

INTRODUCTION TO JAVASCRIPT

Lecture 4, Week 4

LAST WEEK

- ❑ HTML FUNDAMENTALS PRACTICAL
- ❑ HTML IMAGES, TABLES & FORMS PRACTICAL
- ❑ CSS FUNDAMENTALS PRACTICAL
- ❑ RESPONSIVE WEB DESIGN PRACTICAL

TODAY

- ❑ How JavaScript can change and update both HTML and CSS
- ❑ How JavaScript can calculate, manipulate and update data
- ❑ HTML DOM (Document Object Model)

JAVASCRIPT

JavaScript is the Programming Language for the Web. It is used to program the behavior of web pages.

WHAT CAN JAVASCRIPT DO?

- ❑ Javascript can change HTML Content
- ❑ JavaScript can change HTML Attribute Values
- ❑ JavaScript can hide and show HTML Elements
- ❑ JavaScript can change HTML Styles (CSS)

HTML DOM (DOCUMENT OBJECT MODEL)

The HTML DOM is an Object Model for HTML. It defines the HTML elements as objects.

FINDING HTML ELEMENTS

When you want to access HTML elements with JavaScript, you have to find the elements first.

There are a couple of ways to do this but the most common one is:

- Finding HTML elements by id
`document.getElementById ("demo")`

JavaScript Can Change HTML Content

One of many JavaScript HTML methods is `getElementById()`.

The example below "finds" an HTML element (with id="demo"), and changes the element content (innerHTML) to "Hello JavaScript":

```
document.getElementById("demo").innerHTML = "Hello  
JavaScript";
```

JavaScript Can Change HTML Attribute Values

In this example JavaScript changes the value of the `src` (source) attribute of an `` tag:

```
document.getElementById('myImage').src='pic_bulboff.gif'
```

JavaScript Can Change HTML Styles (CSS)

Changing the style of an HTML element, is a variant of changing an HTML attribute:

```
document.getElementById("demo").style.fontSize = "35px";
```

JavaScript Can Hide HTML Elements

Hiding HTML elements can be done by changing the `display` style:

```
document.getElementById("demo").style.display = "none";
```

JavaScript Can Show HTML Elements

Showing hidden HTML elements can also be done by changing the `display` style:

```
document.getElementById("demo").style.display = "block";
```

How To Add JavaScript to HTML

In HTML, JavaScript code is inserted between `<script>` and `</script>` tags.

1. You can add JavaScript code to html by adding a script element inside the head element and inserting your JavaScript code inside the script element:

```
<script></script>
```

2. You can also add an external javascript code to html code. This can be done by inserting the script element just before the closing body tag.

Note that the script tag will have to take the attribute of src, and then the src value will be the path or url of where the external JavaScript file is located.

Examples

Create a web page and use JavaScript to do the following:

1. Change the Content of an HTML Element when a button is clicked.
2. Change the src attribute values of an image Element when a button is clicked.
3. Change the background color of your web page when the a button is clicked.
4. Hide an HTML element when a button is clicked.
5. Show an hidden HTML element when a button is clicked.

Solution

index.html

```
<> index.html ×  
  
index.html > html > head  
1  <!DOCTYPE html>  
2  <html lang="en">  
3    <head>  
4      <meta charset="UTF-8" />  
5      <meta name="viewport" content="width=device-width, initial-scale=1.0"  
6      <title>Document</title>  
7    </head>  
8    <body id="body">  
9      <p id="demo">OMG</p>  
10     Change Content</button>  
15     <button id="change-img">Change Image</button>  
16     <button id="change-background">Change Background</button>  
17     <button id="hide-element">Hide Element</button>  
18     <button id="show-element">Show Element</button>  
19     <script src="index.js"></script>  
20   </body>  
21 </html>  
22
```

index.js

```
JS index.js > ...  
1 function changeContent() {  
2     document.getElementById("demo").innerHTML = "Yo!"  
3 }  
4  
5 function changeImgSrc() {  
6     document.getElementById("img").src = "https://scontent.flos1-1.fna.fbcdn.net/v/t39.30808-6/37106944_320748288293697_243875283_n.jpg?_nc_cat=1&ccb=1-1&oh=fecf1d5eefc7ebcfcc39be832bbf206b&oeq=0"  
7 }  
8  
9 function changeBackground() {  
10    document.getElementById("body").style.backgroundColor = "blue"  
11 }  
12  
13 function hideElement() {  
14    document.getElementById("demo").style.display = "none"  
15 }  
16  
17 function showElement() {  
18    document.getElementById("demo").style.display = "block"  
19 }  
20  
21 document.getElementById("change-content").onclick = changeContent;  
22 document.getElementById("change-img").onclick = changeImgSrc;  
23 document.getElementById("change-background").onclick = changeBackground;  
24 document.getElementById("hide-element").onclick = hideElement;  
25 document.getElementById("show-element").onclick = showElement;
```

Exercise

Create a simple web page that has 2 headings, 2 paragraphs, 2 images and 5 buttons.

Give each of the HTML elements you added a unique id and a unique class.

Add a javascript file to your web page.

Use JavaScript to do the following:

1. Change the Content of your paragraphs when the first button is clicked.
2. Change the src attribute values of your images when the second button is clicked.
3. Change the background color of your web page when the third button is clicked.
4. Hide the headings when the fourth button is clicked.
5. Show the headings when the fifth button is clicked.

Assignment.

Read up on the following and write short notes on them:

1. JavaScript statements
https://www.w3schools.com/js/js_statements.asp
2. JavaScript syntax
https://www.w3schools.com/js/js_syntax.asp
3. JavaScript comments
https://www.w3schools.com/js/js_comments.asp
4. JavaScript variables
https://www.w3schools.com/js/js_variables.asp