Proj3 prob2 report

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Environment

Os	**Pop!_OS 22.04 LTS x86**
CPU	Intel i7-8665U (8) @ 1.900GHz
Memory	16Gb
GCC version	14.0.0
GNU Make version	4.3

Build

In the prob2 folder:

GNU Make

```
make
```

CLI

```
gcc -o a.out ./prob2.c -fopenmp
```

Static

Tables

Execution time

Number of thread	**Execution time 1 chunks**	**Execution time 5 chunks**	**Execution time 10 chunks**	**Execution time 100 chunks**
1	27	27	26	26
2	73	24	19	15
4	45	15	12	9
6	48	19	15	12
8	41	16	12	10
10	47	19	15	14
12	49	19	15	12
14	43	17	14	11

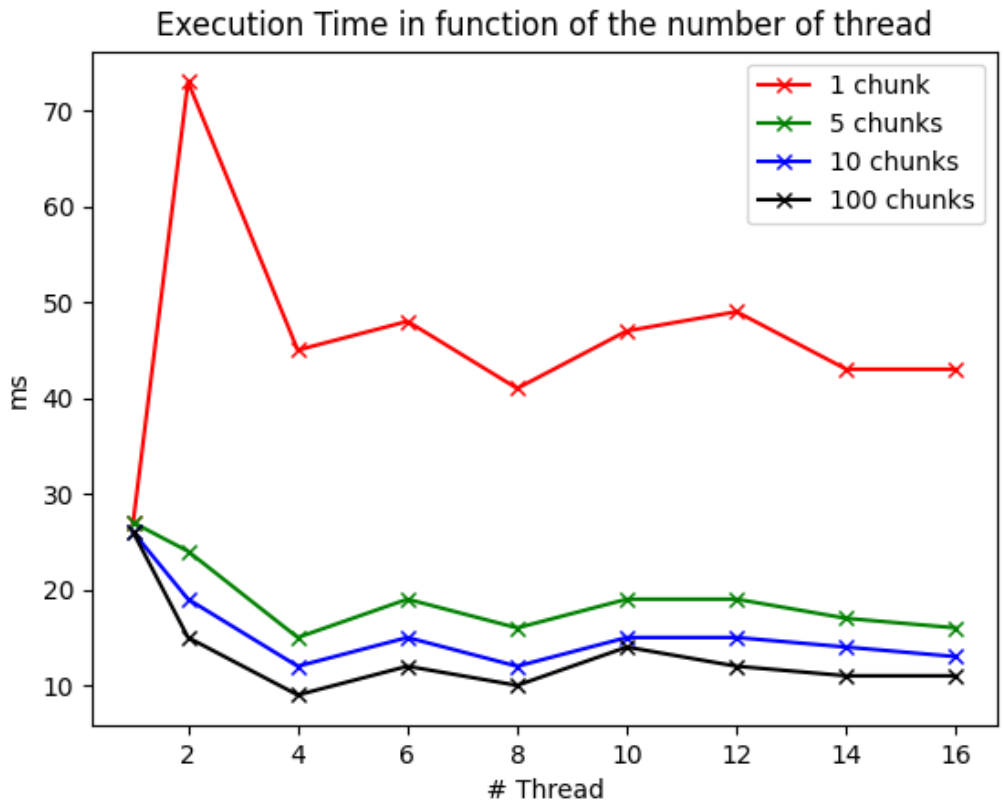
Number of thread	Execution time 1 chunks	Execution time 5 chunks	Execution time 10 chunks	Execution time 100 chunks
16	43	16	13	11

