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CSCE 313-504

11-19-17

Performance – MP4

In Machine Problem 4, as shown by the data below, increasing the buffer size decreases execution time of the threads, which improves performance. Increasing the buffer size allows for more data to be fit in at a time, however, the performance improvement was not significant. Increasing the number of worker threads, however, does not appear to affect performance. The number of requests tested was 100,000 in both test cases. Multithreading in this case did not seem to improve performance.

Workers	Execution Time (s)
1	28.78262
2	14.99297
3	26.71488
4	21.30847
5	17.39223
6	22.71791
7	19.15497
8	28.05896
9	13.13073
10	31.7142

Buffer Size	Execution Time (s)
1	23.8337
10	18.68483
100	16.14328
1000	8.236302
10000	8.52469
100000	10.15021
1000000	10.30228

For Machine Problem 4, increasing the number of request channels did seem to improve performance. Increasing buffer size did the same, for the same reasons as in Machine Problem 3. Multithreading seemed to improve performance in this machine problem rather than the previous. The performance in Machine Problem 4 was also an improvement from Machine Problem 3.

Request Channels	Execution Time (s)
20	0.866299
30	4.103449
40	23.854310
50	13.013453
60	17.432154
70	10.817234
80	12.098132
90	3.091234
100	4.456208

Buffer Size	Execution Time (s)
1	20.710322
10	14.082134
100	15.692143
1000	7.181201
10000	13.101923
100000	6.123145
1000000	2.610835