JavaScript DOM + Modern JS

Window

- It is a global object.
- Created by browser.
- It represents a browser window.
- It acquires DOM, BOM, JS Core functions.
- It is a top-level entity.
- It can be used to manipulate browser window.
- Example: windows.console.log() and much more.

DOM

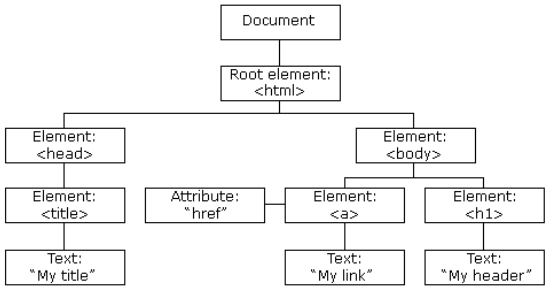
- Document object model.
- Every webpage content is converted into JS Object known as document.
- Example: document.body – it represent html body.

BOM

- It allows JS to talk to browser on different thing except page content.
- Like with the help of alert() etc.

Document Object Model (DOM):

- Tree-like structure starts with root.
- Root -> html -> head, body
- How it happens.
    - Character -> tags -> token -> nodes -> DOM.



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- **Fetching Elements of Document**
    - **getElementByID**(‘<id-given-in-html-code>’)
        - It returns an Element object representing the element whose id property matches the specified string.
        - If not matches with any of the string (id) then it returns null.
        - It is called on document object.
        - It returns only a single object because id is unique.
        - For multiple objects: we use another method.
    - **getElementsByClassName**(‘<class-name-given-in-html-code>’)
        - this interface returns an array like object of all child elements which have all of the given class name(s).

        - when called on the document object, the complete document is searched, including the root node.
        - It is called on document object.
        - Can be iterate via for of loop or any useful loop.
        - It returns HTML Collection.
        - Same as **getElementsByTagName**(<tag>): it returns all the element whose tag is similar to this tag.
        - The list returned is not an array.
    - **querySelector**('# or . <name>'):
        - it selects class or any id.
        - We can select element using query selector as above.
        - It returns only single object / element.
        - If multiple section uses same class, then it returns the first one with the matching string.
    - **querySelectorAll**('# or . <name>'):
        - it selects same as upper selectors.
        - It returns list of all elements / object. Whose class name or id matches with the specified string.
- **Updating the existent content:**
    - innertHTML:
        - get/set the HTML Content.
        - Get an element or all of its descendent.
        - Set an element's HTML Content.
        - To only obtain the HTML representation of the contents of an element, or to replace the content of an element, use the innerHTML property instead.
        -
```
let h2Tag = document.querySelector('.h2-tag');

console.log(h2Tag);

console.log(h2Tag.innerHTML);

h2Tag.innerHTML = ' ';
console.log(h2Tag.innerHTML);
```
    - outerHTML:
        - attribute of element dom interface gets the serialized html fragment describing the element including its descendent.
        - It can also be set to replace the element with nodes parsed from the given string.
    - textContent:
        - get / set textual content
        - it renders the tag and show them as it is.
    - innerText
        - get / set textual content.

```
let com = document.querySelector('.h3-tag');
console.log(com);
console.log(com.innerHTML);
console.log(com.outerHTML);
console.log(com.textContent);
console.log(com.innerText); // it shows only the non-hidden content as a text
```

- Adding new elements using JavaScript:
  - createElement('tag-name'):
    - using .appendChild() to append newly created element.
    -
```
let newElement = document.createElement('h1');
com.appendChild(newElement);
console.log(com);

newElement.innerText = 'Hello How ARE YOU?'
```
- Creating a Text-Node:
  - Same as above picture but using document.createTextNode('I am the text') not an easy way.
  - Using textContent.
  - appendChild() – append the element at the last of element.
- How to insert element at the required position
  - insertAdjacentHTML():
    - it has to be called with 2 arguments (location/position, HTML / textContent to be inserted).
    - Location / position
      - beforeBegin: at previous sibling
      - afterBegin: after first sibling
      - beforeEnd: before ending
      - afterEnd: after ending
- How to remove Element at the required position:
  - removeChild():
    - opposite to appendChild()
    - we should know the parent element of the element we are deleting
    - the child element to be removed.
    - parent.removeChild(childElement);
    - drawback is only this we should know the parent.
    - Another method is to find parent using parent = childElement.parent;

- Using JS to change the CSS:
  - .style
    - At a time single property is being changed.
  - .cssText
    - Multiple properties can be changed at a time
  - .setAttribute
    - Separation of concern are being spoiled here.
    - Here style, id, class Name are also being added here.
  - .className
    - It returns the class Name as a string
    - It is not the best method among classList because we need to do trim(), then split() and so on to get all the class names.
  - .classList
    - It returns the list so that we can only iterate to get all the class names.
    - Return array of classes.
    - It has many operations – add(), remove(), toggle(), contains(), etc

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```
newElement.style.color = 'red';

newElement.style.cssText = 'color: green; background-color: yellow; font-size:2em;';

newElement.setAttribute('style', 'color: green; background-color: yellow; font-size:2em;');
newElement.setAttribute('class','h1-tag');

console.log(newElement.className); // it will result string of class Names of that element
console.log(document.body.classList);
```