JavaScript III

Scripting, Event handling and DOM

Objective

- The Script Element in HTML

- Functions in JS (intro)

- Function Declaration (Creating Functions)

- Calling a Function

- Events

- JavaScript Functions as Events Handlers

- Built - in JavaScript Methods

- Scopes

The Script Element

- The HTML `<script>` element is used to embed or reference executable code like JavaScript

- The browser will execute the JavaScript statements in the `<script>` element as the page is loading

- You can insert JavaScript directly into the `<script>` element of the HTML page

- Or you can put the JavaScript in an external JavaScript file and link to that file in the `<script>` element

Introduction to Functions in JavaScript

- **Function**: a unit/block of code that contains all the instructions needed to complete a specific task
  - User-defined
  - Built-in

Creating your own Functions: Function Declaration

❖ Easiest method of declaring a function:

```
function doubleNumber(number) {
    return number * 2;
}
```

❖ General syntax of a function in JavaScript:

```
function                 functionName(parameters){
                                    statements;
    return (expression);
}
```

Calling a Function

- You call a function by using the function's name followed by the values you would like to pass to the parameters within parentheses. The values that you pass to the function are referred to as arguments.
- Example:

```
let doubleTen = doubleNumber(10);
```

Events

❖ Event: an action that occurs that your program responds to

```
element.addEventListener("click", function(){ alert("Hello World!"); });


element.addEventListener("click", myFunction);


function myFunction() {
    alert ("Hello World!");
}
```

Event	Description
Event	**Description**
onchange	Some html element has been modified
onclick	An html element has been clicked on
onmouseover	An html element was hovered over
onmouseout	Mouse cursor moves off html element
onkeydown	A keyboard button is pressed
onload	The html page has finished loading

JavaScript Functions as Events Handlers

❖ JavaScript is often used to handle events that occur on a website.

❖ To do this, identify the DOM event and specify the name of the JavaScript function you want to call when the event is triggered

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JavaScript Functions as Events Handlers

```
<!DOCTYPE html>
<html>

<head>                                          Link to external JavaScript file
    <script type="text/javascript" src="example.js"></script>
</head>

<body>
    <button onclick="closeDoc()">Exit</button>
</body>
</html>
         HTML event         Call to function called CloseDoc found in example.js (see <script>)
```

Built-in JavaScript Methods

❖ Commonly used built-in methods:

Method	Description
document.createElement('tag');	Creates an element with the given tag name. E.g. document.createElement('p') would create a <p> element.
document.getElementById('id');z	Returns an object reference to the identified element. For example if you had a <div> element for which you had set the id attribute of that element to 'myDiv' and you called document.getElementById('myDiv') that <div> element would be returned.
element.appendChild(aChild);	Nests an element to another element. See "Example 3" for more information.

Resources

- https://www.w3resource.com/javascript-exercises/javascript-functions-exercises.php

- https://www.w3resource.com/javascript-exercises/javascript-dom-exercises.php

- https://cs.lmu.edu/~ray/notes/javascriptfunctions/

Summary

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- Calling a Function

- Events

- JavaScript Functions as Events Handlers

- Built - in JavaScript Methods

- Scopes