

**HTML, CSS, JavaScript,  
jQuery**

# Yesterday we learned JavaScript

- JavaScript is a programming language
- Used for both
  - client-side: DOM manipulation, runs in your browser
  - server-side: Node.js

# HTML DOM

- Document Object Model: tree of objects
- platform and language-neutral interface for how to get, change, add, or delete HTML elements
- [http://www.w3schools.com/js/js\\_htmlDOM.asp](http://www.w3schools.com/js/js_htmlDOM.asp)

# DOM Tree Traversal (1)

- everything is a node
- root node
- parent
- children, firstChild, lastChild
- siblings

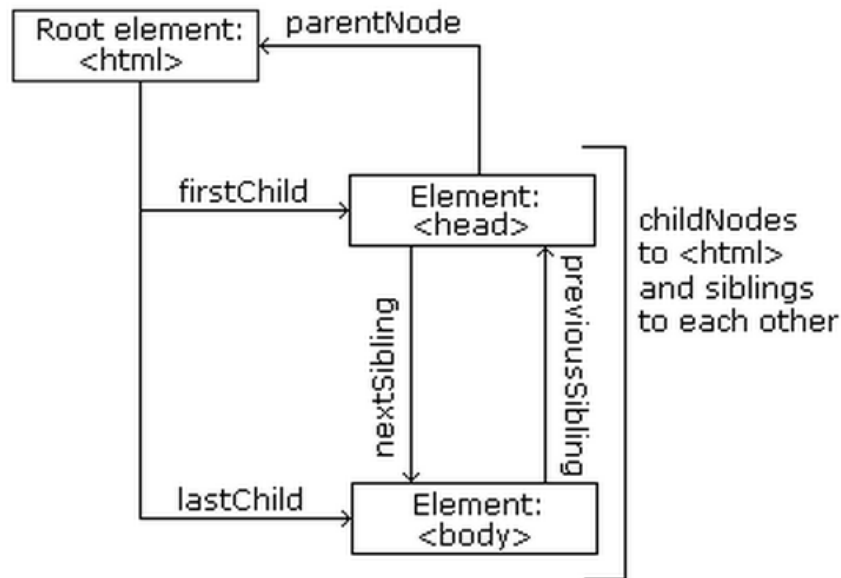
# DOM Tree Traversal (2)

```
<html>

  <head>
    <title>DOM Tutorial</title>
  </head>

  <body>
    <h1>DOM Lesson one</h1>
    <p>Hello world!</p>
  </body>

</html>
```



# JavaScript + DOM: selection, traversal

(1) Find elements, traverse the DOM tree

```
document.getElementsByTagName("body")
```

```
document.getElementsByTagName("body")[0].children
```

# JavaScript + DOM: manipulation

## (2) Manipulate elements

```
document.getElementsByClassName("foo")[0].innerHTML = "new text!"  
document.getElementsByTagName("body")[0].style.color = red
```

# JavaScript + DOM: events

## (2) Add event handlers to elements

```
document.getElementsByTagName("body")[0].onclick = function() {  
    console.log("you just clicked body!") }  
}
```

Event handlers: [http://www.w3schools.com/jsref/dom\\_obj\\_event.asp](http://www.w3schools.com/jsref/dom_obj_event.asp)



# jQuery

- JavaScript library that makes DOM manipulation much easier :)
- <http://api.jquery.com/>

# jQuery + DOM: selection, traversal (1)

(1) Find elements, traverse the DOM tree

selectors are same as in CSS:

`$('#idname')` // select element with the given id  
`$('classname')` // select all elements with given class  
`$('div')` // select all divs

# jQuery + DOM: selection, traversal (2)

*JavaScript:*

```
document.getElementsByTagName("body")
```

```
document.getElementsByTagName("body")[0].children
```

**jQuery:**

```
$("body")
```

```
$("body").children
```

<http://api.jquery.com/category/traversing/tree-traversal/>

# jQuery + DOM: manipulation

## (2) Manipulate elements

*JavaScript:*

```
document.getElementsByClassName("foo")[0].innerHTML = "new text!"
```

```
document.getElementsByTagName("body")[0].style.color = red
```

**jQuery:**

```
$(".foo").html("new text!")
```

```
$("body").css("color","red")
```

<http://api.jquery.com/category/manipulation/dom-insertion-inside/>

# jQuery + DOM: events

## (2) Add event handlers to elements

*JavaScript:*

```
document.getElementsByTagName("body")[0].onclick = function() {  
    console.log("you just clicked body!") }
```

**jQuery:**

```
$("#body").click(function() {  
    console.log("you just clicked body!")  
})
```

<http://api.jquery.com/category/events/>

# jQuery + DOM: special effects

```
$("#body").fadeOut()
```

<http://api.jquery.com/category/effects/>

# Form Validation

**Problem:** You want to make a sign up form for your new web application. How do we help users correctly input their information?

*UI/UX*

*HTML, CSS, JavaScript*

# Problem Conditions

We need:

Username

Age

Email

All fields are required. User cannot submit form until all fields are correctly filled out.



# Example Forms

google.com

tumblr.com

- how to check if a username is already taken?
- how to check if an email address is valid?

# When do we validate?

- 1) client-side
  - a) after clicking “submit”
  - b) immediate (after leaving a field)
- 2) server-side
  - a) after clicking “submit”
  - b) immediate (AJAX)

# Field Rules

Username: 4-20 characters long

Age: number,  $\geq 0$

Email: needs to be an email address (what does this mean?)

use jQuery event handlers,

validate each field BEFORE user needs to press “submit”

**ask yourself:**

when do i want to validate a rule?

when do i add error style? when do i remove error style?

# Questions to ask

1. When do you want to validate each rule?
2. When do you want to add “error styling” and when do you want to remove “error styling”?
3. When do you want the “submit” button to be enabled and disabled?

# Code

- Add these lines in <head> of form.html:

```
<script type="text/javascript" src="./jquery-1.11.2.min.js"
></script>
```

```
<script type="text/javascript" src="./form.js"></script>
```

```
<link rel="stylesheet" type="text/css" href="./form.css" />
```

Now add your JavaScript code to form.js.