Performance

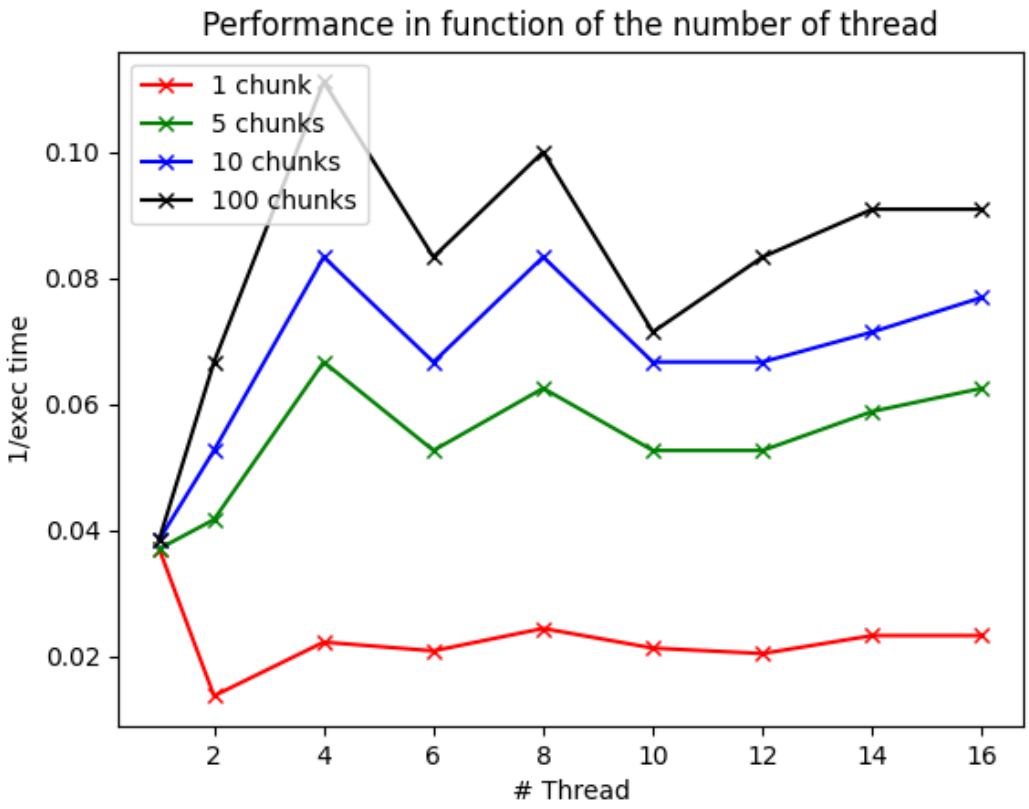
Number of thread	Performance 1 chunks	Performance 5 chunks	Performance 10 chunks	Performance 100 chunks
1	0.037037037037037035	0.037037037037037035	0.038461538461538464	0.038461538461538464
2	0.0136986301369863	0.041666666666666664	0.05263157894736842	0.06666666666666667
4	0.022222222222222223	0.06666666666666667	0.08333333333333333	0.1111111111111111
6	0.020833333333333332	0.05263157894736842	0.06666666666666667	0.08333333333333333
8	0.024390243902439025	0.0625	0.08333333333333333	0.1
10	0.02127659574468085	0.05263157894736842	0.06666666666666667	0.07142857142857142
12	0.02040816326530612	0.05263157894736842	0.06666666666666667	0.08333333333333333
14	0.023255813953488372	0.058823529411764705	0.07142857142857142	0.09090909090909091
16	0.023255813953488372	0.0625	0.07692307692307693	0.09090909090909091

