# JavaScript and DOM Notes

## JavaScript + DOM Basics

The DOM (Document Object Model) is a tree-like structure that represents HTML elements. JavaScript can access, modify, delete, or add elements to the DOM.

## Accessing Elements

```
By ID:
const heading = document.getElementById('main-heading');

By Class Name:
const items = document.getElementsByClassName('item');

By Tag Name:
const paragraphs = document.getElementsByTagName('p');

By CSS Selector:
const button = document.querySelector('.btn');
const allButtons = document.querySelectorAll('.btn');
```

## Modifying Elements

```
Change Text:
document.getElementById('title').textContent = 'New Title';

Change Style:
document.querySelector('h1').style.color = 'blue';
document.querySelector('.card').style.backgroundColor = '#f9f9f9';

Add / Remove Classes:
element.classList.add('active');
element.classList.remove('hidden');
element.classList.toggle('dark-mode');
```

## Creating and Adding Elements

```
const newDiv = document.createElement('div');
newDiv.textContent = 'Hello World!';
document.body.appendChild(newDiv);
```

## Removing Elements

```
const element = document.getElementById('remove-me');
element.remove();
```

## Event Listeners

```
Click Event:
```

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```
document.querySelector('#my-btn').addEventListener('click', () => {
  alert('Button clicked!');
});
```

```
Input Event:
document.querySelector('#my-input').addEventListener('input', (event) => {
  console.log('User typed:', event.target.value);
});
```

## Example: Toggle Dark Mode

```
HTML:
<button id="toggle-theme">Toggle Theme</button>
<body class="light">
```

```
JS:
document.getElementById('toggle-theme').addEventListener('click', () => {
  document.body.classList.toggle('dark');
});
```

```
CSS:
body.dark {
  background-color: #111;
  color: white;
}
```

## Tips

```
- Use console.log() to debug
- Use querySelector/querySelectorAll for flexibility
- Wait for DOMContentLoaded if script is in <head>:
document.addEventListener('DOMContentLoaded', () => {
  // your code here
});
```