Journal Report 1

9/2/19 - 9/8/19
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Daily Log

Tuesday September 3

I started to code the basic structure of my program. I will be using classes to represent each Car, Edge (road), and Vertex (intersection). However, I have an issue with some of my class variables which is generating compilation errors.

Thursday September 5

I finished the basic data reading methods that will generate my graph. I also addressed errors within the Car, Edge, and Vertex classes by using pointers instead of values. I successfully created a graph based on information from a data file that stores the locations of my vertices and the properties of my edges. I also created methods to convert the Car, Edge, and Vertex classes to readable strings.

Timeline

Date	Goal	Met
8/19/19 - 8/25/19	N/A	N/A
8/26/19 - 9/1/19	N/A	N/A
9/2/19 - 9/8/19	Begin to setup framework for the program	Yes, I have created the classes (Car, Edge, Vertex) which will represent my road network
9/9/19 - 9/15/19	Finish coding the basic A* navigation system and collect data on the average amount of time for each trip	
9/16/19 - 9/22/19	Finish coding the decentralized traffic detection (DTD) scheme and integrate it with the A* navigation system. Also gather data on the average amount of time for each trip when using DTD. Compare this to the non-DTD navigation system.	

Reflection

I planned out the general framework for my program. Important features such as cars, roads, and intersections in Car, Edge, and Vertex classes, respectively. My program will iterate through timesteps, moving cars along roads at each timestep. For cars with a non-DTD navigation system, they will run A* a single time, when they are initialized. For cars with a DTD navigation system, they will run A* using current information about traffic every time they encounter an intersection. Traffic will be represented as slowdowns on a road. As more cars use the same road at the same time, their speeds will decrease linearly. I am not sure if this is a good or realistic approximation and will look into it further. So far I have coded a very basic version of the Car, Edge, and Vertex classes that should allow me to start working on next week goals.