JavaScript Lecture 1

Code Girls 2020-21

What is JavaScript?

- Brings action to a website
- Can change HTML elements and style
- Overall a more interactive website

Adding JavaScript to an HTML file

- Like CSS, but a little different
- Internal JavaScript
  - Uses **<script>** tag
  - Can be in the head or body
- External JavaScript
  - <script> in head or body with src

```
55
56      <div class="one-third">
57
58          <h2>Date and Time:</h2>
59
60          <script type="text/javascript">
61
62          </script>
63
64      </div><!-- end 1/3 column -->
65
```

```
1   <!DOCTYPE html>
2   <html>
3   <head>
4   <title>Mi segundo guión</title>
5   <script type="text/javascript" src="guion-externo.js">
6   </script>
7   </head>
8   <body>
9       <h1 id="mensajeHola"></h1>
10  </body>
11  </html>
```

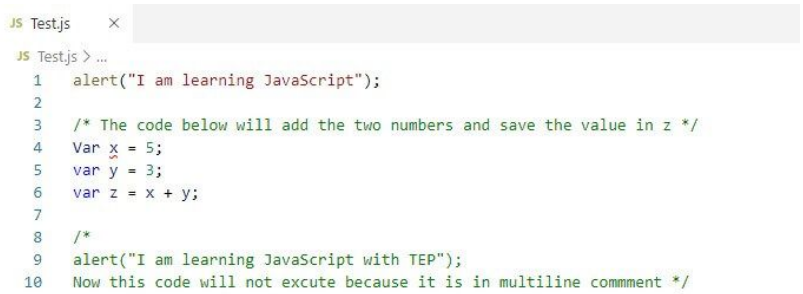
Output

Ways to display output

- Where id gets useful!
- **innerHTML**
  - Defines an HTML element
  - document.getElementById("example").innerHTML
- **document.write()**
  - Good for testing
  - Deletes HTML if used after HTML document is already loaded
- **window.alert()**
  - Pop up
  - Window keyword optional

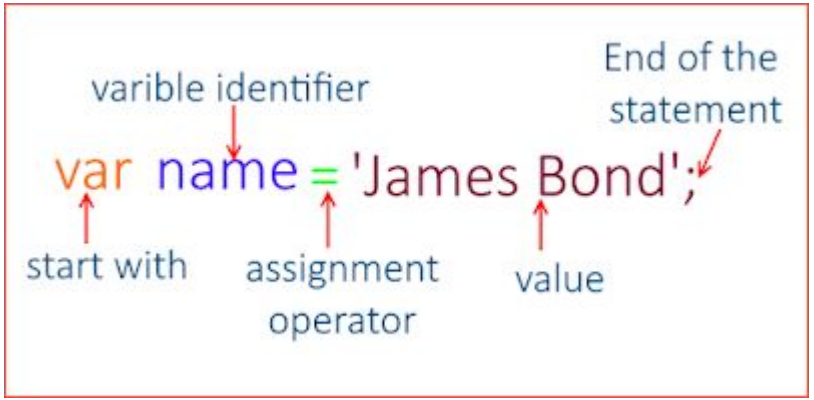
Syntax and Comments

- Kind of like Java
- A statement is each individual “instruction” for the computer
  - Statements all end in semicolons **;**
- Case sensitive
- No hyphens, only for subtraction
- Keywords
  - Actions for the computer to perform
  - var, function, return, for, while, etc.
- Comments
  - Single line: //
  - Multi-line /* */



Variables and Operators

- Store data values, unique names
- Assignment operator (=)
- Declaring a variable
  - **var** name;
  - var name = value, name2 = value2, name3 = value3;
- If not given a value afterward, it will be **undefined**
- Normal arithmetic operators
  - +, -, *, /, **, %, **++**, **--**
- Concatenation
  - also +
- Boolean (==, !=, >, <, &&, ||, !)



Data Types

- Numbers, strings, objects, and more
- Concatenation and addition both use +
  - Treats numbers as a string
- Data Types are dynamic
  - Once declared, variable can change from a number to a string
- **typeof** operator
  - Returns the type of the JavaScript variable

Functions

- A block of code written to perform a task
- Only executed when invoked
- Syntax

```
function name(parameter1, parameter2, parameter3) {
  // code to be executed
}
```

- Function stops when it reaches the **return** keyword
- Invoke with function name and parentheses (ex. name())
- Local variables
    - Variables declared **inside** a function cannot be called **outside** the function

Events

- Events in HTML are things that happen to elements
  - Web page loads, input field changes, button clicked, etc.
- JavaScript can create reactions to those events
- <element event="put some JavaScript"></element>
- Some common HTML events
  - onchange
  - onclick
  - onmouseover
  - onmouseout
  - onkeydown
  - onload

Strings and String Methods

- Words!
- Have a built in **length** property
  - variable.length
  - Returns a number
- Escape characters
  - \', \", \\
  - \n, \t
- String methods! (built in functions)
  - indexOf(str) and lastIndexOf(str)
  - slice(start, end), substring(start, end), substr(start, length)
    - Index starts from 0
  - replace(str1, str2)
    - Case insensitive use /word/i
  - toUpperCase(), toLowerCase()
  - And more!

Numbers and Number Methods

- Will try to convert strings to numbers in arithmetic operations that are not addition
    - If not possible, will result in NaN (not a number) error
- Will use hexadecimal if 0x in the beginning
- toString()
    - Converts number to its correlating string value
- Number(), parseFloat(), parseInt()
    - Converting other data types to numbers

```
Number(true);          // returns 1
Number(false);         // returns 0
Number("10");          // returns 10
Number("  10");        // returns 10
Number("10  ");        // returns 10
Number(" 10  ");       // returns 10
Number("10.33");       // returns 10.33
Number("10,33");       // returns NaN
Number("10 33");       // returns NaN
Number("John");        // returns NaN
```

Date

- Useful for websites
- **var d = new Date();**
  - Creates object with the **current** date and time
- Default output
  - Wed Dec 09 2020 23:27:54 GMT-0500 (Eastern Standard Time)
- Date()
- Date(year, month, day, hours, minutes, seconds, milliseconds)
- Date(milliseconds)
  - From January 01 1970
- Date(date string)
- Display methods
  - toString()
  - toUTCString()
  - toISOString()

Date Get Methods

Method	Description
getFullYear()	Get the **year** as a four digit number (yyyy)
getMonth()	Get the **month** as a number (0-11)
getDate()	Get the **day** as a number (1-31)
getHours()	Get the **hour** (0-23)
getMinutes()	Get the **minute** (0-59)
getSeconds()	Get the **second** (0-59)
getMilliseconds()	Get the **millisecond** (0-999)
getTime()	Get the time (milliseconds since January 1, 1970)
getDay()	Get the weekday as a number (0-6)
Date.now()	Get the time. ECMAScript 5.

Acknowledgments

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