

PSG college of Technology
Department of Computer Applications
23MX18 Web Application Development

```
<!DOCTYPE html>
<html>
  <head>
    <title>DOM Selection Lab</title>
  </head>
  <body>
    <h2 id="heading">Welcome to DOM Lab</h2>
    <p id="para1">This is the first paragraph.</p>
    <p class="intro">This is the second paragraph with class
intro.</p>
    <p class="intro">This is the third paragraph with class intro.</p>
    <p name="note">This paragraph uses a name attribute.</p>

    <ul>
      <li class="item">Apple</li>
      <li class="item">Banana</li>
      <li class="item">Cherry</li>
    </ul>

    <div>
      Output: <input readonly type="text" id="output">
      Tag Name: <input type="text" id="input">
    </div>

    <div>
      <button onclick="loadScript('ws_8_A.js')">Part A</button>
      <button onclick="loadScript('ws_8_B.js')">Part B</button>
      <button onclick="loadScript('ws_8_C.js')">Part C</button>
      <button onclick="loadScript('ws_8_D.js')">Part D</button>
      <button onclick="loadScript('ws_8_E.js')">Part E</button>
      <button onclick="loadScript('ws_8_F.js')">Part F</button>
      <button onclick="loadScript('ws_8_fontSize.js')">Font
Size</button>
      <button
onclick="loadScript('ws_8_liHightlight.js')">Highlight</button>
```

```

</div>

<script>
    let currentScript = null;

    function loadScript(src){
        if (currentScript) {
            currentScript.remove();
            currentScript = null;
        }

        if (window.runCode){
            delete window.runCode;
        }

        let script = document.createElement('script');
        script.src = src;
        script.id = 'dynamicScript';
        document.body.appendChild(script);
        currentScript = script;

        script.onload = () => {
            if (typeof runCode === "function"){
                runCode();
            }
        }
    }
</script>

</body>
</html>

```

Part A: Traditional DOM Methods

1. Use `getElementById` to change the text of the `<h2>` heading to **"DOM Lab in Progress"**.
2. Use `getElementsByClassName` to change the text color of all paragraphs with class **intro** to **blue**.
3. Use `getElementsByTagName` to count all `<p>` elements and display the total in `#output`.
4. Use `getElementsByName` to change the background color of the `<p>` with `name="note"`.

DOM Lab in Progress.

This is the first paragraph.

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- Apple
- Banana
- Cherry

Output: Tag Name:

```
function runCode() {

    //Use getElementById to change the text of the <h2> heading to
    "DOM Lab in Progress".

    document.getElementById("heading").innerHTML='DOM Lab in
    Progress.';

    //Use getElementsByClassName to change the text color of all
    paragraphs with class intro to blue.

    let intros = document.getElementsByClassName("intro");

    for(let i=0;i<intros.length;i++){

        intros[i].style.color = "blue";

    }

    //Use getElementsByTagName to count all <p> elements and display
    the total in #output.

    let tagPs = document.getElementsByTagName("p");

    document.querySelector("#output").value=tagPs.length;
```

```

    //Use getElementByName to change the background color of the
    <p> with name="note".

    let notes = document.getElementsByName("note");

    for(let i=0;i<notes.length;i++){

        notes[i].style.background = "lightpink";

    }

}

```

Part B: Using querySelector and querySelectorAll

5. Use querySelector to select the **first ** in the list and make its text bold.
6. Use querySelector to select the **paragraph with id para1** and append the text "**(Modified)**" to it.
7. Use querySelectorAll to select all list items and change their text color to **green**.
8. Use querySelectorAll to loop through all paragraphs with class intro and log their text content to the console.

Welcome to DOM Lab

This is the first paragraph. Modified

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- **Apple**
- Banana
- Cherry

Output: Tag Name:

```
function runCode() {
```

```

    //Use querySelector to select the first <li> in the list and
    make its text bold.

    let lis = document.querySelectorAll("li");

    lis[0].style.fontWeight = 'bold';

    //Use querySelector to select the paragraph with id para1 and
    append the text "(Modified)" to it.

    document.querySelector("#para1").innerHTML += " Modified";

    //Use querySelectorAll to select all list items and change their
    text color to green.

    for(let i=0;i<lis.length;i++){

        lis[i].style.background = 'lightgreen';

    }

    //Use querySelectorAll to loop through all paragraphs with class
    intro and log their text content to the console.

    let paras = document.getElementsByClassName("intro");

    for(let i=0;i<paras.length;i++){

        console.log(paras[i].textContent);

    }

}

```

Part C: Compare Methods

9. Try to select the same element (the `<p id="para1">`) using:

- getElementById
 - querySelector("#para1")
- Compare the results in the console. Are they the same object?

10. Try to select all .intro paragraphs using:

- getElementsByClassName("intro")
- querySelectorAll(".intro")

Notice the difference in **return type** (HTMLCollection vs NodeList).

```
function runCode() {  
  
    //Try to select the same element (the <p id="para1">) using:  
    getElementById  
  
    let paId = document.getElementById("para1");  
  
  
    //Try to select the same element (the <p id="para1">) using:  
    querySelector("#para1")  
  
    let paQ = document.querySelector("#para1");  
  
  
    //getElementsByClassName("intro")  
    getElementsByClassName("intro")  
  
    let intros = document.getElementsByClassName("intro");  
  
  
    //getElementsByClassName("intro"): querySelectorAll(".intro")  
  
    let ints = document.querySelectorAll(".intro");  
  
}
```

Part D: Practical Styling and Manipulation

11. Use querySelector("ul li:last-child") to select the **last list item** and change its text to "Orange".
12. Use querySelectorAll(".item") to **add numbers** before each fruit name (1. Apple, 2. Banana, etc.).

