Tanner Hobbs
CSCI 1933

Bus Simulator Report

Introduction:

When testing the simulator, three different stats were gathered in order to determine the efficiency of the bus operation. These three stats included average amount of people on the bus, the average size of the wait line, and average wait time. These three stats seemed to sum up user experience and bus efficiency. When looking for optimal statistics that were indicative of good user experience and bus efficiency, I looked for wait times of less than 3 minutes, the average amount of people on the bus to be about half, and the average size of the line to be less than 10. As a frequent user of the metro buses, specifically route 3, these were numbers that I would be satisfied with.

Results:

To start gathering data, I first ran the simulation using all of the buses. I started with 7 express buses and 7 regular buses. This was my baseline for data gathering.

- Average amount of people on bus: 20
- Average size of line: 4
- Average wait time: 90.6 seconds

This provided a good user experience, but was an inefficient bus operation.

As the former results were inefficient, I cut the number of buses from 14 to 5. I used 3 regular buses and 2 express buses.

- Average amount of people on bus: 33

- Average size of line: 18
- Average wait time: 96.3 seconds

The former results were very close to what was desired, but the average size of the line would lead to bad user experience. I upped the bus count to 7 using 4 regulars and 3 express.

- Average amount of people on bus: 30
- Average size of line: 11
- Average wait time: 115 seconds

These numbers were spot on with the user experience I desired and bus operation efficiency.

Conclusion:

In order to run a bus operation that is both efficient and satisfies customers, I have deemed that the right amount of buses is 7, using 4 regular buses and 3 express buses. These numbers hit targets that I thought were desirable, namely ~30 people on the bus on average, line size of ~10, and wait time less than 3 minutes.