CSCI 3308 – Software Development Methods and Tools

University of Colorado Boulder

Reminders

Topics

- JavaScript

JavaScript

- One of the most popular languages in the world

- Shorter reference is **JS**

- Not the same as Java

- Can be used on client-side and server-side

  - Client side – embedded within HTML, executed by browser

  - Server side – embedded within server-side scripts, executed by the web server

What is the DOM?

- DOM stands for Document Object Model

```
<!DOCTYPE html>

<html>

    <head>

        <title>My Title</title>

    </head>

    <body>

        <a href="">My Link</a>

        <h1>My Header</h1>

    </body>

</html>
```
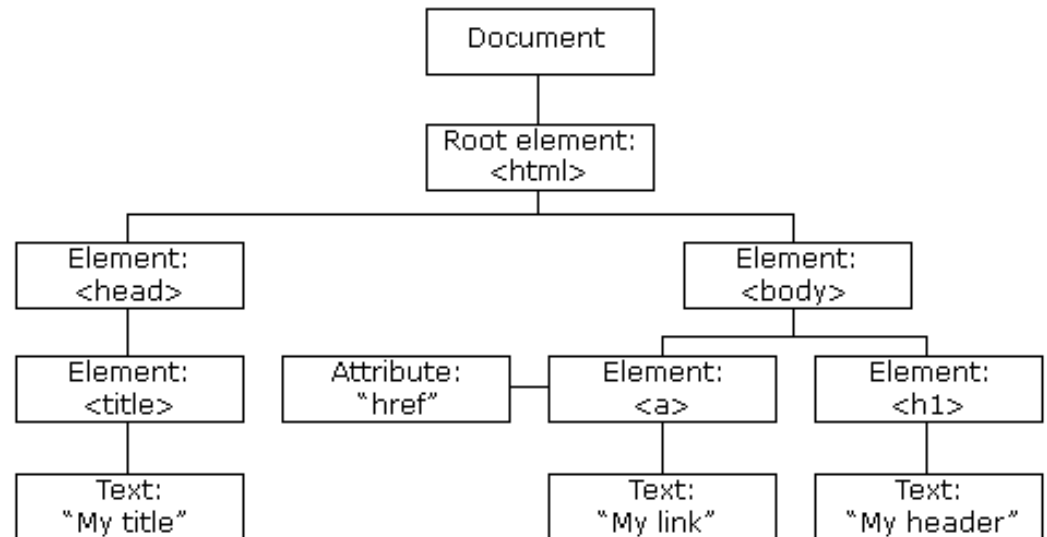
What is the DOM?

- Remember, a web page is a document!

- The browser creates a DOM when the page is loaded

- Each node is an object representing a part of the document

- The HTML DOM provides an interface (API) to traverse and modify the nodes

  - E.g. getElementById or removeChild

- Use JavaScript to manipulate the DOM!

Example

- getElementById()
- Consider using JSFiddle!
    - https://jsfiddle.net/

JS Syntax

- **You can use single or double quotes**
  - "This isn't fair"
  - 'He said "This isn\'t fair "

- **Variables – string or numeric or Boolean**
  - Defined by var
  - Variable name begins with a letter, $, or _
  - Case sensitive
    - *"Value" does not equal "value"*
  - JS programmers usually use camelCaps

Variables

- var firstName = 'Sreesha';
- var lastName = 'Nath';
- var fullName = firstName + ' ' + lastName
- var isInstructor = true;
- var score = 0;
- score = 50;
- score = score + 10;
- score += 10; (adds value on right to variable on left)
- var name = 'Sreesha';
- var message = 'Hey';
- message = message + ' ' + name;
- message += ' ' + name;

If-Else Statements

```
if(expression) {
    // action
}
else {
    // action
}
```

Example 2

- Variables, if-else, and getElementById

Arrays – Example 1

```
var days = ['Mon', 'Tue', 'Wed', 'Thu', 'Fri'];
alert (days[0]);

document.write('<p>');
document.write(days[2]);
document.write('</p>');

var i = 0;
while (i < 5) {
   document.write('<p>');
   document.write(days[i]);
   document.write('</p>');
   i += 1;
}
```

Arrays – Example 2

```
<input type="text" id="digit0" size="1" maxlength="1" />
…
<input type="text" id="digit4" size="1" maxlength="1" />

var userDigits = [];
userDigits[0] = document.getElementById("digit0").value;
…
userDigits[4] = document.getElementById("digit4").value;

for(var j=0; j<5; j++)
{
   // do something
}
```

Functions

```
function printToday() {
    var today = new Date();
    document.write(today.toDateString());
}

<h1>Using Functions</h1>
<p>Today is
    <script>
        printToday();
    </script>
</p>
```

Client-side Events

- onchange - an HTML element has been changed
- onclick – the user clicks an HTML element
- onmouseover – the user moves the mouse over an HTML element
- onmouseout – the user moves the mouse away from an HTML element
- onkeydown – the user pushes a keyboard key
- onload – the browser has finished loading the page

Example 3

- Client-side events

Using JS to Change CSS

- document.body.style.backgroundColor = "red";

- To change the style of a specific element using its id:

<h1 id="h">This is a sample h1</h1>

```
<script>
  document.getElementById("h").style.backgroundColor = "green";
</script>
```

Questions