Graphs

Execution time



Performance



Dynamic

Tables

Execution time

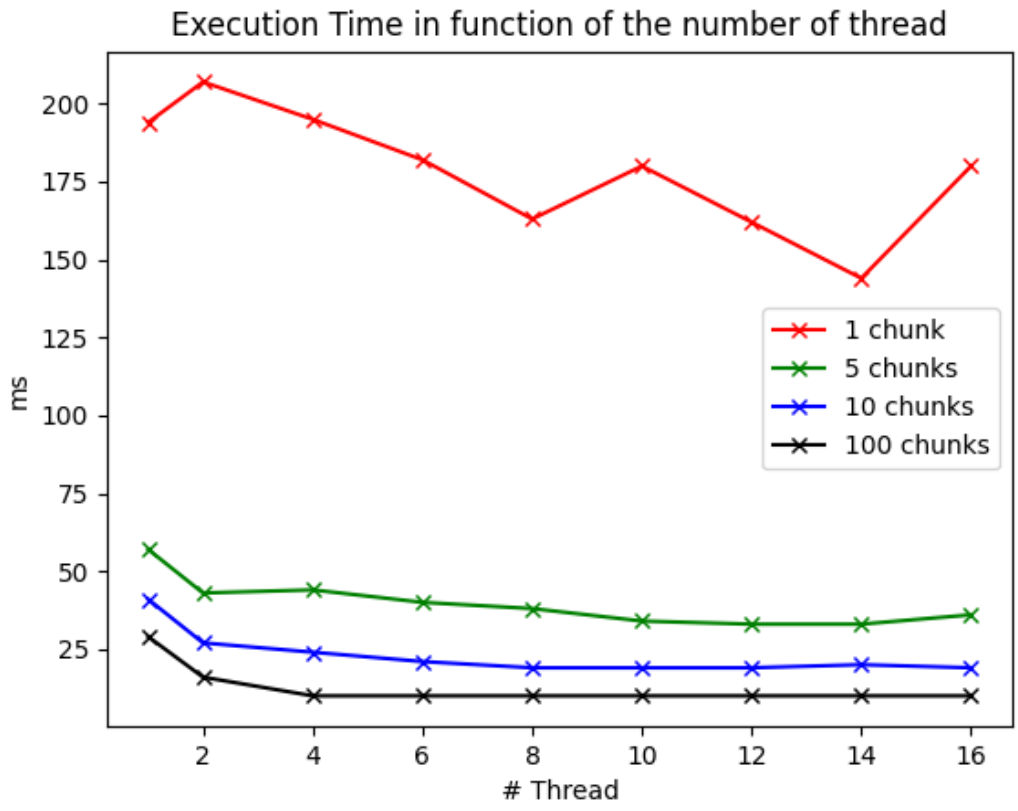
Number of thread	Execution time 1 chunks	Execution time 5 chunks	Execution time 10 chunks	Execution time 100 chunks
1	194	57	41	29
2	207	43	27	16
4	195	44	24	10
6	182	40	21	10
8	163	38	19	10
10	180	34	19	10
12	162	33	19	10
14	144	33	20	10
16	180	36	19	10

Performance

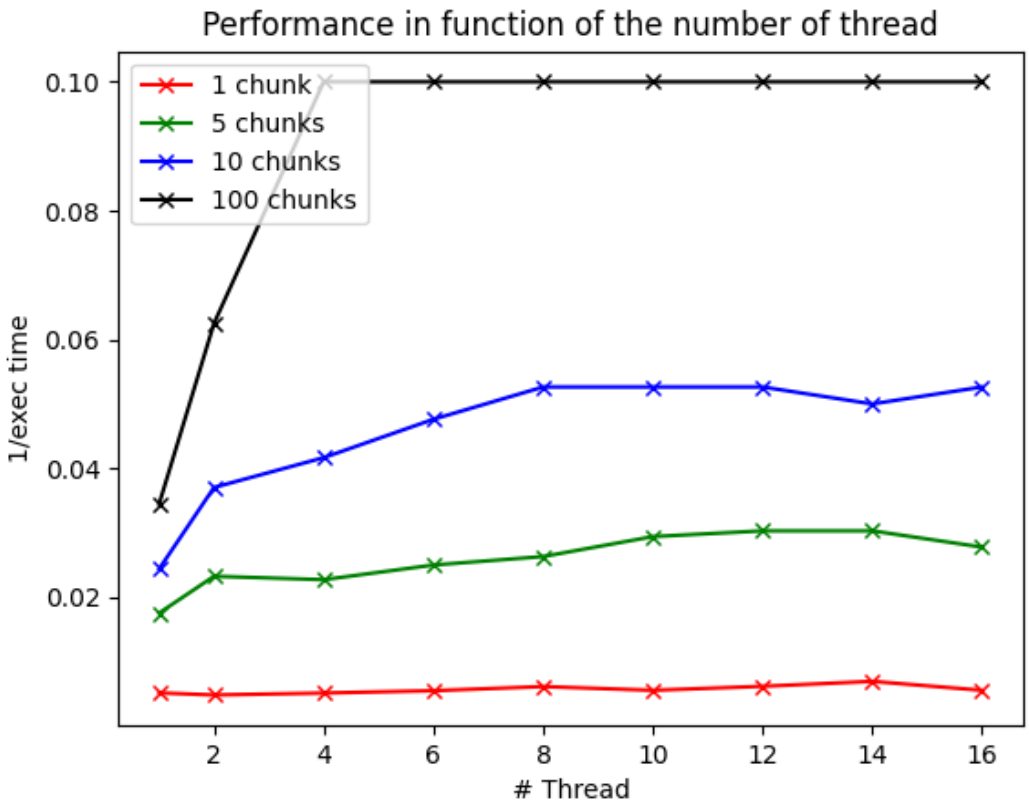
Number of thread	Performance 1 chunks	Performance 5 chunks	Performance 10 chunks	Performance 100 chunks
1	0.005154639175257732	0.017543859649122806	0.024390243902439025	0.034482758620689655
2	0.004830917874396135	0.023255813953488372	0.037037037037037035	0.0625
4	0.005128205128205128	0.022727272727272728	0.041666666666666664	0.1
6	0.005494505494505495	0.025	0.047619047619047616	0.1
8	0.006134969325153374	0.02631578947368421	0.05263157894736842	0.1
10	0.005555555555555556	0.029411764705882353	0.05263157894736842	0.1
12	0.006172839506172839	0.030303030303030304	0.05263157894736842	0.1
14	0.006944444444444444	0.030303030303030304	0.05	0.1
16	0.005555555555555556	0.027777777777777776	0.05263157894736842	0.1

