

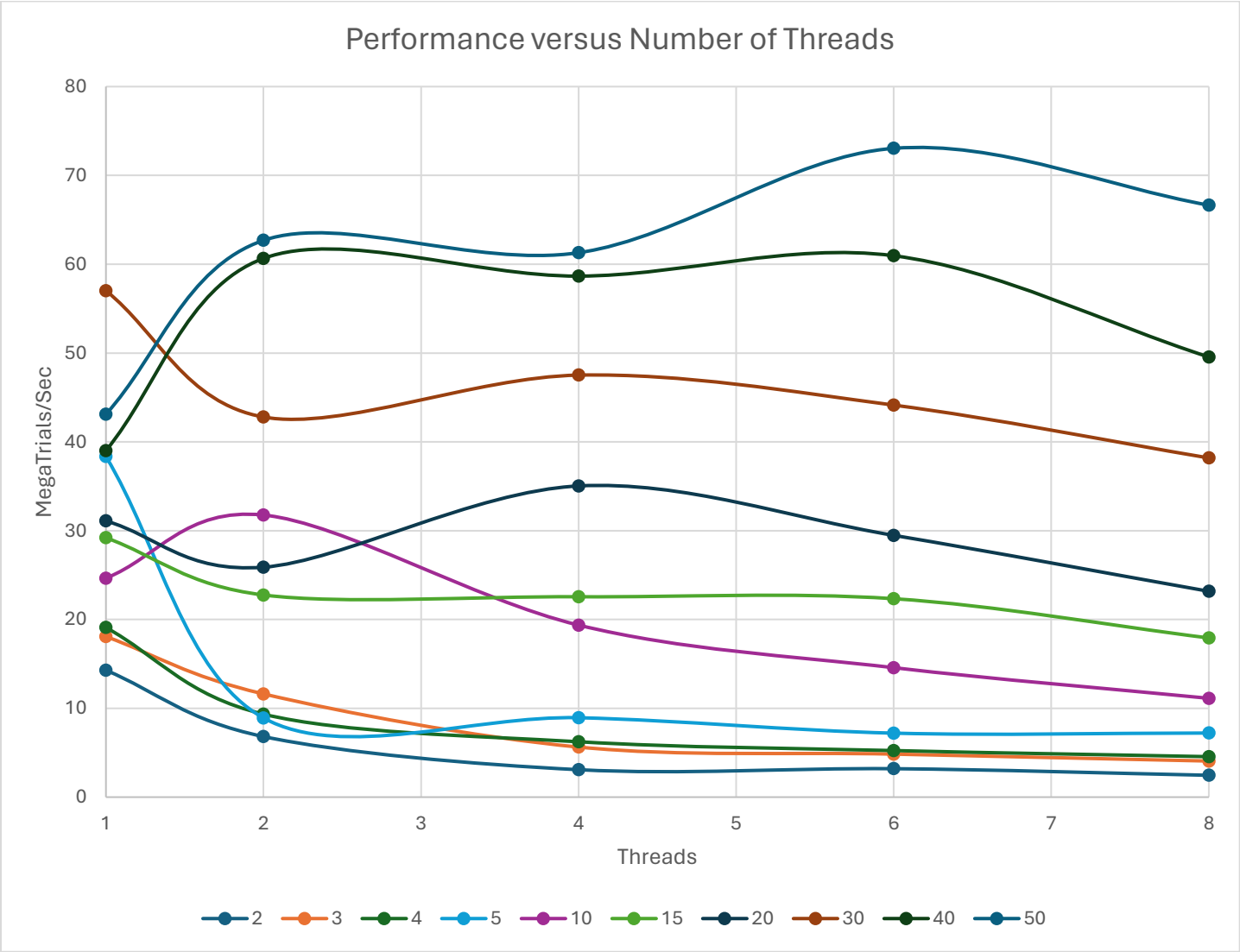
CS 475 – Parallel Programming

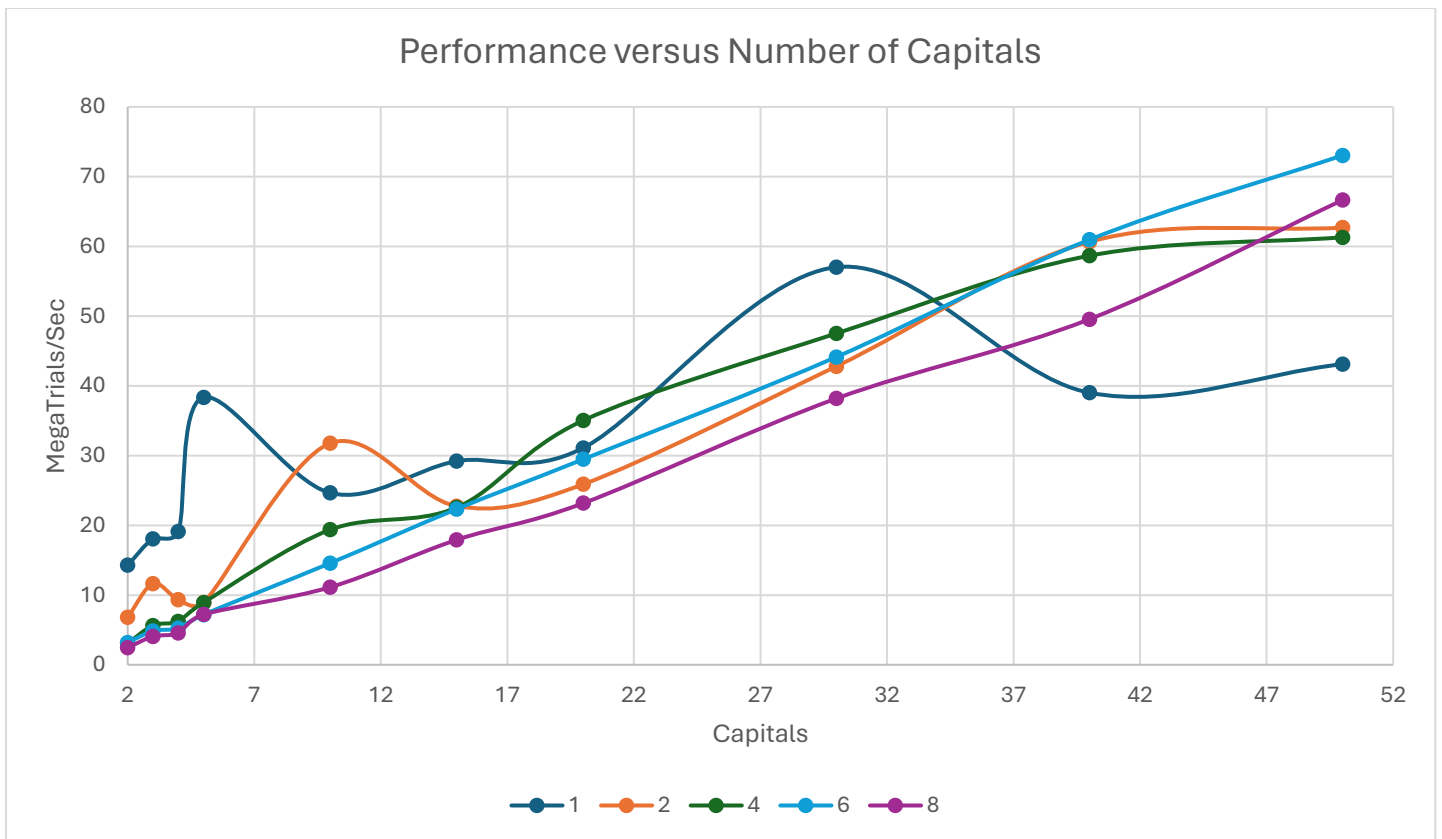
Jenny Zhong - zhongje@oregonstate.edu

Project #3 - Parallel Programming Challenge

Longitude	Latitude	City Name
0: 74.08	40.68	JerseyCity
1: 98.10	26.77	Edinburg
2: 83.90	39.64	Dayton
3: 85.24	33.6	SouthFulton
4: 85.45	36.84	Louisville
5: 119.60	36.65	Clovis
6: 77.31	36.38	NewportNews
7: 119.04	35.35	Bakersfield
8: 83.74	42.42	AnnArbor
9: 82.42	28.83	Gainesville
10: 80.43	34.46	Columbia
11: 114.74	36.4	NorthLasVegas
12: 85.94	40.5	Fishers
13: 112.00	33.37	Tempe
14: 122.26	47.55	Renton
15: 117.33	34.47	Victorville
16: 117.44	34.03	JurupaValley
17: 108.55	45.79	Billings
18: 101.58	33.02	Lubbock
19: 88.97	41.99	Rockford
20: 81.06	41	Akron
21: 91.08	31.55	BatonRouge
22: 88.77	37.08	Clarksville
23: 104.93	39.71	Denver
24: 122.17	37.92	Berkeley
25: 71.21	42.29	Cambridge
26: 117.13	32.95	SanDiego
27: 95.18	29.78	Pasadena
28: 77.54	43.03	Rochester
29: 76.90	39.01	Washington
30: 94.34	44.32	Minneapolis
31: 75.31	40.3	Philadelphia
32: 116.40	43.6	Meridian
33: 121.67	37.41	SanJose
34: 97.61	30.46	RoundRock
35: 95.04	38.65	Olathe
36: 120.93	39.1	Roseville
37: 111.98	40.69	WestValleyCity
38: 73.03	41.77	Waterbury
39: 111.65	40.25	Provo
40: 117.17	33.58	Murrieta
41: 117.33	47.67	Spokane
42: 119.63	34.47	Ventura
43: 106.64	33.64	LasCruces
44: 80.40	26.36	CoralSprings
45: 117.93	33.85	Fullerton
