

JavaScript

DOM

What is dom?

DOM stands for Document Object Model

When the web page is loaded dom is called first.

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

The W3C DOM is separated into 3 parts:

1) Core DOM: The Core DOM provides methods to access, add, modify, and remove nodes.

2) XML DOM: Extends the Core DOM to include methods specific to parsing and manipulating XML documents, such as `getElementsByTagName()`, `setAttribute()`.

3) HTML DOM: Adds methods and properties specific to working with HTML documents, such as `getElementById()`, `querySelector()`. Basic Html Dom is below

```
<html>
  <body>
    <1Hello, World!>/h1>
    <p>This is a paragraph.</p>
  </body>
</html>
```

There are various methods and properties that allow you to access and manipulate HTML elements.

» Some common methods:

1) `ById(name of id attribute in html)`

```
syntax: document.getElementById("id");
```

2) `ByTagName(html tags)` like `div,p,span` etc. It uses Html collections means arrays

```
syntax:document.getElementsByTagName("div");
```

3) `ByName(name attribute)`.It uses node list of html elements means arrays

```
syntax:document.getElementsByName();
```

4) `ByClassName(name of class)`. It uses Html collections means arrays

```
syntax:document.getElementsByClassName();
```

5) `querySelector()`: Returns the first element that matches a CSS selector.

```
syntax:document.querySelector("selector");
```

6) `querySelectorAll()`. node list of html elements means arrays

```
syntax:document.querySelectorAll("selector");
```

7) `setAttribute()` : Used to add or change an attribute on an HTML element.

```
syntax : element.setAttribute(attributeName, attributeValue);
```

8) `removeAttribute()` : Removes an existing attribute from an HTML element.

```
syntax : element.removeAttribute(attributeName);
```

9) `getAttribute()` : Gets the current value of an attribute

```
syntax:element.getAttribute(attributeName);
```

» Some common properties:

- 1) `.innerHTML` » `element.innerHTML = "Hello"`
- 2) `.innerText` » `element.innerText = "Hello World";`
- 3) `.textContent` » `element.textContent = "Visible and hidden text";`
- 4) `.style` » `element.style.color = "red";`
- 5) `.cssText` » `element.style.cssText = "color: red; background-color: yellow;;`

Lets try with all methods and properties

ById()

1)ById(): with onclick event

```
// in html
<button onclick="show()">click me</button>

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

// in script
function show() {
    let title = document.getElementById("demo").innerHTML="<b>hello quickxpert</b>";
    // let title = document.getElementById("demo").innerText="hello quickxpert";
    console.log(title);
}
```

2)ById(): with onchange event

```
// in html
<input type="text" id="myInput" onchange="displayValue()">
<div id="displayDiv"></div>

// in script
function displayValue() {
    var inputValue = document.getElementById('myInput').value;
    document.getElementById('displayDiv').innerHTML = inputValue;
}
```

3)ById() : with setAttribute() removeAttribute() and onclick event

// in html

```
<img id="image">
```

```
<button onclick="showImg()"> Show image </button>
```

```
<button onclick="removeImg()"> remove image </button>
```

// in script

```
function showImg() {
```

```
    var imgTag = document.getElementById("image");
```

```
    imgTag.setAttribute("src", "https://cdn.pixabay.com/photo/2021/12/29/18/59/st-petersburg-6902540_960_720.jpg");
```

```
    imgTag.setAttribute("alt", "Mansion Image");
```

```
}
```

```
function removeImg() {
```

```
    var imgTag = document.getElementById("image");
```

```
    imgTag.removeAttribute("src");
```

```
    imgTag.removeAttribute("alt");
```

```
}
```

4) ById() : with getAttribute(), with value

//in html

// with getAttribute()

```
<input type="text" id="username" value="quickxpert">
```

```
<button onclick="showUsername()">get User</button>
```

```
<br> <br>
```

// with value

```
<input type="text" id="uname" placeholder="type something...">
```

```
<button onclick="Uname()">Uname</button>
```

```
// in script

// with getAttribute code
function showUsername() {
    var usernameField = document.getElementById("username");
    var usernameValue = usernameField.getAttribute("value");
    alert("Username Value: " + usernameValue);
}

// with value code
function Uname() {
    var uameField = document.getElementById("uname");
    var uameValue = uameField.value
    alert("uName value :" + uameValue)
}
```

ByTagName()

1)TagName() : with onclick, with .style

```
// in html
<div>
    hello sam
</div>

<div>
    hii eva
</div>

<div>
    hey william
</div>
```

```
<div>
    hello qxpert
</div>
```

```
<button onclick="color()"> click</button>
```

```
// in script
function color(){
    var demo = document.getElementsByTagName("div");
    demo[0].style.background="red";
    demo[1].style.background="purple";
    demo[2].style.background="orange";
    demo[3].style.background="gray";
}
```

