Project 3 Writeup

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1. We divided up the work similarly to how we did our other projects. Johnnie and Matt primarily worked on the code, while Eddie worked on the Queue data structures, helped out with the usage of it and wrote up the document.
2. Our contributions are as stated above.
3. Coordinations for code changes were done through github, and for testing, we collectively decided how to test what portions and stress tested the program through a tester file. This allowed us to test individual methods to make sure they worked as intended, so that there would be minimal bugs when they all came together.
4. It’s showing that it’s getting easier to work with the same group of people as we work together more often. It’s a good experience.

2. Our biggest trouble came up when we first implemented the queue data structure. There was a bug where the capacity doubled every single time an element was added, eating up too much memory too fast. This was quickly fixed so that it would only double when full. Solving it was done through the use of Eclipse’s debugger.

3. We learned a lot about how to best use queues through this assignment. We thought of two ways to deal with the queues in station and loading the right passengers onboard: one was to use two queues, for each direction from the station, and the other was to use one queue but have a loop enter the entry that was removed back into the queue if the train wasn’t going in the right direction. Using 1 queue was the choice, as we realized that was what was required for the assignment.

Another thing we somewhat learned through this assignment was the possibility of using multithreading. This was mainly a topic when we discussed about how to implement the bonus objective. We ultimately settled to having two trains running on one thread, but by having two different threads running, we could speed up the speed at which the program runs. We looked briefly into this, allowing us to use this feature in the future.

4. This assignment could probably be improved in the future by having a topic that doesn’t print out so many things. The sheer amount of data we had to go through to completely make sure everything was working correctly was agonizing, and we were all confident there were other ways to go about to have an assignment that dealt with Queues.