46: 118.38	34.23	Burbank
47: 96.94	33.22	Frisco
48: 122.58	45.04	Salem
49: 122.87	38.09	SantaRosa

	1	2	4	6	8
2	14.287	6.818	3.088	3.201	2.46
3	18.077	11.621	5.637	4.843	4.064
4	19.095	9.342	6.235	5.242	4.556
5	38.348	8.914	8.939	7.203	7.218
10	24.653	31.763	19.369	14.576	11.128
15	29.206	22.76	22.561	22.341	17.923
20	31.101	25.889	35.038	29.475	23.174
30	57.018	42.798	47.516	44.14	38.189
40	39.015	60.654	58.662	60.957	49.557
50	43.116	62.689	61.297	73.048	66.647





Observations

- Kitty Emulator to SSH into OS1 Server, VMWare Dual Boot Windows/Linux
- In the Graph for Performance versus Number of Threads, the performance is slightly better than when all threads are writing, but it is still terrible for false sharing tests on data sets for 2/3/4/5 capitals. This shows that it only takes one core, continuously writing to a cache line, to cause enough contention to thwart the other seven cores. Larger data sets don't seem to be affected as much, performance peaks at 6 threads.
- Order of access in i-j-k for-loops makes a big difference in performance in the code as well.
- Graph for Performance versus Number of Capitals shows a Performance Decrease running problem using 1 Threads going from 30 capitals to 40 capitals, similarly there is a decrease running 2 Threads going from 10 capitals to 15 capitals. As data sets get larger, we can expect to see Performance Decrease.