

# Javascript Selector with DOM

JavaScript provides several methods to select elements from the DOM (Document Object Model) to manipulate or interact with them. Below are the most commonly used selectors in JavaScript:

---

## 1. Selecting by ID

Use the `getElementById` method to select an element by its unique ID.

javascript

Copy code

```
const element = document.getElementById('myId');  
console.log(element);
```

---

## 2. Selecting by Class Name

Use the `getElementsByClassName` method to select all elements with a specific class name. It returns an **HTMLCollection**.

javascript

Copy code

```
const elements = document.getElementsByClassName('myClass');  
console.log(elements[0]); // Access the first element with the class
```

---

## 3. Selecting by Tag Name

Use the `getElementsByTagName` method to select all elements with a specific tag name. It also returns an **HTMLCollection**.

javascript

Copy code

```
const elements = document.getElementsByTagName('div');  
console.log(elements);
```

---

## 4. Query Selectors

### a. `querySelector`

Selects the **first** element that matches a CSS selector.

javascript

Copy code

```
const element = document.querySelector('.myClass');
console.log(element);
```

### b. `querySelectorAll`

Selects **all elements** that match a CSS selector. It returns a **NodeList**.

javascript

Copy code

```
const elements = document.querySelectorAll('div.myClass');
elements.forEach(el => console.log(el)); // Iterate through the
NodeList
```

---

## 5. Selecting by Attributes

You can also use `querySelector` or `querySelectorAll` to select elements based on attributes.

javascript

Copy code

```
const element = document.querySelector('[data-id="123"]');
console.log(element);
```

---

## 6. Selecting the Entire DOM (Root Element)

To select the root element of your document (usually `<html>`):

javascript

Copy code

```
const root = document.documentElement;
console.log(root);
```

---

## 7. Selecting Special Elements

- **document.body**: Selects the `<body>` tag.
  - **document.head**: Selects the `<head>` tag.
- 

### Example Use Case: Adding a Class to a Button

html

Copy code

```
<button id="myButton">Click Me</button>
<script>
  const button = document.getElementById('myButton');
  button.classList.add('active'); // Add the 'active' class
  console.log(button.className); // Check classes
</script>
```

---

### Tips:

- **Performance:** Use `getElementById` when you know the ID, as it's the fastest method.
- **Dynamic Selection:** Combine `querySelector` with dynamic selectors for advanced cases.

Let me know if you'd like a practical example or a deeper explanation!