



JavaScript- Tutorial

158.258

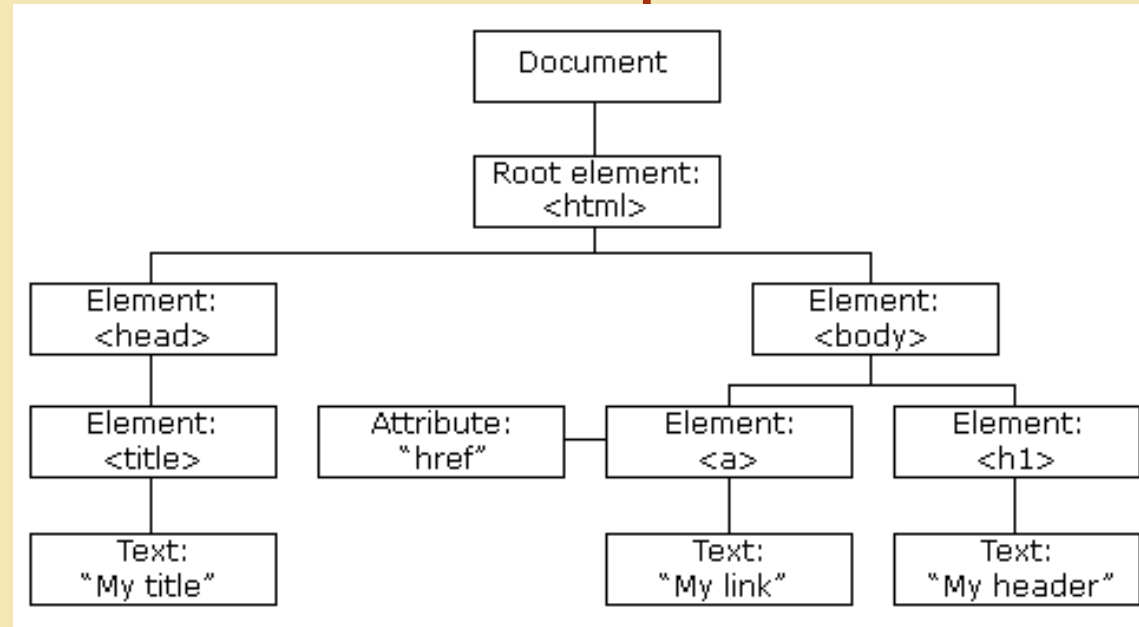
Agenda

- Document Object Model
- Functions

Document Object Model

- The document object model is an API; Application programming interface.
- It is a W3C specification that enables scripting languages(such as JavaScript) to manipulate documents(like HTML).
- It gives programmers ability to create and modify HTML objects.
- When a page is loaded, browser creates a document object model for it.
- The HTML DOM is created as a tree of objects.

DOM and JavaScript



With the object model, JavaScript gets all the power it needs to create dynamic HTML:

- JavaScript can access all HTML elements and change them: e.g. using `getElementById()`
- JavaScript can access all attributes and can change them: e.g. using `.innerHTML()`
- JavaScript can access all the CSS styles used on a web page and can alter them.
e. g. `getElementById(id).style.property=value`
- JavaScript can remove existing and add new HTML elements and attributes
- JavaScript can react to all existing HTML events in the page. e.g `onClick()=getElementById().style.color='red';`
- JavaScript can create new HTML events on a web page.

DOM Methods and Properties

- In DOM, all HTML elements are defined as objects.
- These objects, have methods and properties.
- You can set and get the properties of the objects.
- Using methods, you can perform actions on the objects.

<code>document.getElementById(<i>id</i>)</code>	Find an element by element id
<code>document.getElementsByTagName(<i>name</i>)</code>	Find elements by tag name
<code>document.getElementsByClassName(<i>name</i>)</code>	Find elements by class name
<code>document.write(<i>string</i>)</code>	Write on the document(HTML) page

Writing Functions

Syntax:

```
<script type="text/javascript">  
  <!--  
    function functionName(parameter-list)  
    {  
      statements  
    }  
  //-->  
</script>
```

```
function getDayName() {  
  var date = new Date;  
  var arrDayNames =  
    ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"];  
  return arrDayNames[date.getDay()]  
}
```

```
document.writeln("Today is: " + getDayName());
```

Arrays

- A collection of values that have same name but are identified by an index.
- Array index starts at zero.

- Syntax:

```
let arrMyArray = new Array(size);
```


The Math Class

- For complex mathematics operations.
 - `var pi = Math.PI;` // 3.141592653589793
 - `Math.round(4.4);` // = 4 - rounded
 - `Math.round(4.5);` // = 5
 - `Math.pow(2,8);` // = 256 - 2 to the power of 8
 - `Math.sqrt(49);` // = 7 - square root
 - `Math.abs(-3.14);` // = 3.14 - absolute, positive value
 - `Math.ceil(3.14);` // = 4 - rounded up
 - `Math.floor(3.99);` // = 3 - rounded down
 - `Math.sin(0);` // = 0 - sine
 - `Math.cos(Math.PI);` // OTHERS: `tan, atan, asin, acos,`
 - `Math.min(0, 3, -2, 2);` // = -2 - the lowest value
 - `Math.max(0, 3, -2, 2);` // = 3 - the highest value
 - `Math.log(1);` // = 0 natural logarithm
 - `Math.exp(1);` // = 2.7182 `pow(E,x)`
 - `Math.random();` // random number between 0 and 1
 - `Math.floor(Math.random() * 5) + 1;` // random integer, from 1
- <http://htmlcheatsheet.com/js/>