.
* **getElementById( ) method:**The **getElementId() method** is used to select a single element using its Id.
* **getElementByClassName( ):**The **getElementsByClassName() method** in **JavaScript** is used to select elements in the HTML document that have a specific class name.
* **getElementByTagName() method:**The **getElementsByTagName()** **method** is used to select elements using the specified tag name.
* **getElementByName() method:** The **getElementsByName() method** is used to select elements that have a specific name attribute. This method returns a Node List of elements with the specified name.

## DOM content manipulators

The below [**DOM**](https://www.geeksforgeeks.org/dom-document-object-model/) properties can be used to change the [**HTML**](https://www.geeksforgeeks.org/html-tutorial/) and the text content of the [**HTML elements**](https://www.geeksforgeeks.org/html-elements/).

* **textContent:**The [textContent](https://www.geeksforgeeks.org/html-dom-textcontent-property/) property is used to set and get the text content and it's descendants.
* **innerHTML:**The [innerHTML](https://www.geeksforgeeks.org/html-dom-innerhtml-property/) property is used to get and set the text and [**HTML**](https://www.geeksforgeeks.org/html-tutorial/) inside an [**HTML element**](https://www.geeksforgeeks.org/html-elements/).
* **innerText:** The [innerText](https://www.geeksforgeeks.org/html-dom-innertext-property/) property represents the rendered text content of a node and its descendants. It is aware of the elements which will be rendered and ignores the hidden elements.

## DOM element creators

You can also create dynamic [**HTML elements**](https://www.geeksforgeeks.org/html-elements/) using the below [**DOM**](https://www.geeksforgeeks.org/dom-document-object-model/) methods.

**createElement( ) method:** The [createElement( )](https://www.geeksforgeeks.org/html-dom-createelement-method/) method is used to create an element in the HTML DOM document.

**appendChild( ) method:** The [appendChild( )](https://www.geeksforgeeks.org/html-dom-appendchild-method/) method is used to append a node to a list of child nodes of a specified parent node.

**createTextNode( ) method:** The [createTextNode( )](https://www.geeksforgeeks.org/html-dom-createtextnode-method/) method is used to create a text node.

## DOM CSS manipulators

The below [**DOM**](https://www.geeksforgeeks.org/dom-document-object-model/) properties can be used to manipulate the [**CSS**](https://www.geeksforgeeks.org/css-tutorial/) of the [**HTML elements**](https://www.geeksforgeeks.org/html-elements/).

**style: CSS** can be manipulated using (Syntax: **element.style.propertyName)**which helps us to dynamically manipulate styles and access the inline styles of an element.

**cssText:** **CSS** can be directly manipulated using the [cssText](https://www.geeksforgeeks.org/cssstyledeclaration-csstext-property/) property of the style object to set multiple inline styles at a time. It is similar to how we add inline CSS to an element.

**classList:** As Inline CSS is not recommended, mostly we use [classList](https://www.geeksforgeeks.org/html-dom-classlist-property/) property to dynamically add and remove CSS classes which are defined in external CSS.

## JavaScript addEventListener()

The **addEventListener()** method is used to attach an event handler to a HTML document.

### **Syntax:**

element.addEventListener(event, listener, useCapture);

### **Parameters:**

**event:**event can be any valid JavaScript event. Events are used without “on” prefixes like using “click” instead of “onclick” or “mousedown” instead of “onmousedown”.

**listener(handler function):**It can be a JavaScript function that responds to the event occurring.

**useCapture:**It is an optional parameter used to control event propagation. A boolean value is passed where “*true*” denotes the capturing phase and “*false*” denotes the bubbling phase.

Why Use *addEventListener()*?

* **Multiple Event Handlers:**Unlike the traditional way of assigning events directly (e.g., element.onclick = function() {}), addEventListener() allows multiple handlers for the same event.
* **Flexibility:** You can easily remove event listeners or add them dynamically based on conditions.
* **Control Over Event Propagation**:With the useCapture parameter, you can manage how events propagate through the DOM tree.