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Question 1

Part 1

1

- Static ran the fastest

- Time difference between static and guided is very less

Scheduling Type	Time
Dynamic	4179 ms
Static	63 ms
Guided	70 ms

2

- Time reduces significantly in comparision to default

Scheduling Type	Time
dynamic with chunk size 100	102 ms

Part 2

1

- schedule(guided) and schedue(dynamic) are taking least time

Scheduling Type	Time
Dynamic	36000 ms
Static	54001 ms
Guided	36000 ms

Question 2

- Time Taken by code is as follow

Number of Threads	Time
1 Thread	4.985035 s
2 Threads	2.459188 s
4 Threads	1.299682 s
6 Threads	0.914527 s

- When using 6 threads over 1 thread the speedup is 5.45 times.

- When using 4 threads over 1 thread the speedup is 3.84 times.

- The reason for the time not reducing to (1/4)th is because of overhead of thread creation.
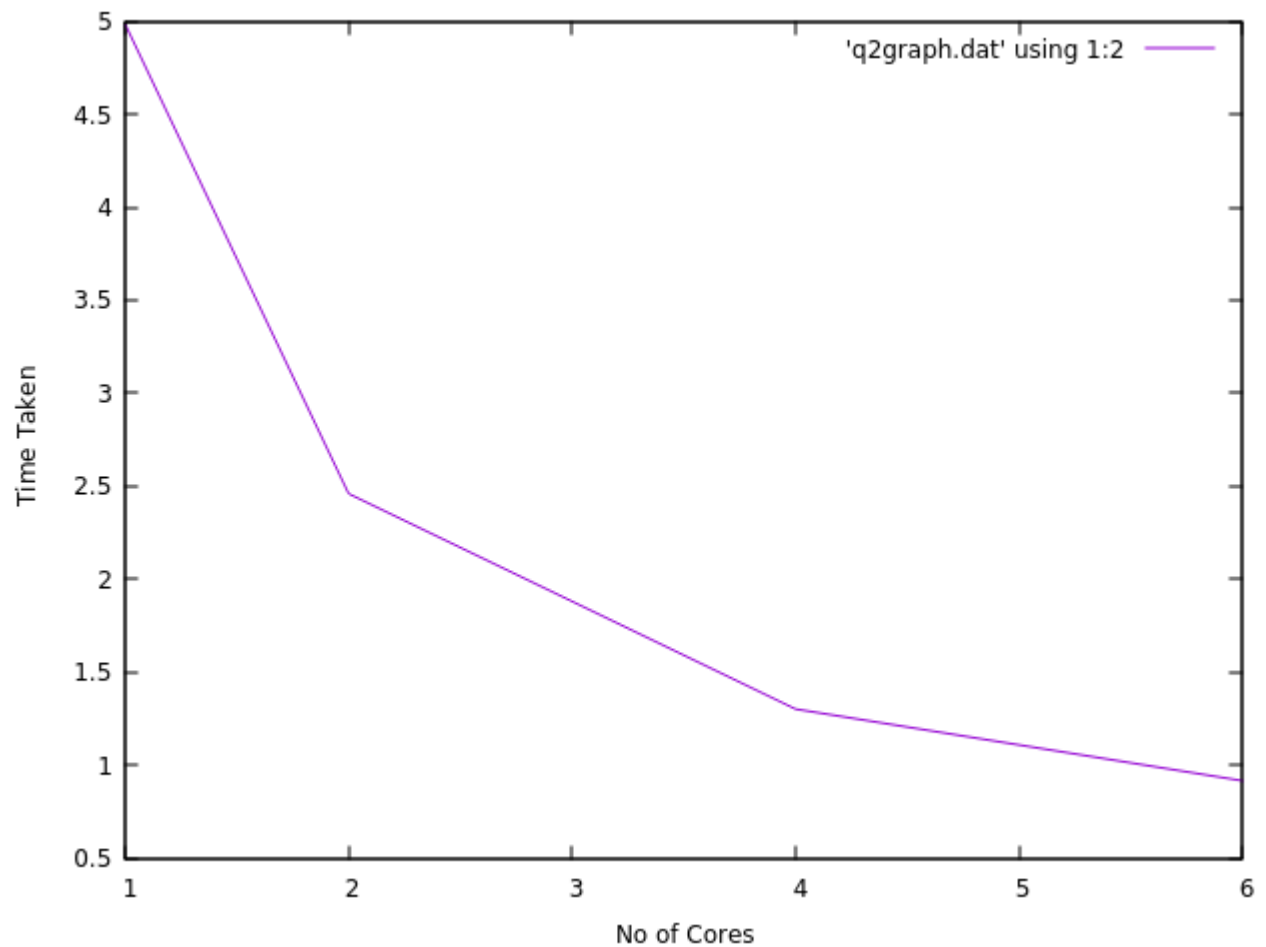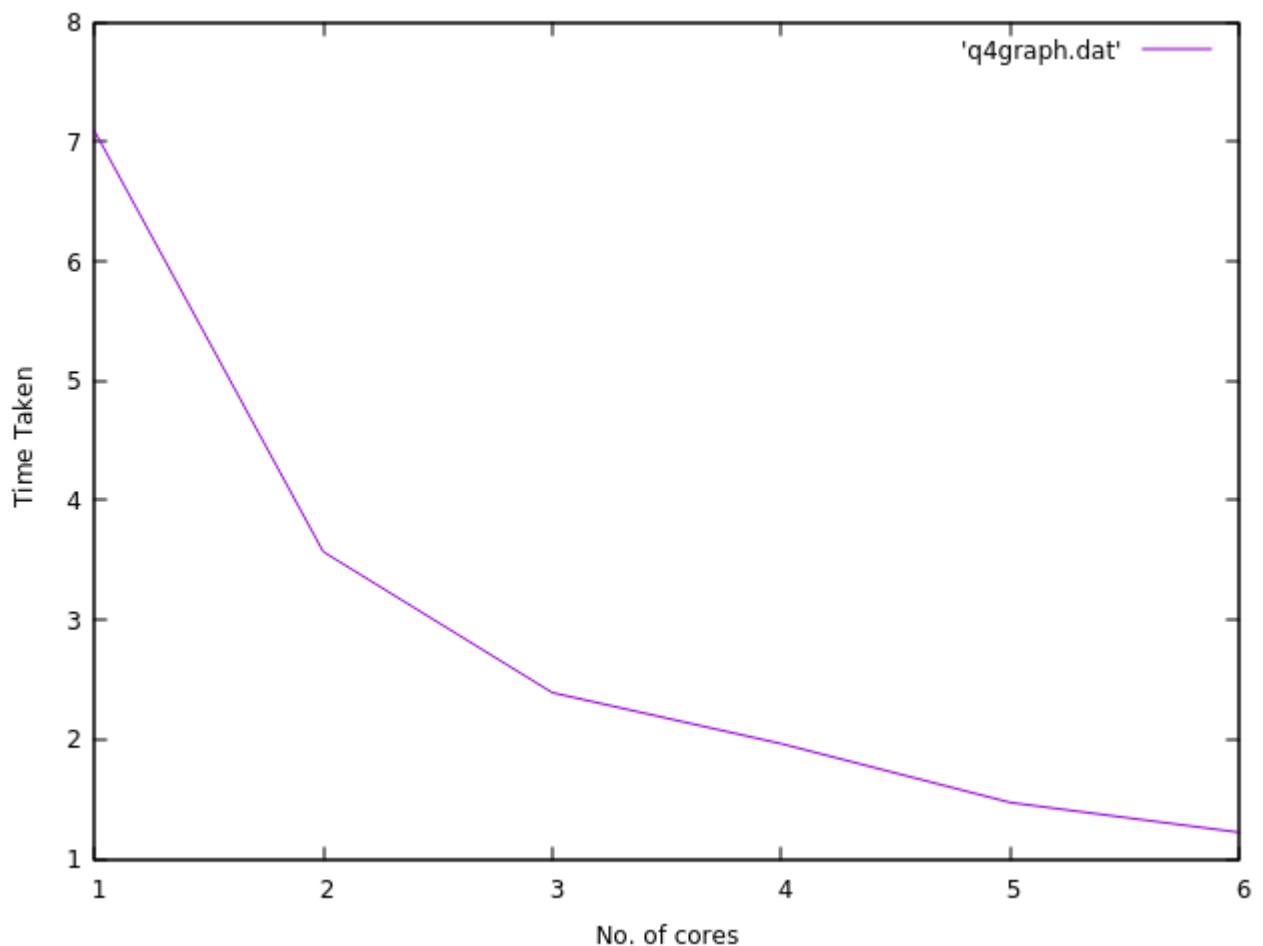

