ITMD 465/565
Rich Internet Applications

Lecture 8

Fall 2019 – October 9, 2019

Tonight's Agenda

- Discuss Midterm

- NodeJS project setup

- Quick jQuery Introduction

- HTML5 APIs Introduction

NodeJS

JavaScript on the "Server"

Node Project Setup

- Go over basics of creating node based projects

- npm init to initialize projects

- npm install to install local node modules to your project

- --save to save dependency to package.json - defaults to this without flag now

- --save-dev to save dependency as a development dependency

- npx will run local project binaries in the node_modules folder

- There is an alternative package manager called yarn that many people use instead of npm. It was created by Facebook to enhance npm. Npm has now adopted many of the things yarn introduced. Fully compatible with npm.

jQuery

jQuery

- Makes our life easier working with the DOM and historically across browser

- A small library that is very powerful. It seeks to fill gaps in the browser JavaScript api and make things more uniform across browser vendors.

- "It makes things like HTML document traversal and manipulation, event handling, animation, and ajax much simpler with an easy-to-use API that works the same across browsers"

- http://api.jquery.com

jQuery

- The effect of including the jQuery library into your site/application
    - Creation of a global jQuery object/namespace
    - Aliasing of that object to $

- There are some other libraries that use the $ alias. JQuery does have a no-conflict mode. You can always use jQuery if you like.

- We can modify our namespace code to protect the $ definition

```
(function($){

// Use $ alias here all we want

})(jQuery);
```

jQuery Document Ready

- jQuery provides a nice way of preventing our JS from running until the document is ready to be manipulated.

- Function to wait until the DOM is ready to run the enclosed code. Most jQuery JavaScript will be inside one of these. Also protects the namespace.

```
$(document).ready(function(){

        // Your code here

});
```

- Can protect the $ alias here too

```
jQuery(document).ready(function($){

        // Your code here with $ alias

});
```

```
Or

$(function(){
    // code here
});
```

Non-jQuery alternative to document ready

- jQuery provides a nice way of preventing our JS from running until the document is ready to be manipulated.

- This allows us to put our script anywhere and not have to worry if elements in the page have rendered yet. The script will wait until the page is ready.

- But what if you don't want to use jQuery just for this. There is a plain JS alternative that is supported in all modern browsers and ie >= 9.

- DOMContentLoaded Event

- https://developer.mozilla.org/en-US/docs/Web/Events/DOMContentLoaded

```
document.addEventListener("DOMContentLoaded", function(){
     // your code here will run when DOM fully parsed
});
```

Start with the selector

- Built to act like CSS Selectors
  - .classname
  - #id
  - .classname:psudo
  - :type
  - And more

- Can be used for hierarchal selection

- $("#theId") $(".classname")
  $(".class1 .class2") $(".classname p")

- Returns a jQuery object not a plain DOM object

- https://api.jquery.com/category/selectors/

jQuery Events

- jQuery offers us an easier way to manage events

- Simple click event becomes

```
$(”#button-container button”).on(“click”, function(event){
        // Do something on click
        $(this).fadeOut();
});
```

Or even simpler for click

```
$(”#button-container button”).click(function(event){
        // Do something on click
});
```

Creating Elements

- You can create elements by passing a string of html to the jQuery function instead of a selector.

```
var elem = $("<div>Hello!</div>");
```

- http://api.jquery.com/jquery/#jQuery2

- Use .html() to get or set inner html of a jQuery object

- http://api.jquery.com/html/

Loops

- jQuery makes it easy to loop through a list of selected items

```
$("selector").each(function(){

        //Iterate through lists

});
```

- $(this) selector will reference the current jQuery object in loop

- http://api.jquery.com/each/

AJAX

- jQuery makes AJAX request simpler
- Newer versions of jQuery implement the JavaScript promise interface so be careful of older examples. They still work but may not in future versions.
- http://api.jquery.com/jQuery.ajax/

```
var jqxhr = $.ajax( "example.php" ).done(function() {
    alert( "success" );
});
```

Assignments

Reading/Assignments

- Midterm Exam – In Blackboard, **must** take by 11:59pm Chicago time Tuesday October 15. Once you start the exam a 2 hour timer will start. Do not start the exam if you can not dedicate up to 2 hours for it. I will not reset exam timers. Test will be available as soon as class is over.

- Please try to make a basic node project like demonstrated in class to make sure your node installation is working correctly.

- Lab 4 will be coming soon