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Program Structures & Algorithms

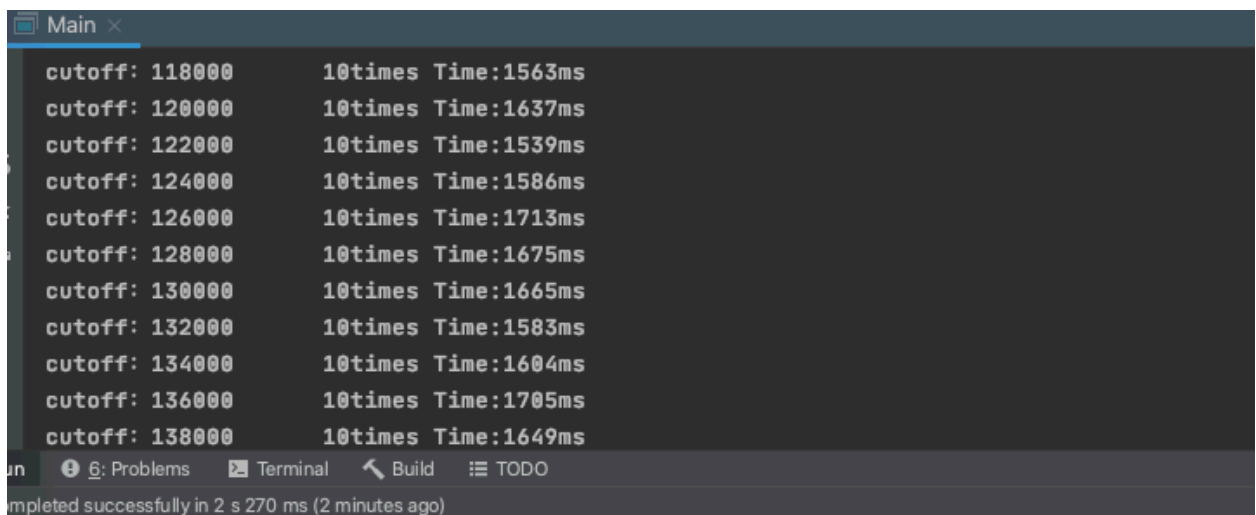
Fall 2021

Assignment No. 5

- Task (List down the tasks performed in the Assignment)

Parallel Sorting

- Output (Snapshot of Code output in the terminal)



A terminal window titled 'Main' showing the output of a parallel sorting program. The output consists of 10 lines, each representing a different cutoff value. Each line contains the cutoff value, the number of threads used (10), and the execution time in milliseconds. The times are relatively stable, ranging from approximately 153ms to 171ms. At the bottom of the terminal, a status bar indicates that the program was completed successfully in 2 seconds and 270 milliseconds, 2 minutes ago.

cutoff	threads	Time
118000	10	1563ms
120000	10	1637ms
122000	10	1539ms
124000	10	1586ms
126000	10	1713ms
128000	10	1675ms
130000	10	1665ms
132000	10	1583ms
134000	10	1604ms
136000	10	1705ms
138000	10	1649ms

Conclusion:

- When the amount of data is large, parallel sorting can improve efficiency
- When the cutoff setting value is too small, that is, when the number of threads that need to be created is large, the sorting efficiency is reduced, and it is guessed that creating threads consumes too much resources

	A	B	C	D	E	F	G
18	0.09	149.8	0.09	167.2	0.09	243.4	
19	0.095	151.5	0.095	142.4	0.095	211.4	
20	0.1	158.8	0.1	150.8	0.1	204.6	
21	0.105	154.5	0.105	183.6	0.105	187.6	
22	0.11	156.6	0.11	180.8	0.11	187.6	
23	0.115	172.4	0.115	193.7	0.115	178.9	
24	0.12	154.7	0.12	177.5	0.12	190.5	
25	0.125	159.8	0.125	146.4	0.125	174.9	
26	0.13	179.2	0.13	151.1	0.13	184.2	
27	0.135	220	0.135	145.6	0.135	195.4	
28	0.14	173.6	0.14	146.4	0.14	195.7	
29	0.145	147.4	0.145	140.6	0.145	190.1	
30	0.15	143.9	0.15	153.2	0.15	188.5	
31	0.155	148.6	0.155	187.4	0.155	209.8	
32	0.16	170.3	0.16	170	0.16	207.9	
33	0.165	147.6	0.165	141.6	0.165	214.1	
34	0.17	140.7	0.17	149.3	0.17	194.1	
35	0.175	139.4	0.175	136.2	0.175	198.9	
36	0.18	145.7	0.18	149.6	0.18	215	
37	0.185	146.4	0.185	182	0.185	197.6	
38	0.19	154.1	0.19	161.2	0.19	211.9	
39	0.195	136.1	0.195	135.1	0.195	208.2	
40	0.2	145.4	0.2	135.4	0.2	181.6	
41	0.205	151.6	0.205	157.3	0.205	182.6	
42	0.21	155.2	0.21	144.2	0.21	194.4	
43	0.215	204.2	0.215	174.7	0.215	191.1	
44	0.22	230.2	0.22	178.4	0.22	191.2	
45	0.225	217.1	0.225	141.1	0.225	179.4	
46	0.23	156.9	0.23	140.4	0.23	179.2	
47	0.235	149.4	0.235	142.8	0.235	186.7	
48	0.24	157.3	0.24	148.5	0.24	196	
49	0.245	185.5	0.245	176.5	0.245	185	
50	0.25	152.1	0.25	140.8	0.25	196.6	
51		165.132		161.552		197.8	
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