12.5 String & Maths Functions + DOM Navigation
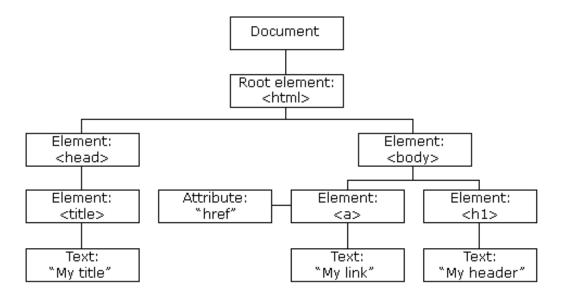
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String Methods

You can find all the useful string methods here:
https://www.programiz.com/javascript/library/string

Maths Methods

You can find all the useful string methods here:
https://www.programiz.com/javascript/library/math

DOM Navigation

```
                    ┌─────────────────┐
                    │    Document     │
                    └────────┬────────┘
                    ┌────────┴────────┐
                    │ Root element:   │
                    │    <html>       │
                    └────────┬────────┘
         ┌───────────────────┴───────────────────────┐
    ┌────┴──────┐                              ┌──────┴─────┐
    │ Element:  │                              │  Element:  │
    │  <head>   │                              │   <body>   │
    └────┬──────┘                              └──────┬─────┘
    ┌────┴──────┐   ┌───────────┐   ┌──────────┐  ┌───┴──────┐
    │ Element:  │   │ Attribute:│   │ Element: │  │ Element: │
    │  <title>  │   │   "href"  ├───┤   <a>    │  │   <h1>   │
    └────┬──────┘   └───────────┘   └────┬─────┘  └────┬─────┘
    ┌────┴──────┐                   ┌────┴─────┐  ┌────┴─────┐
    │  Text:    │                   │  Text:   │  │  Text:   │
    │ "My title"│                   │ "My link"│  │"My header"│
    └───────────┘                   └──────────┘  └──────────┘
```

The nodes in the node tree have a hierarchical relationship to each other.

The terms parent, child, and sibling are used to describe the relationships.

- In a node tree, the top node is called the root (or root node)

- Every node has exactly one parent, except the root (which has no parent)

- A node can have a number of children

- Siblings (brothers or sisters) are nodes with the same parent

▼ **Navigating between Nodes**

You can use the following node properties to navigate between nodes with JavaScript:

- `parentNode`

- `childNodes[ nodenumber ]`

- `firstChild`

- `lastChild`

- `nextSibling`

- `previousSibling`

▼ Node Values

```
<title id="demo">DOM Tutorial</title>
```

The element node `<title>` (in the example above) does **not** contain text.

It contains a **text node** with the value "DOM Tutorial".

The value of the text node can be accessed by the node's `innerHTML` property:

```
myTitle = document.getElementById("demo").innerHTML;
```

Accessing the innerHTML property is the same as accessing the `nodeValue` of the first child:

```
myTitle = document.getElementById("demo").firstChild.nodeValue;
```

▼ Document Body and Element

There are two special properties that allow access to the full document:

- `document.body` - The body of the document (returns the <body> element)
- `document.documentElement` - The full document (returns the <html> element)