PA3 Analysis

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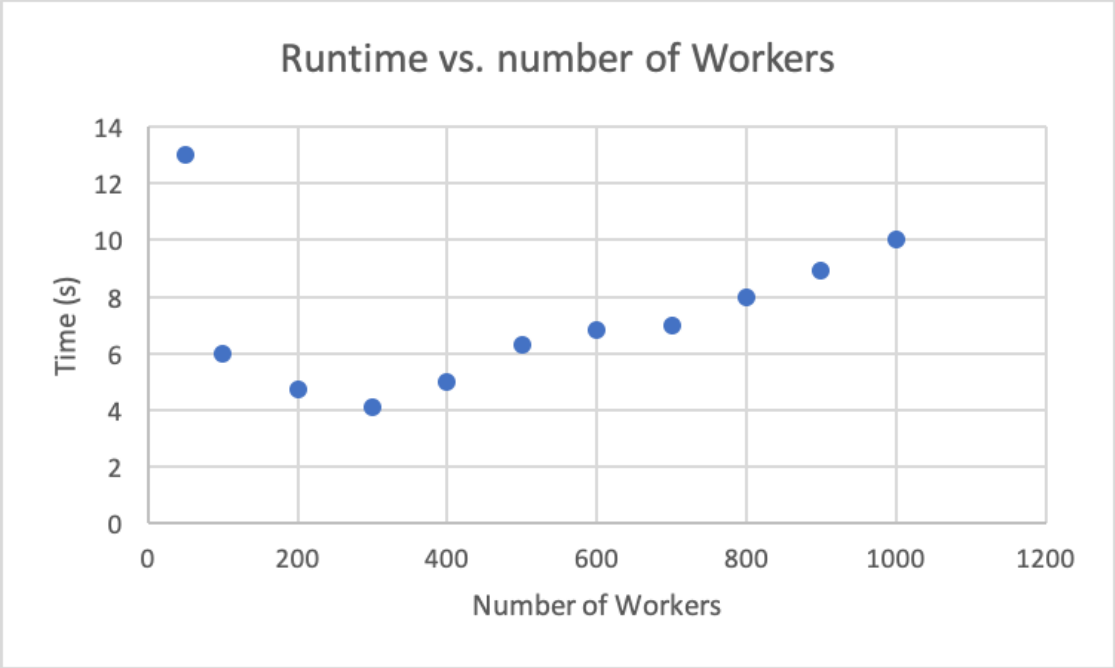
Note: All testing was done on a 2015 MacBook Pro, Intel i7 4770HQ, 16 GB RAM.

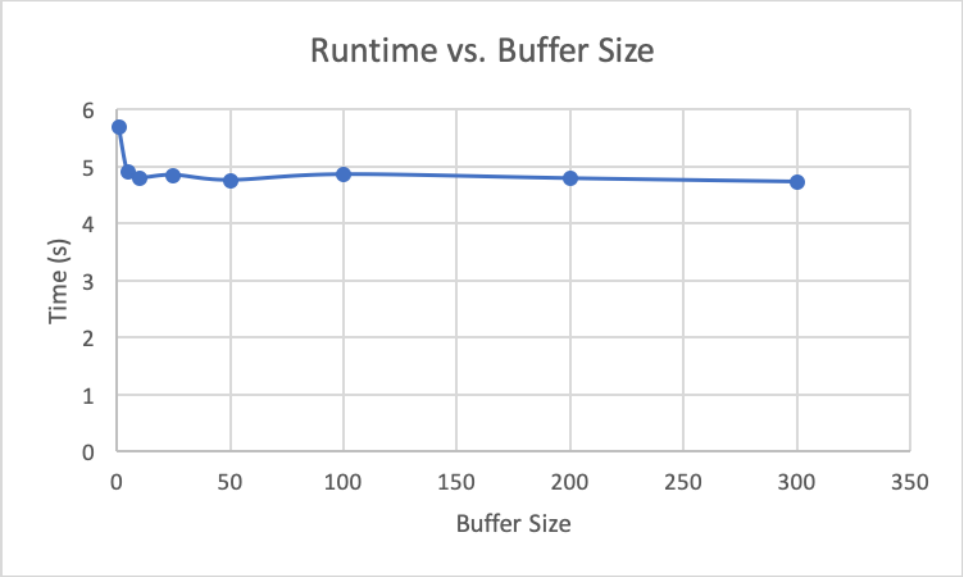
Testing Procedures:

The tests were conducted as followed. For the runtime vs. number of workers test, n was held at 15000, p was held at 15, and b was held at 30 while w was changed. For the runtime vs. buffer size test, instead of having w as a variable and b constant, b was held variable and w was held constant. For the file request tests, the time to complete the request for carrying sizes of data files was recorded. Each trial was recorded twice to resolve outliers.

Analysis:



It can be seen form the graph above that as w is increased initially from its initial value of 50, there is a steep decline in runtime until the number of worker threads reach 300. Beyond this point, the greater the number of workers, the worse the run time. This can be caused due to taking too much time to create the workers in the first place.



It can be seen from the graph above that outside of slight variations, increasing the buffer size really does not help runtime. The only real advantage is moving from a buffer size of 1 as then the system is moving away from sequentially handling data requests.