

INTRODUCTION TO JAVASCRIPT, ES5, HTML DOM

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Lecture 4, Week 4

LAST TIME

- ❑ How CSS describes the elements displayed by HTML
- ❑ How HTML and CSS can help make a website look good on all devices (desktops, tablets, and phones)
- ❑ How to customize and use icons during web design

TODAY

- ❑ How JavaScript can change and update both HTML and CSS
- ❑ How JavaScript can calculate, manipulate and update data
- ❑ ES5 features
- ❑ 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)

JAVASCRIPT VARIABLES

JavaScript variables are containers for storing data values. Numbers, string, objects, arrays In this example, x, y, and z, are variables

JavaScript Numbers: JavaScript has only one type of number. Numbers can be written with or without decimals.

JavaScript Strings: Strings store text. Strings are written inside quotes. You can use single or double quotes:

JavaScript Objects: JavaScript variables are containers for data values.

JavaScript Arrays: JavaScript arrays are used to store multiple values in a single variable.

EXAMPLES:

HTML FILE (myhtml.html)

```
<!DOCTYPE html>

<html>
  <body>
    <h2>JavaScript Variables</h2>

    <p id="demo-1"></p>
    <p id="demo-2"></p>
    <p id="demo-3"></p>
```

```
<p id="demo-4"></p>

<script src="myjs.js"></script> <!--To connect javascript
file to html page>

</body>
</html>
```

JAVASCRIPT FILE (myjs.js)

```
var x = 5; //number
var y = 6;
var z = x + y;
var carName = "Volvo XC60"; //string
var car =
  { type: "Fiat",
    model: "500",
    color: "white"
  } //object
var cars = ["Saab", "Volvo", "BMW"]; //array


document.getElementById("demo-1").innerHTML = "The car
type is " + car.type;

document.getElementById("demo-2").innerHTML = carName1;

document.getElementById("demo-3").innerHTML = "The value of
z is: " + z;
document.getElementById("demo-4").innerHTML = cars;

document.getElementById("demo").style.fontSize =
"35px"; //to change HTML style.
document.getElementById("demo").style.display = "none"; //to
hide HTML content
document.getElementById("demo-4").style.display
= "block"; //to show HTML content
```

JAVASCRIPT FUNCTION SYNTAX

A JavaScript function is a block of code designed to perform a particular task. A function is executed when it is called. P1 and p2 are parameters in the function below.

```
<script>

function myFunction(p1, p2) {
  return p1 * p2;
}
document.getElementById("demo").innerHTML = myFunction(4,
3);//function is called

</script>
```

ECMAScript 5 Features

ECMAScript 5 is also known as JavaScript 5

These were the new features released in 2009:

- **String.trim()** removes whitespace from both sides of a string.
- **isArray()** method checks whether an object is an array.
- **forEach()** method calls a function once for each array element.
- **map()** method creates a new array by performing a function on each array element.
- **JSON.parse()** is used to convert the text into a JavaScript object
- **JSON.stringify()** is used to convert an object into a string.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript Array.isArray()</h2>

<p>Click the button to check if "fruits" is an array.</p>

<button onclick="myFunction()">Try it</button>
```

```
<p id="demo"></p>

<script>
function myFunction() {
  var fruits = ["Banana", "Orange", "Apple", "Mango"];
  var x = document.getElementById("demo");
  x.innerHTML = Array.isArray(fruits);
} // This returns true if variable is an array

</script>
</body>
</html>
```

HTML DOM (DOCUMENT OBJECT MODEL)

The HTML DOM is an Object Model for HTML. It defines:

- HTML elements as objects
- Properties for all HTML elements
- Methods for all HTML elements
- Events for all HTML elements

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:

- Finding HTML elements by id

```
document.getElementById("demo").innerHTML = "The car  
type is sienna;
```

- Finding HTML elements by tag name

```
document.getElementsByTagName("p").innerHTML = 100;
```

- Finding HTML elements by class name

```
document.getElementsByClassName("classname").style.color =  
"red";
```

- Finding HTML elements by CSS selectors

```
document.querySelectorAll("p").innerHTML = 100;
```