Web Programming (CSci 130)

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Learning outcomes

- Another API…

- jQuery
  - What is it?
    - A fast, small, and feature-rich JavaScript library
      - "**write less, do more**"
  - What is it for?
    - To simplify Javascript programming
  - How to use it?
    - Easy to understand with examples ☺

Introduction

- **DOM manipulation**
  - ➢**Goal**:
    - o How to access a node and modify or retrieve its content.
      - For the creation of dynamic website
  - ➢DOM in basic Javascript
    - o Not so simple?
      - Syntax
      - Amount of code to write
      - → to get something more simple
        - E.g. Assign a function to all the nodes of a particular type
  - ➢jQuery is here to **help** you
    - o To **simplify** DOM manipulation
    - o HTML document traversal and manipulation easier to use

Introduction

- Parser
  - HTML
    - Many possibilities:
    - https://en.wikipedia.org/wiki/Comparison_of_HTML_parsers
    - You can create your own
  - XML
    - Xerces: http://xerces.apache.org/xerces-c/index.html
- You can create your own "jQuery"
  - UmbrellaJS
    - Small library for DOM manipulation
      - https://umbrellajs.com/

Syntax and structure

- How to assign an element to an event
  - ➢ $(selector).action()
    - ○ $(selector)
      - To select *selector* element(s)
      - To assign it to an event called .action()
  - ➢ jQuery statement
    - ○ Starts with $
    - ○ Ends with ;

Syntax and structure

- Syntax
  - $(selector).action()
  - $
    - to define/access jQuery
  - (selector)
    - "query (or find)" HTML elements (by their ID)
  - action()
    - to be performed on the element(s)
- Examples:
  - $(this).hide() : hides the current element. (this = current object (like in C++))
  - $("p").hide() : hides all <p> elements.
  - $(".test").hide(): hides all elements with class="test".
  - $("#test").hide(): hides the element with id="test".
- Same syntax as in HTML/CSS when you set the selectors ! ☺

What to add in the code

- Code to insert in HTML
  - Example
    - In the head:
    - `<script src="jquery-3.2.1.min.js"></script>`
    - `<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>`
    - `<script src="https://ajax.aspnetcdn.com/ajax/jQuery/jquery-3.2.1.min.js"></script>`

Hello world in jQuery

- Example

```html
<!DOCTYPE html>
<html>
<head>
    <meta charset="utf-8">
    <title>jQuery Document Ready Demo</title>
    <link rel="stylesheet" type="text/css" href="/examples/css/style.css">
    <script src="https://code.jquery.com/jquery-1.12.4.min.js"></script>
    <script type="text/javascript">
        $(document).ready(function(){
            $("p").text("Hello World!");
        });
    </script>
</head>
<body>
    <p>Not loaded yet.</p>
</body>
</html>
```

jQuery and Javascript

- See examples on Canvas
  - Differences between regular Javascript and jQuery
    - It does the same thing!!!
  - File: Jquery_and_javascript.js

Selectors (similarities with CSS)

- $("*"): Selects all elements
- $(this): Selects the current HTML element
- $("p.intro"): Selects all <p> elements with class="intro"
- $("p:first"): Selects the first <p> element
- $("ul li:first"): Selects the first <li> element of the first
- $("ul li:first-child"): Selects the first <li> element of every
- $("[href]"): Selects all elements with an href attribute
- $("a[target='_blank']"): Selects all <a> elements with a target attribute value = to "_blank"
- $("a[target!='_blank']"): Selects all <a> elements with a target attribute value NOT = to "_blank"
- $(":button"): Selects all <button> elements and <input> elements of type="button"
- $("tr:even"): Selects all even <tr> elements
- $("tr:odd"): Selects all odd <tr> elements

Attributes (1)

- **.addClass()**
  - Adds the specified class(es) to each element in the set of matched elements.

- **.attr()**
  - Get the value of an attribute for the first element in the set of matched elements or set one or more attributes for every matched element.

- **.hasClass()**
  - Determine whether any of the matched elements are assigned the given class.

- **.html()**
  - Get the HTML contents of the first element in the set of matched elements or set the HTML contents of every matched element.

- **.prop()**
  - Get the value of a property for the first element in the set of matched elements or set one or more properties for every matched element.

Attributes (2)

- **.removeAttr()**
  - ➤ Remove an attribute from each element in the set of matched elements.

- **.removeClass()**
  - ➤ Remove a single class, multiple classes, or all classes from each element in the set of matched elements.

- **.removeProp()**
  - ➤ Remove a property for the set of matched elements.

- **.toggleClass()**
  - ➤ Add or remove one or more classes from each element in the set of matched elements, depending on either the class's presence or the value of the state argument.

- **.val()**
  - ➤ Get the current value of the first element in the set of matched elements or set the value of every matched element.

Examples

- See files for each example on Canvas…
  - ➢ jquery_examples.zip
    - ○ Download and unzip in your personal folder to see all the examples
      - **Good practice**:
        - Put additional comments in the code to be sure you understand how it works
        - Use some elements in your project or personal website
        - Even if it is offline, it can be a way to manage/display relevant data

Examples

- DOM → tree
  - ➢ jQuery helps to navigate through the tree
  - ➢ To access a node (e.g. ID) or a set of nodes (e.g. class)
    - o Change properties
    - o Assign a particular behavior
- From the official jQuery website
  - ➢ See the different files…
  - ➢ FOR YOU TO DO
    - o How to take notes in CS →
      - • Go on the website, save the examples, add YOUR OWN comments
      - • Keep the examples as guideline

Conclusion

- jQuery
  - Only a limited number of functionalities were presented !
    - Many functions that can be used to manipulate HTML content
  - Powerful API (and just an API)
    - With many functions
    - Do not reinvent the wheel, search what is already available
- When we will see Ajax (exchange data with a server)
  - Connection between jQuery and Ajax
- Alternatives to jQuery
  - Prototype, Ext, Dojo toolkit, Mootools, …
- Don't just be a user of API, be a creator ☺