CSCI 3308 Software Development Methods and Tools **Fall 2018**
Instructor: Alan Paradise
Submission deadline: 9th December 2018 at 11:59 pm

Homework - 4 - REST - Weather Map

Objectives

- Access information via REST
- Work with JSON formatted data
- Display data with SVG file and jQuery

Assignment

- In this assignment, we create a web page showing the weather across the USA.
- We will use the Dark Sky Forecast API from Lab 7 as the data source.
- Each state will be color-coded per its current temperature.

***Note*:** *Any errors in your code will be thrown to the JavaScript/Browser Console (Right Click + Inspect Element + Console). Please use the same for any kind of debugging or troubleshooting! Use the following links to learn more about debugging JavaScript code.*

- ➔ https://developer.mozilla.org/en-US/docs/Tools/Debugger
- ➔ https://www.khanacademy.org/computing/computer-programming/html-js-jquery/jquery-dom-access/v/debugging-webpages-with-the-browser-console

Part - 1: Setting up the project

1. Download a map of the United States in SVG format.
2. Create a new HTML file named `index.html`
3. In your HTML file, add the following code to create a web page:

```
<html>
    <head>
        <title>HW #4 Your last name(s)</title>
    </head>
    <body>
```

4. On the next line in the file, insert the downloaded SVG map. Copy-paste isn't very effective here, but you can do this in vim with the following:

```
:r Blank_US_Map.svg
```

> ***Note:*** *This is a vim command, please don't type this as plain code in your HTML file. Open your HTML file using the Vim text editor and type the above command to get all the SVG code inserted between your HTML body tags.*

5. Close the HTML page with:

```
    </body>
</html>
```

6. Include jQuery into your HTML page. Add the following `<script>` tag inside the `<head>` tag.

```
<script src="http://code.jquery.com/jquery-2.2.1.js"></script>
```

7. Create a new file named `index.js` (this file will contain all your Javascript/jQuery code).

EXERCISE:

8. Link this javascript file (`index.js`) into your HTML file (`index.html`).

Part - 2: Dynamic Weather Data

1. Our next step is to manually change the colors of a state. Add the following code into your `index.js` file.

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

});
```

2. Inside the ready function, add the following line to color the state of Colorado red.

```
$('#CO').css('fill', color);
```

Note: *The map of the United States is rendered using SVG tags. The render of each state has an HTML ID associated with it. In our case, the HTML ID of every state happens to be its state code. Thus, the above line colors the State of Colorado ("#CO").*

Reload the page, and you should see Colorado filled in red!

➔ Now, the task at hand is to color each state on the map based on the current temperature of the ***capital*** of each state.

- We certainly don't want to manually type in all the states of the United States.
- The weather REST API also needs a city's *latitude, longitude* in order to fetch its current temperature.

3. This JavaScript Object contains information (capital city, latitude, longitude) of each state of the USA.

EXERCISES:

4. Use the `state_info` JavaScript Object in your `index.js`.

5. Loop over every state in the `state_info` Object and call the weather API for each state's capital using its latitude and longitude.
Hint: *This Gist demonstrates how to Loop over an Object in JavaScript.*

6. Fetch each capital's current temperature and color the state based on the current temperature.

Very important: We don't want to call the weather API a million times and exhaust our API limits(while testing our code). So, comment out the last 35 states in the `state_info` Object. *However, If you are really interested in coloring the whole map, it is ok if you color all the states. (Coloring15 states is the minimum requirement though!)*

7. The color to be used for a state should be determined based on the following temperature range table:-

Temperature	Color
[default]	Gray
<=10°	Blue
11°F to 30°F	Cyan
31°F to 50°F	Green
51°F to 80°F	Orange
>80°F	Red

Credit:

Submit a zip of the `index.html` and the `index.js` file on to Moodle to receive credit. Make sure that you have at least 15 states colored!