

# CSCE 120: Learning To Code

## Manipulating Data I Hacktivity 7.1

### Introduction

Prior to engaging in this hacktivity, you should have completed all of the pre-class activities as outlined in this module. At the start of class, you will be randomly assigned a partner to work with on the entirety of this hacktivity as a *peer programming* activity. Your instructor will inform you of your partner for this class.

One of you will be the driver and the other will take on the navigator role. Recall that a driver is in charge of the keyboard and computer while the navigator is in charge of the handout and directing the activity. However, you are *both* responsible for contributing and discussing solutions. If you were a driver/navigator in the prior activity, switch roles for this activity.

### jQuery Resources

- jQuery Online Cheat Sheet: <http://oscarotero.com/jquery/>
- jQuery Offline Cheat Sheet (see webpage)
- jQuery Documentation: <https://api.jquery.com/>

## 1 Knowledge Check

With your partner, discuss and answer each of the following questions. Write your answers down on a separate sheet of paper or type them up in a plain text file.

1. How does the basic jQuery selector work? Provide examples for each of the following:

- a) Selecting all paragraph, `<p>` elements
  - b) Selecting an element with the ID `mainContent`
  - c) Selecting all paragraphs within a `<div>` whose ID is `banner`
  - d) Selecting all table-data elements
  - e) Selecting all table-data elements that have the class `highlighted`
2. Which jQuery function(s) allow you to manipulate style rules of an element or set of elements?
  3. What is the difference between the jQuery functions `text()` and `html()` ?
  4. Suppose we wanted to add or change an attribute of a particular DOM element. Which jQuery function could we use?
  5. What is the difference between the jQuery functions `append()` and `after()` ?
  6. Which jQuery function(s) allow you to manipulate the visibility of elements?

## 2 jQuery Exercises

You will familiarize yourselves with jQuery by writing code that will directly manipulate the DOM of a given HTML page. To facilitate these exercises, we've provided a dummy webpage that you can experiment on. **Follow these instructions exactly.** You will not use the "Light Table UI" to execute your code; you need to open and evaluate the provided webpage to successfully load jQuery.

1. Download the code we've provided from GitHub using the URL, <https://github.com/cbourne/jQueryProject>. Open the project in Light Table.
2. Open and evaluate the `practice/index.html` file.
3. Create a new tabset (right click the tab area and select "New tabset"). Drag-drop the rendered page into the new tab set.
4. Open the `practice/exercises.js` in the left tabset. This enables you to write code on the left side and see the results in the right side. Note that any changes you make with your jQuery code only make changes to the DOM after the document is initially loaded. To reset the page, simply reload it.

Write and execute jQuery code to perform the following tasks. As a reminder, the following jQuery code will select all paragraph elements and apply the `css` function to each, changing their color to blue.

```
$("p").css("color", "blue");
```

Note: there is a bug in Light Table that may result in your code being executed multiple

times. To avoid this, be sure to only evaluate single line statements (Mac: command-enter, Windows: control-enter).

1. Write jQuery code that counts how many `<p>` elements and how many `<li>` elements are in the document. To do this, note that you can use `.size()` to determine the number of elements in a jQuery selector result.
2. Write a piece of code to determine if there is an element with the ID `#foo` or not.
3. Determine how many elements belong to the class `strong`
4. Write jQuery code to change the font of the header element to courier
5. Write jQuery code to get the background color of the header element and change the sidebar's background color to the same
6. Write jQuery code to add the class `strong` to the first paragraph
7. Now write jQuery code to remove the `strong` class from the first paragraph
8. Use jQuery to change the title of the page to "Fun with jQuery"
9. Write jQuery code to change the content of the course link to correct the spelling of "course"
10. Change what the "Home" hyperlink links to by modifying its `href` attribute and make it link to <http://cse.unl.edu> instead
11. Write jQuery code to modify the value of the text input box. Set it to "Huskers!"
12. Write jQuery code to get the text of the input box and change the course link's text to that value. Manually type a new value into the text box to test your code.
13. Create a new paragraph (lorem ipsum text if you wish) and add it after the first paragraph.
14. Create a new list item and add it to the beginning of the ordered list.
15. Remove the first item in the list in the sidebar
16. Pick any element in the page, hide it, then fade it back in slowly.

### 3 Playing With Animations

Consider the following code. The first line changes the background color of the header to blue. It then goes into a loop that repeats 256 times. Each iteration reduces the value of the blue component and increases the red value by 1.

```

1 $(".header").css("background-color", "rgb(0, 0, 255)");
2
3 for(var i=0; i<=255; i++) {
4   var color = "rgb(" + i + ", 0, " + (255-i) + ")";
5   $(".header").css("background-color", color);
6 }

```

Cut, paste, and try the code. You'll notice that it “works” in that it changes the background color of the header to red. However, it doesn't work as intended: we wanted it to “animate” by *gradually* changing the color and fading it from blue to red.

1. Discuss with your partner possible reasons for why the intended animation did not work.
2. Try the following alternative, which uses jQuery's `animate()` function with which we can provide a *duration* parameter. Note also that this works because we are using jQuery's Color plugin.

```

1 //be sure to reset it back to blue
2 $(".header").css("background-color", "rgb(0, 0, 255)");
3
4 $(".header").animate({
5   backgroundColor: "red"
6 }, { duration: 5000 });

```

Interested students can learn more about how `animate()` works here: <http://blog.bigbinary.com/2010/01/25/how-animate-really-works-in-jquery-simple-animation-case-dis.html>.