

ECS 89

5/21

Announcements

- We will accept late assignments up through Friday
- Begin working with Javascript
- Final project due Tues June 3
- Fool around with browser graphics (canvas)
- Online book! Eloquent Javascript, Second Edition (totally rewritten, do not use first edition).

Example with Button

```
<p id="demo">A Paragraph.</p>
<button type="button" onclick="myFunction()">Try it</button>
<script>
function myFunction() {
  var pgh = document.getElementById("demo");
  pgh.innerHTML = "Paragraph changed.";
}
</script>
```

- We could define the script anywhere, including in head

Javascript runs in the browser

- The code is run when the browser is rendering the page.
- In this case, it just defines a function, so nothing happens (the function is not run until it is called, just like Python)
- The function is run when the button is pushed
`onclick="myFunction()"`

Javascript vs Python

Javascript	Python
function	def
blocks in braces {}	blocks indented
statements end in ;	statements end with \n
variables declared with var	declaration is implicit
// comment	# comment
string.split()	string.split()
string.trim()	string.strip()

How do I do...?

- Chances are, a simple Python feature will have a corresponding Javascript feature; might be the same, might not

The Document Object Model (DOM)

- The HTML document shows up as an object in the Javascript program

```
document.getElementById("demo")
```

- This is a method of the document object, that finds the HTML element that has id="demo"

Changing the Web page

```
pgh.innerHTML
```

- innerHTML is an attribute of the object in pgh.
- It contains the string inside the paragraph. Changing it changes the contents of the paragraph.
- What happens when we reload the Web page?

Input checking example

```
<p>Please input a number:</p>
```

```
<input id="numb" type="text">
```

```
<button type="button" onclick="checkNumeric()">Click Me!</button>
```

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

```
<script>...</script>
```

- We have two labeled elements, numb and demo
- The button calls function checkNumeric()

Check for number

```
<script>
function checkNumeric() {
    var val = document.getElementById("numb").value;
    var elem = document.getElementById("demo");
    //If value is space or not a number
    if ((val.trim()=="" | isNaN(val)) {
        elem.innerHTML = "Not a Number";
    } else {
        elem.innerHTML = "Valid Number";
    }
}
</script>
```

Detail

- NaN stands for Not a Number
- isNaN checks a string to see if it can be cast to a number - great feature.

Javascript numbers

- Not totally like Python
- Everything is a float, although it may be written differently; there are no integers
- Casting is automatic! We did not have to convert.
- This can lead to some interesting behavior, ie:

```
var a = 5 * "2.0"
// a = 10
var b = 5 + "2.0"
// b = "52.0"
```