Lab 5: Ajax Bus Tracker

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Introduction:

- This lab acts as an exercise in enhancing students' JavaScript, HTML, CSS, and Bootstrap skills, but the primary focus is on learning about and using AJAX requests to fetch data from a web server. To accomplish all of this, students are challenged to build a bus tracking web application. This application is to display a map of the Milwaukee area, and display markers corresponding to current bus locations, and update a corresponding table for the information pertaining to each of the current buses. In order to attain all of the required information for these requirements, an MSOE website proxy is used to access the MCTS API that allows developers to request information about Milwaukee buses of a specified route.

Summary:

- This lab's primary goal was to introduce students to AJAX requests and challenge them to use this newly learned tool to create a dynamic website that updates in correspondence with data received from a web server. In working on this lab, one of the primary lessons learned was that there are a plethora of errors that can result form AJAX requests. Due to this, it is important to thoroughly test web apps that make AJAX requests, and ensure that each error is handled in a graceful way that communicates issues to the user. In addition, due to the asynchronous nature of AJAX requests, it was learned how to properly define functions that contained asynchronous code. Also, lessons were learned on how to properly distill AJAX requests from its initial state of a promise, to a usable JSON object through the use of awaits and .json() calls. Lastly, the basics of creating JavaScript classes was learned as the final implementation used a BusTracker class to encapsulate the properties and behaviors of the bus tracker.

Suggestions:

- It would be nice if a PDF version of the requirements could be included in the lab assignment. It would be helpful to be able to cross off requirements as they are completed.
- It could be helpful to link to resources that describe possible AJAX request errors. Due to the fact that this is a new tool for us, I was unsure of what possible errors could result.
- More screenshots of example tables, maps, and errors could be helpful to let students know what to strive for.

What I enjoyed:

- I enjoyed the starting code, it allowed me to focus more on learning about AJAX and less on the tedious details of creating a web application.
- I enjoyed all of the links that help with the use of the Leaflet library, they were all very helpful.
- I enjoyed the suggested error handling code for fetch requests, it was helpful to see examples of ways in which AJAX errors can be caught.
- I appreciated the rubric, it is always helpful to know the point break down of labs.