

# Lab 7 – Bus Speed Checker

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Section: 021

## Introduction:

- This lab acts as an exercise in the development of front-end applications supported by back-end servers that retrieve data stored in a MongoDB database. Specifically, students are tasked with creating a web application that checks the speeds of buses in the Milwaukee County Transit System. In the server created to support the queries from the front-end application, a MongoDB database is searched according to user input using the mongoose module, which is a MongoDB object modeling tool designed to work in an asynchronous environment. In addition, students had to design the server such that it served their front-end application files, which included HTML, CSS, and JavaScript files. The final challenge of this lab was using the Leaflet API and OpenStreetMap in order to properly display the locations of the buses contained within the MongoDB database.

## Summary:

- One of the biggest lessons learned in this lab was how to properly use the mongoose module within JavaScript in order to efficiently query and access data stored in a MongoDB database. With this, it was learned it was necessary to have a MongoDB server instance running in a command prompt anytime the mongoose module attempted to access the MongoDB database. In addition, it was discovered how to properly use the *.find()* method on a mongoose model in order to query the database based upon defined search parameters. Furthermore, it was learned how to properly define a mongoose schema to properly format documents that are stored within a MongoDB database. Lastly, a feature of the Leaflet API was discovered that allowed one to zoom the map to fit all markers by using the *.fitBound()* method.

## Suggestions:

- It would be helpful if a pdf prompt of the lab could be included so that requirements could be crossed off as they were completed.
- It could be helpful to spend a small portion of lecture time going over the previous weeks lab to show what an optimal solution looks like.
- It could have been helpful to include a link on documentation to the mongoose.model.find() method.

## What I Enjoyed:

- I enjoyed this topic of MongoDB overall, since Database Systems I've been interested how one would incorporate MongoDB into an application.
- I appreciated the very thorough lab prompt.
- I appreciated the include rubric.
- I appreciated the include screenshot of what an acceptable UI looked like for the app as it gave me clear direction for the project.