Question 3

- Time Taken by code is as follow

Number of Threads	Time
1 Thread	7.097 s
2 Threads	3.569 s
3 Threads	2.390 s

Number of Threads	Time
4 Threads	1.963 s
5 Threads	1.470 s
6 Threads	1.221 s

- Time Taken by code is as follow

Chunk Size	100	200
Guided Scheduling	1.440 s	1.520 s
Static Scheduling	1.737 s	2.242 s
Dynamic Scheduling	1.481 s	1.538 s

- The Speedup for 6 cores vs 1 core is 5.8124

- Using Scheduling as guided and chunk size 100 the time taken is minimum using 6 threads

Question 4

Part 1

- Starting Balance 0.00

- After deposit balance 10000000.00
- After withdrawl balance 0.00

Part 2

Iteration 1

- Starting Balance 0.00
- After 1000000 $10 deposits, your balance is 1264890.00
- After 1000000 $10 withdrawals, your balance is -86050.00

Iteration 2

- Starting Balance 0.00
- After 1000000 $10 deposits, your balance is 1214550.00
- After 1000000 $10 withdrawals, your balance is -86050.00

Iteration 3

- Starting Balance 0.00
- After 1000000 $10 deposits, your balance is 1213000.00
- After 1000000 $10 withdrawals, your balance is -239640.00

Iteration 4

- Starting Balance 0.00
- After 1000000 $10 deposits, your balance is 1256520.00
- After 1000000 $10 withdrawals, your balance is -339500.00

Part 3

With 1 core

- Starting Balance 0.00
- After deposit balance 0.00
- After withdrawl balance 0.00
- Same result both times

With 4 cores

- Starting Balance 0.00
- After deposit balance 0.00
- After withdrawl balance 0.00
- Same result both times

Part 4

Same result with 1 and 4 cores

- Starting Balance 0.00

- After deposit balance 10000000.00
- After withdrawl balance 0.00
- Same result both times

Part 5

Same result with 1 and 4 cores

- Starting Balance 0.00
- After deposit balance 10000000.00
- After withdrawl balance 0.00

Observations:

- In part 4 the balance variable is made critical thus the result is correct.
- In part 5 we are using reduction, hence the answer is correct.