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CS 1181 Project 3 Analysis

April 3<sup>rd</sup>, 2022

### Project 3 Store Simulation Analysis

For Project 3, I found the optimal use of the checkout lanes was to have all checkout lanes open, with 9 of them being regular, and 3 of them being express lanes. While having less lanes open costs less money to operate, I feel that utilizing all the given lanes will maximize the customer throughput as there are more options for the customers to consider when choosing a lane. Doing so will allow more customers to pass through the store per day, meaning more money can be made. Running my specified configuration on the "arrival medium.txt" text file that was provided, I got an average answer of about 3.3 minutes after running 10 consecutive tests. This average wait time not only includes the customer's individual wait time in line, but also accounts for their personal checkout time. I felt as though it was something important for the customers to consider when choosing a lane. Alongside the program, I also included a log file which outputs the customer's data after each run-through to a separate "output.txt" file. This output file consists of each of the customer's data including their customer number, the information tied to the customer (num items and average pickup time), and the time that customer spent waiting in-line (including their checkout time), which was important when deciding/finding the optimal lane configuration.