

JavaScript Introduction

Reference: Burdette, L. (2010). The JavaScript PocketGuide. PeachPit Press

Scripting Language

- High-level programming language typically used to manipulate some environment
- Typically interpreted instead of being compiled
- E.g. JavaScript, ASP, JSP, PHP, Perl, Tcl, Python

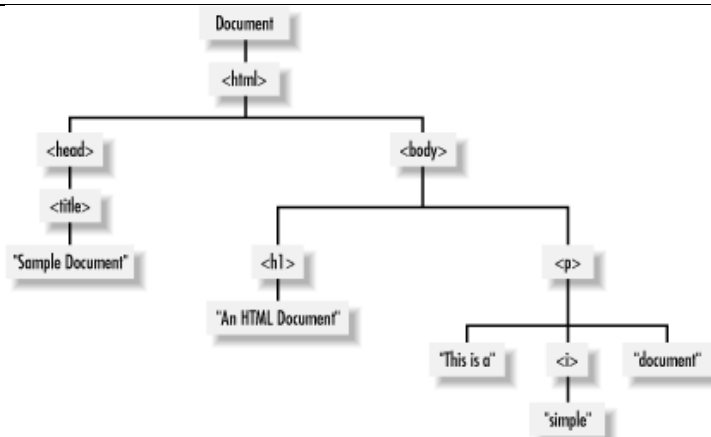
JavaScript

- Formal name: ECMAScript
- A general purpose scripting programming language
- Supports a number of paradigms
 - Object-orientation
 - Procedural
 - Functional
- Used to manipulate the DOM of HTML web pages
- C-based syntax (similar to Java)

DOM

- Document Object Model
- An API (application programming interface) for valid HTML documents
- It defines the in memory data structure of documents and the way a document is access and manipulated

```
<html>
  <head>
    <title>Sample Document</title>
  </head>
  <body>
    <h1>An HTML Document</h2>
    <p>This is a <i>simple</i> document.
  </body>
</html>
```



Retrieved from: <http://oreilly.com/catalog/jsript4/chapter/ch17.html> (Aug 28, 2014)

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Adding JavaScript to HTML

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf8" />
  <title>JavaScript 2</title>
  <script>
    console.log("Some JavaScript 1");
  </script>
  <script src="js1.js"></script>
</head>
<body>
  <script>
    console.log("Some JavaScript 2");
  </script>
  <script src="js2.js"></script>
</body>
</html>
```

```
js1.js
console.log("Some JavaScript 3");
```

```
js2.js
console.log("Some JavaScript 4");
```

Semicolons in JavaScript

- Optional – because JavaScript interpreters automatically insert them
- Best practice: always explicitly include semicolons

Identifiers

- Contains letters, digits, \$, and _, cannot start with a digit

Variable Declaration

- Declared using the var keyword
- E.g.

```
var taxRate;
```

Data

Data Value	Data Type
42	Number
"text" or 'text'	String
true or false	Boolean
[3, 12, 45]	Object (In this case, an "array" of numbers)
{ name: "Jeff", height: 5.9 }	Object
[1, "a", false, [1, 2, 3], { name: "Jeff" }]	Object (An "array" of differing data types)

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undefined	A variable that is declared without a value is undefined
null	Used to intentionally state that a variable has no value

Comparison

==	Equality	Compares values by converting to a common type
!=		
===	Identify	Compares values and types but does not convert to a common type
!==		

Truthiness and Falsiness

- Zero (0), null, undefined, and empty string values are all “falsey;” all other values is “truthy.”

Functions

- A logical grouping of statements that should perform a single cohesive task
- Can return values
- Is also a JavaScript data type.

```
// This function does not return a value
function sayHello(name) {
  console.log("Hello, " + name + "!");
}

// Calling the function
sayHello("Jeff");

// Defining a function accepts a single parameter and returns a value
function square(n) {
  return n * n;
}

// Calling the function
console.log(square(4));

// Assigning the function to another variable
var f = square;

// Calling the function
console.log(f(4));

console.log(typeof f);
```

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```
// Another way to define a function; using a function expression
var cube = function (n) {
  return n * n * n;
};

console.log(cube(3));
```