**Dressing Rooms Scenario**

IT 481 - Advanced Software Development

Unit 6 – Assignment

Professor Chenyao Zhang

9/9/2024

**Dressing Rooms Scenario**

The expectations of this project are to create a program that can estimate the amount of time customers will be waiting for a fitting room based upon some average criteria: 1-3 minutes per customer, up to 6 items per customer, and 3 fitting rooms. The program is able to take any amount of customers, with the rest of the criteria formulate a simulation that will estimate the average time customers will wait for an available fitting room. While the criteria for the store is established, the program will be able to specify more than 3 dressing rooms, and can have more than 6 clothing items, or if “0” clothing items is entered, the value is then randomized. For sake of establishing a controlled scenario, 3 dressing rooms will always be utilized and 4 clothing items will be used for every scenario.

**10 Customers**

In the “10 customers” scenario we can see that the average wait time was 161738 milliseconds, which comes out to about 2.96 minutes. The average run time, 303329 milliseconds, or around 5.05 minutes represents about how long each customer took in the dressing room. This means that within this scenario, helping all of the customers took an average of 5 minutes, and each customer in line had to wait about 3 minutes to get to the next available dressing room.

**20 Customers**

Naturally, the “20 Customers” scenario wouldn’t go as smoothly as the “10 Customers” scenario. This simulation is of course to gauge how well it would go with varying amounts of customers, however, so we want to see how the system would handle 20 customers. This time the average wait time was 573115 milliseconds, 9.6 minutes, and the average time for all 20 customers was 719451 milliseconds which is just under 12 minutes. On to the last scenario.

**30 Customers**

The “30 Customer” Scenario seems to have taken 1235300 milliseconds, or 20.5 minute on average for each customer to wait, and 1554597 milliseconds, almost 26 minutes for the full line of customers to get through the dressing rooms. Again, it was expected that more customers would cause higher times. Tripling the customers has caused five times higher average times.

**Final Results**

For the “10 customer” scenario, rounding up we had a 3-minute wait time, and a 5.05-minute run time. The “20 Customer” Scenario had a “9.6 minute” wait time and a 12-minute run time. The “30 Customer” Scenario had a 20.5-minute wait time, and a 26-minute run time. The results realistically show that a 3 dressing room set up is only acceptable if you have less than 10 customers at a time requesting access to the dressing rooms. Simply doubling the number of customers almost tripled the average times, which means that the client will want to build more dressing rooms if they expect that the store will maintain high customer traffic.

Results for “10 Customer” Scenario:

A screenshot of a computer program

Description automatically generated

Results for “20 Customer” Scenario:

A screenshot of a computer screen

Description automatically generated

Results for “30 Customer” Scenario:

These two results are cropped so that there are no repeated console outputs, and the last output in the first screenshot is the immediate output before the first output in the second screen shot.

A screenshot of a computer program

Description automatically generatedA screenshot of a computer screen

Description automatically generated

GitHub