Journal Report 7
10/14/19 - 10/27/19
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Daily Log

Tuesday October 17

I was absent, so I worked on the project during Saturday.

Thursday October 17

I continued working on debugging my program to fix the DTD navigation system. In the methods $createEvents$ and $transferEvents$, I do not restrict the Event interactions to only DTD cars. This caused all cars to receive and produce Events, when the intended action was for only DTD cars to do so. However, the DTD navigation system still did not work.

Saturday October 19

I found a bug in the $graphCars$ variable in which the key values are one off of the intended value since I increment the counter one line too early. The DTD navigation system now works.

Monday October 21

I added output code that produces a data file which stores all of the information about the Cars, Edges, and Vertices. For each run, it creates a file that stores all of the run parameters as well as the locations/details of the Edges and Vertices. For each frame, it creates a new file which contains each Car's location and Events. The Events keep track of what time the Event occurred, how severe the traffic was, and which Car produced that event.

Tuesday October 22

I started working on a Javascript Web server that can display the map with the Cars, Vertices, and Edges. So far, I am using the HTML Canvas feature to display the map. I have been able to draw all of the Edges (rectangles) and Vertices (circles).

Thursday October 24

I added Cars to my map. They are displayed as small squares and their positions are updated each time the frame increments. I added a slider to go through the frames.

Timeline

Date	Goal	Met
9/30/19 - 10/6/19	Began coding the naive (non-optimized) DTD scheme. Try to finish setting up the class $Event$ and the communication system between cars	Yes, I set up the class $Event$ and the DTD car communication system. I still need to incorporate these Events in the DTD navigation system
10/7/19 - 10/13/19	Finish the naive DTD scheme and begin looking into optimizations	No, I did not finish the naive DTD scheme this week, and I am currently stuck on a bug with it. As a result, I was also unable to start looking into optimizations (which aren't currently needed on these small-scale runs)
10/14/19 - 10/27/19	Fix the DTD navigation bug. I also want to try to create a GUI, which would be useful for debugging and overall visualization of this project.	Yes, I fixed the bug and began working on the GUI.
10/28/19 - 11/3/19	I would like to add functions to my GUI that would allow me to see the history of $Events$ and $Cars$. It would also allow me to see overall stats of the run as the program is executed in real-time.	
11/4/19 - 11/10/19	I would like to optimize the method *transferEvents* to use a divide-and-conquer approach.	

Reflection

These past two weeks, I finished my DTD navigation system such that the DTD cars and normal cars make different choices in selecting the route. This bug was caused by an issue with my indexing of the Cars. I also started working on a website interface that displays my map system. It currently can display all of the Cars, Edges, and Events. I plan to add features that allow interaction with the map. For example, I want to be able to navigate around the map by clicking and dragging. I also want to be able to see communication range by selecting on the Cars. Finally, I want an information bar at the bottom to show details about the selected Car, Edge, or Vertex.