Graphs

Execution time



Performance



Guided

Tables

Execution time

Number of thread	Execution time 1 chunks	Execution time 5 chunks	Execution time 10 chunks	Execution time 100 chunks
1	32	31	27	26
2	15	15	15	15
4	10	9	15	9
6	11	11	11	12
8	11	9	9	9
10	9	9	10	9
12	11	11	11	12
14	12	11	10	9
16	11	11	10	10

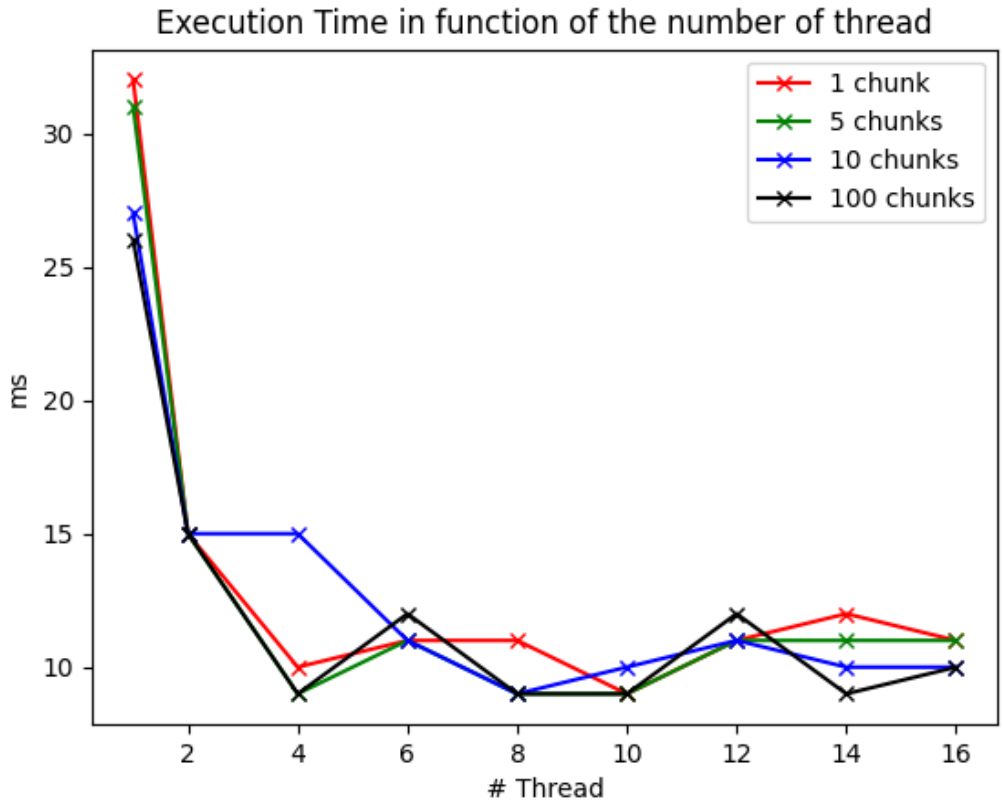
Performance

Number of thread	Performance 1 chunks	Performance 5 chunks	Performance 10 chunks	Performance 100 chunks

