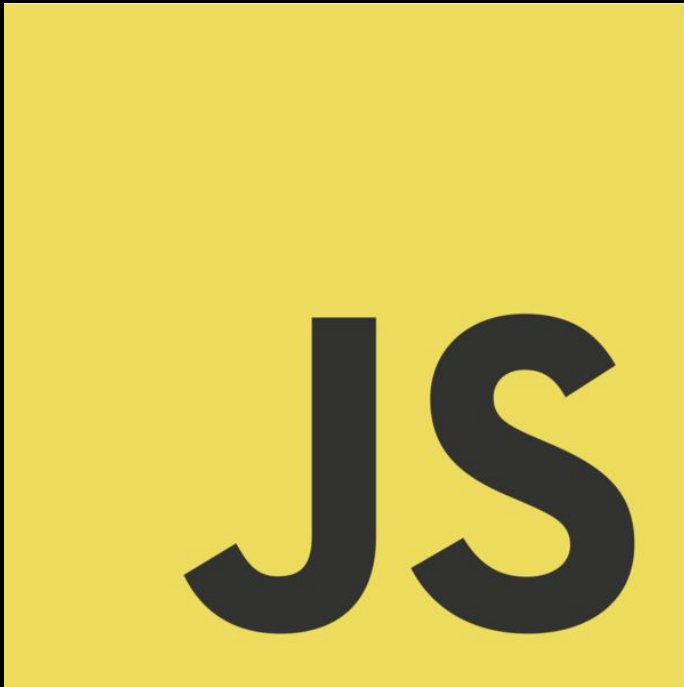


# JavaScript



"JavaScript is the best programming language currently in existence. Other people will try to tell you otherwise. They are wrong."

***Thomas MacWilliam***  
***Head Teaching Fellow, 2012***

# Hello World

**index.html:**

```
<!DOCTYPE html>
  <html>
    <head>
      <script type="text/javascript" src="hello.js">
      </script>
      <title>Hello, world!</title>
    </head>
    <body>
      Body HTML here
    </body>
  </html>
```

**hello.js:**

```
alert("Hello, world!");
```

# Hello World



## JavaScript Alert

Hello, world!

OK

# Variable Declarations

```
var s = "CS50";
```

```
var n = 3.14;
```

```
var b = true;
```

```
...
```

```
alert("Type of b: " + typeof(b));
```

```
b = "make b a string";
```

```
alert("Type of b: " + typeof(b));
```

# Loops

```
for(/* init */; /* condition*/; /* update */)
{
    /* code */
}
```

```
while(/* condition */)
{
    /* code */
}
```

```
do {
    /* code */
} while(/* condition */);
```

# Function Declarations

```
function sum(x, y)
{
    return x + y;
}
```

*/\* or \*/*

```
var sum = function(x, y)
{
    return x + y;
}
```

```
var sum = sum(3, 5);
alert("3 + 5 = " + sum);
```

# Arrays in JavaScript

```
var arr = [];
```

```
var arr2 = ["Arrays", "in", "JS"];  
var thirdElement = arr2[2];
```

```
var arr2len = arr2.length;
```

```
var arr3 = [2.3, true, 5];  
arr3[2] = "not a number";  
arr3[100] = "legit";
```

# Objects in JavaScript (1)

```
var emptyObject = {};
```

```
emptyObject["newProperty"] = "newValue";  
emptyObject.otherNewProperty =  
"otherNewValue";
```

```
alert(emptyObject.otherNewProperty);  
alert(emptyObject["otherNewProperty"]);
```



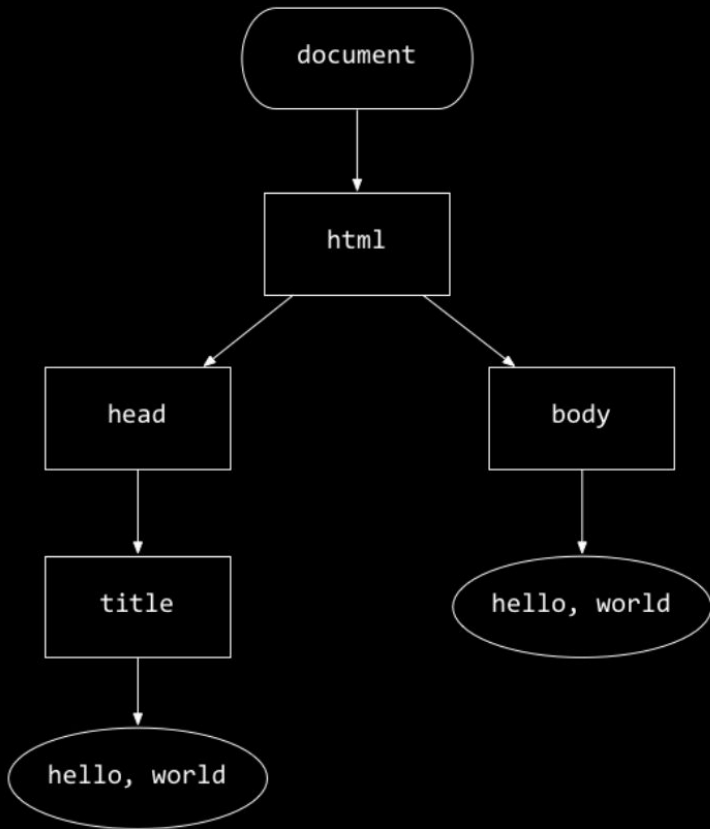
# Objects in JavaScript (2)

```
var CS50 = {  
  "course": "CS50",  
  "instructor": "David J. Malan '99",  
  "tfs": ["R.J.", "Ben", "Pat", "Chris"],  
  "psets": 8,  
  "taped": true  
};
```

# Objects in JavaScript (3)

```
var cottages = [  
  {name: "James", house: "Winthrop"},  
  {name: "Molly", house: "Cabot"},  
  {name: "Carl", house: "Kirkland"}  
];  
  
for(var i = 0; i < cottages.length; i++)  
{  
  alert(cottages[i].name);  
}
```

# DOM: Document-Object Model



```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>hello, world</title>
```

```
  </head>
```

```
  <body>
```

```
    hello, world
```

```
  </body>
```

```
</html>
```

# DOM: Document-Object Model (2)

## Examples

- `document.title`
- `document.body`
- `document.body.innerHTML`

## Useful Functions

- `document.getElementById(string)`
- `document.getElementsByClassName(string)`
- `document.getElementsByTagName(string)`

# JavaScript Events

```
window.onload = function() {  
  
    var searchButton =  
        document.getElementById("search_button");  
  
    searchButton.onclick = function() {  
        alert("You clicked the search button");  
    }  
}
```

