Caleb Ignace & Shuhai Li

CSCI 2210-201

November 16, 2015

Project 4 - Simulating with Queues and Priority Queues

Dear convention center team, the final product is a program to simulate the dynamics of registrants’ activity at your registration. The time that registration starts is 6 am and the time is ends is at 8 pm, or a time of your choice. The assumptions is that the minimum amount of time a registrant can finish the process time is 1 minute and 30 seconds. You may change the number of registrants you’re expecting, the expected processing time required for each registrant, the length of the time the registration process is open, and the number of registration windows that are staffed.

In Table 1, we have provided some data. It shows that as the number of windows staffed increase, the expected maximum line decreases exponentially, that is, the graph resembles a negative exponential function. If you want to keep the number of people waiting in line to be less than 5 at all times, you must have at least 8 registration windows staffed.

Thank you for selecting us to analysis this problem, we wish you well.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 1 | | | | | | | | |
| Windows | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Longest Lines | | | | | | | |
| Run 1 | 210 | 93 | 55 | 34 | 7 | 4 | 3 | 2 |
| Run 2 | 200 | 106 | 54 | 25 | 7 | 4 | 3 | 3 |
| Run 3 | 190 | 106 | 47 | 32 | 9 | 3 | 3 | 2 |
| Average | 200 | 101.67 | 52 | 30.33 | 7.67 | 3.67 | 3 | 2.33 |