

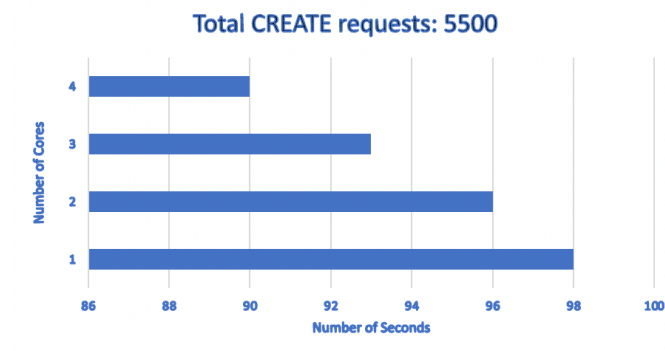
Homework 4: Scalability Test: Exchange Matching Server

In this report, we analyze the scalability of our stock exchange matching server program which was written in python with an option to choose number of processes to run on number of cores. Server is able to receive multiple stock exchange requests form users (either buyers or sellers) at the same time and process their requests in the database synchronously and send responses to each user notifying them of the transaction results.

We have two main types of XML transactions: CREATE and TRANSACTION. We test them independently.

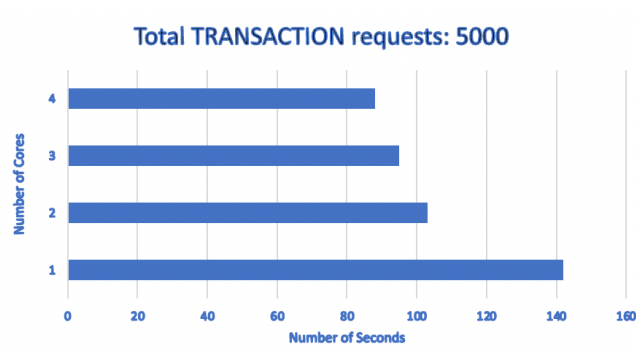
CREATE:

Following results shows how long it takes for our program to process 5500 SQL requests on different number of cores.



TRANSACTION:

Following result shows how long it takes for our program to process 5000 SQL requests on different number of cores.



We also run 500 transactions 10 times review the discrepancies between each run. In blue is when program is run with one core; orange with two cores; gray with three, and lastly yellow with four cores. Based on the graph below and also the results from previous test, the most noticeable performance improvement can be seen between running program with one core versus two cores.

