Journal Report 8

10/28/19 - 11/10/19

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Daily Log

Monday October 28

I started adding *Events* to the output data and decided that it was going to be extremely tedious. Instead of continuing my manual output and parsing of data, I will be outputting all my data in JSON format.

Tuesday October 29

I finished reformatting the *global* file with JSON. I ran into an issue with trailing commas at the ends of my objects. They are legal in Javascript, but the JSON parser does not like them.

Thursday October 31

I started reformatting my *Car*, *Edge*, *Vertex*, and *Event* output data. However, for some reason, my program runs indefinitely when I include these changes, but runs in less than five seconds without it. I am not sure what the issue is, but will add them incrementally tomorrow to debug this error.

Wednesday November 6

I determined the cause of the previous issue. When I was printing my *Edge* or *Vertex* data, their *toString* methods recursed infinitely on each other, since each of them stores multiple pointers of the type. As a result, for all of four of the data types, I will print them by id number and have an map of them. I also ran into another trailing comma issue, but this time it was with JSON arrays.

Thursday November 7

Currently, the web page takes a noticable amount of time to load. This is caused by the fact that all of the frames are loaded at the start, which consists of a large amount of data. I want to load the data frame-by-frame to reduce this loading time. For some reason, I am not sure how to access variables passed into Handlebars from a separate Javascript file. None of the suggestions from Stack Overflow worked! I will talk to Mr. Kosek next week about this Javascript/Handlebars issue.

Timeline

Date	Goal	Met
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 - 11/10/19	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.	I decided to spend time on reformatting how I printed the data in order to scale better as I progressed through the project. As a result, I did not pursue the original goal for these two weeks
11/11/19 - 11/17/19	Add the ability to see the history of $Events$ and $Cars$. Add real-time viewing of the simulation. Ask Mr. Kosek about Javascript/Handlebars issue	
11/18/19 - 11/24/19	I would like to optimize the method *transferEvents* to use a divide-and-conquer approach.	

Reflection

These past two weeks, I decided that the current way I was transferring data from my main C++ program to the Javascript viewer was not suitable as I expanded the project. Previously, I had to manually add each object to the output file and then manually parse it inside Javascript. To make my project easier to scale, I decided to just print out all my data in JSON format. It took some time to get it reformatted properly and working, but it should save time in the long term. I chose to do this part of the project instead of the originally-defined goal, so I am pushing my other goals back by a week.
global file in JSON format

```
{
"NUM_TIME_STEP": 1000,
"TIME_STEP_LENGTH": 1,
"DTD_RATE": 1,
"VERTEX_COUNT": 7,
"EDGE_COUNT": 6,
"DESTINATION_COUNT": 2,
"allowedDestinations": [5, 4]
}
```