13. Use `getElementsByTagName("p")` to hide the **second paragraph** (hint: `style.display = "none"`).
14. Use `querySelector("p.intro")` to underline only the **first** paragraph with class `intro`.
15. Use `getElementsByClassName("item")` to change the background color of all list items to **lightyellow**.

Welcome to DOM Lab

This is the first paragraph.

This is the second paragraph with class `intro`.

This paragraph uses a name attribute.

- 1. Apple
- 2. Banana
- 3. Orange

Output: Tag Name:

```
function runCode(){

    //Use querySelector("ul li:last-child") to select the last list
    item and change its text to "Orange".

    document.querySelector("ul li:last-child").innerHTML = 'Orange';

    //Use querySelectorAll(".item") to add numbers before each fruit
    name (1. Apple, 2. Banana, etc.).

    let items = document.querySelectorAll(".item");

    items.forEach(function(item,i){

        item.textContent = `${i+1}. ${item.textContent}`;

    });

    //Use getElementsByTagName("p") to hide the second paragraph
    (hint: style.display = "none").
```

```

document.getElementsByTagName("p")[2].style.display = 'none';

//Use querySelector("p.intro") to underline only the first
paragraph with class intro.

document.querySelector("p.intro").style.textDecoration =
'underline';

//Use querySelector("p.intro") to underline only the first
paragraph with class intro.

for(let i=0;i<items.length;i++){

    items[i].style.background = 'lightyellow';

}

}

```

Part E: Attribute Access

16. Use `querySelector("#heading")` and print its **tag name** in the console.
17. Use `document.querySelector("[name='note']")` to select the paragraph with name "note" and set its text color to **red**.
18. Use `querySelectorAll("p")` and log the **innerHTML** of each paragraph.
19. Use `getElementById("para1")` and change its id to "firstPara".
20. Use `querySelector("ul")` to add a **new list item** `Grapes` at the end of the list.

Welcome to DOM Lab

This is the first paragraph.

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- Apple
- Banana
- Cherry
- Grapes

Output: Tag Name:

Part A	Part B	Part C	Part D	Part E	Part F	Font Size	Highlight
--------	--------	--------	--------	--------	--------	-----------	-----------

```
function runCode() {

    //Use querySelector("#heading") and print its tag name in the
    console.

    let element = document.querySelector('#heading');

    console.log(element.tagName);

    //Use document.querySelector("[name='note']") to select the
    paragraph with name "note" and set its text color to red.

    document.querySelector("[name = 'note']").style.color = 'red';

    //Use querySelectorAll("p") and log the innerHTML of each
    paragraph.

    let paras = document.querySelectorAll("p");

    paras.forEach((para) => {

        console.log(para.innerHTML);
    });
}
```

```
});

//Use getElementById("para1") and change its id to "firstPara".
document.getElementById("para1").id = 'firstPara';

//Use querySelector("ul") to add a new list item <li>Grapes</li>
at the end of the list.

let ul = document.querySelector('ul');

let li = document.createElement('li');

li.textContent = 'Grapes';

ul.append(li);
}
```

Part F: Interactive Tasks

21. Add a button that, when clicked, uses `querySelectorAll("p")` to increase the font size of all paragraphs by 2px.

Welcome to DOM Lab

This is the first paragraph.

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- Apple
- Banana
- Cherry

Output: Tag Name:

```
function runCode() {  
  
    let paras = document.querySelectorAll('p');  
  
    paras.forEach((p) => {  
  
        let currentSize = window.getComputedStyle(p).fontSize;  
  
        let newSize = parseInt(currentSize) + 2 + 'px';  
  
        p.style.fontSize = newSize;  
  
    });  
  
}
```

22. Add a button that highlights all list items when clicked (backgroundColor = "lightgreen").

Welcome to DOM Lab

This is the first paragraph.

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- Apple
- Banana
- Cherry

Output: Tag Name:

Part A Part B Part C Part D Part E Part F Font Size Highlight

```
function runCode() {  
  
    let lis = document.querySelectorAll('p');  
  
    lis.forEach(li => li.style.backgroundColor = 'lightgreen');  
  
}
```

23. Use `querySelectorAll(".intro")` to count how many intro paragraphs exist and display the count in the #output div.
24. Add an input box where a user can type a **tag name** (e.g., p or li). On pressing a button, display how many such elements are in the document. (Hint: `getElementsByTagName`).
25. Use `querySelector("h2")` to toggle the heading's color between red and black every time it's clicked.

Welcome to DOM Lab

This is the first paragraph.

This is the second paragraph with class intro.

This is the third paragraph with class intro.

This paragraph uses a name attribute.

- Apple
- Banana
- Cherry

Output: Tag Name:

Part A	Part B	Part C	Part D	Part E	Part F	Font Size	Highlight
--------	--------	--------	--------	--------	--------	-----------	-----------

```
function runCode(){

    //Use querySelectorAll(".intro") to count how many intro
    paragraphs exist and display the count in the #output div.

    let intros = document.querySelectorAll(".intro");

    document.getElementById("output").value = intros.length;


    //Add an input box where a user can type a tag name (e.g., p or
    li). On pressing a button, display how many such elements are in the
    document. (Hint: getElementsByTagName).

    let choice = document.getElementById("input").value.trim();

    let choices = document.getElementsByTagName(choice);

    document.querySelector("#output").value = choices.length;


    //Use querySelector("h2") to toggle the heading's color between
    red and black every time it's clicked.
```

```
let head = document.querySelector("h2");

head.onclick = function() {

    if (head.style.color === "red") {

        head.style.color = "black";

    } else {

        head.style.color = "red";

    }

}
```