2) TagName() : with onclick, with .style with for loop

// in html

```
<div>
    hello sam
</div>
```

```
<div>
    hii eva
</div>
```

```
<div>
    hey william
</div>
```

```
<div>
    hello qxpert
</div>
```

```
<button onclick="color()"> click</button>
```

```
// in script
function color(){
    var demo = document.getElementsByTagName("div");

    for(var i=0;i<demo.length;i++){
        demo[i].style.background="purple";
        demo[i].style.margin="10px 0";
        demo[i].style.color="white";
    }
}
```

3) TagName() : with onclick, .style ,.cssText & for loop

// in html

```
<div>
    hello sam
</div>
```

```
<div>
    hii eva
</div>
```

```
<div>
    hey william
</div>
```

```
<div>
    hello qxpert
</div>
```

```
<button onclick="color()"> click</button>
```

// in script

```
function color(){
    var demo = document.getElementsByTagName("div");
```

```
for(var i=0;i<demo.length;i++){
  demo[i].style.cssText="background:red;text-align:center;font-size:30px;margin-top:20px;"

}
}
```

ByName()

Example:

// in html

```
<form>
  <input type="radio" name="color" value="red"> Red
  <input type="radio" name="color" value="green"> Green
  <input type="radio" name="color" value="blue"> Blue
  <button onclick="showColors()" type="button" id="getColorsButton">Get Colors</button>
</form>
```

// in script

```
function showColors(){
  const colorOptions = document.getElementsByName("color");
  const selectedColors = [];
  // Loop for radio
  for (let i = 0; i < colorOptions.length; i++) {
    if (colorOptions[i].checked) {
      selectedColors.push(colorOptions[i].value);
    }
  }

  // dont add empty data
  if (selectedColors.length > 0) {
    console.log("Selected colors:", selectedColors);
  } else {
```



```
        console.log("No color selected.");
    };
}
```

ByClassName()

// in html

//you can also use forloop

<p class="color1">This is a paragraph.</p>

<p class="color1">This is a paragraph.</p>

<p class="color1">This is a paragraph.</p>

<button onclick="getColors()">get colors</button>

// in script

```
function getColors(){
    const test = document.getElementsByClassName("color1");
    test[0].style.textAlign = "center";
    test[1].style.backgroundColor = "blue";
    test[1].textContent = "now para is in blue";
    test[2].style.cssText = "transform: translateX(300px); transition: transform 2s ease-in;width:50%";
}
```

querySelector()

// in html

1) Example:

<p id="myParagraph">Click the button to change my color.</p>

<button id="changeColorBtn">Change Color</button>

// in script

```
const paragraph = document.querySelector('#myParagraph');
```

```
const button = document.querySelector('#changeColorBtn');
```

```
button.onclick = function() {  
  paragraph.style.color = 'blue';  
};
```

2)Example:

// in html

```
<button class="hover-btn">Hover me</button>
```

// in script

```
const hoverBtn = document.querySelector('.hover-btn');
```

```
hoverBtn.onmouseover = function() {  
  hoverBtn.style.backgroundColor = 'green';  
  hoverBtn.style.color = 'white';  
  hoverBtn.textContent = 'Thanks!';  
};
```

```
hoverBtn.onmouseleave = function() {  
  hoverBtn.style.backgroundColor = '';  
  hoverBtn.style.color = '';  
  hoverBtn.textContent = 'Hover me';  
};
```

querySelectorAll()

// in html

```
<div id="tabs">  
  <div id="tab-buttons">  
    <button style="background-color:#007BFF; color:white;">Tab 1</button>  
    <button>Tab 2</button>  
    <button>Tab 3</button>  
  </div>
```

```
<div style="display:block; border:1px solid #ccc; padding:15px; margin-top:5px;">
  Content for Tab 1
</div>
<div style="display:none; border:1px solid #ccc; padding:15px; margin-top:5px;">
  Content for Tab 2
</div>
<div style="display:none; border:1px solid #ccc; padding:15px; margin-top:5px;">
  Content for Tab 3
</div>
</div>
```

```
// in script
```

```
const buttons = document.querySelectorAll('#tab-buttons button');
const contents = document.querySelectorAll('#tabs > div:not(#tab-buttons)');

for(let i = 0; i < buttons.length; i++) {
  buttons[i].onclick = function() {

    for(let j = 0; j < buttons.length; j++) {
      buttons[j].style.backgroundColor = '';
      buttons[j].style.color = '';
      contents[j].style.display = 'none';
    }

    buttons[i].style.backgroundColor = '#007BFF';
    buttons[i].style.color = 'white';
    contents[i].style.display = 'block';
  }
}
```