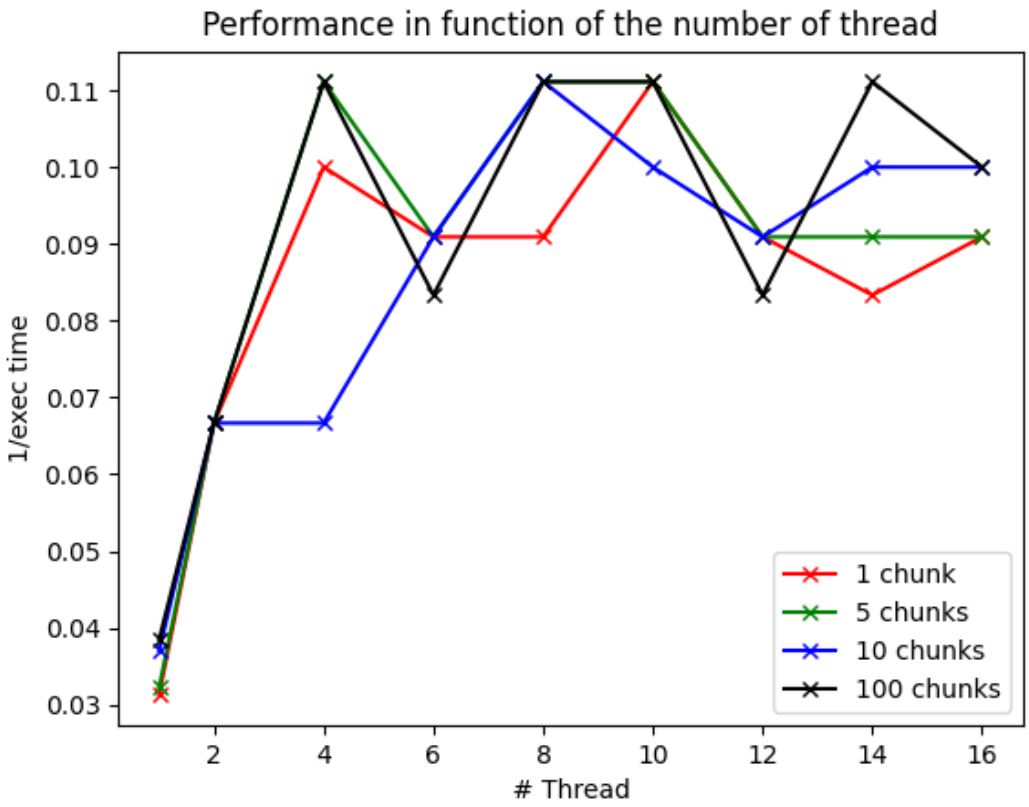
Number of thread	Performance 1 chunks	Performance 5 chunks	Performance 10 chunks	Performance 100 chunks
1	0.03125	0.03225806451612903	0.037037037037037035	0.038461538461538464
2	0.06666666666666667	0.06666666666666667	0.06666666666666667	0.06666666666666667
4	0.1	0.1111111111111111	0.06666666666666667	0.1111111111111111
6	0.09090909090909091	0.09090909090909091	0.09090909090909091	0.08333333333333333
8	0.09090909090909091	0.1111111111111111	0.1111111111111111	0.1111111111111111
10	0.1111111111111111	0.1111111111111111	0.1	0.1111111111111111
12	0.09090909090909091	0.09090909090909091	0.09090909090909091	0.08333333333333333
14	0.08333333333333333	0.09090909090909091	0.1	0.1111111111111111
16	0.09090909090909091	0.09090909090909091	0.1	0.1

Graphs

Execution time



Performance



Explanation

We can see that the more important the chunk size is, the more high the performance is.

This work for every scheduling types.

This is because each task take the same time so threads can do a lot of tasks in one time. We don't need to split thoses tasks.