Parallel and Distributed Systems

Homework 1-Vantage Point Tree

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- Source code can be found in the links below:
  https://www.dropbox.com/s/u0qkqpdloibq5ne/code.tar.gz?dl=0

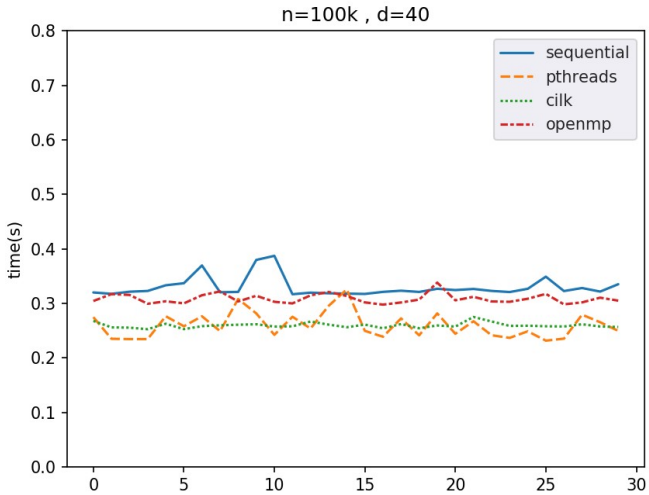
  https://github.com/schristofo/vptree

This is a report for the execution time results of the Vantage Point Tree problem using sequential and parallel (POSIX threads,CILK,OpenMP) programming. Several tests and their time performances using different N(data points) and D(dimensions of each point) values,are shown below.

➔ Test with N:100k , D:40 , Single execution:

- Sequential: 0.322691s
- Pthreads: 0.234327s
- CILK: 0.252434s
- OpenMP: 0.299167s

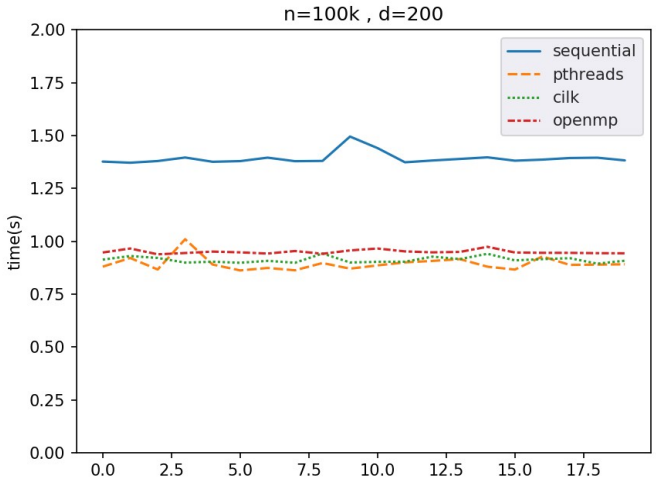
Diagram after 30 repetitions:



➔ Test with N:100k , D:200 , Single execution:

- Sequential: 1.376891s
- Pthreads: 0.879696s
- CILK: 0.913042s
- OpenMP: 0.946748s

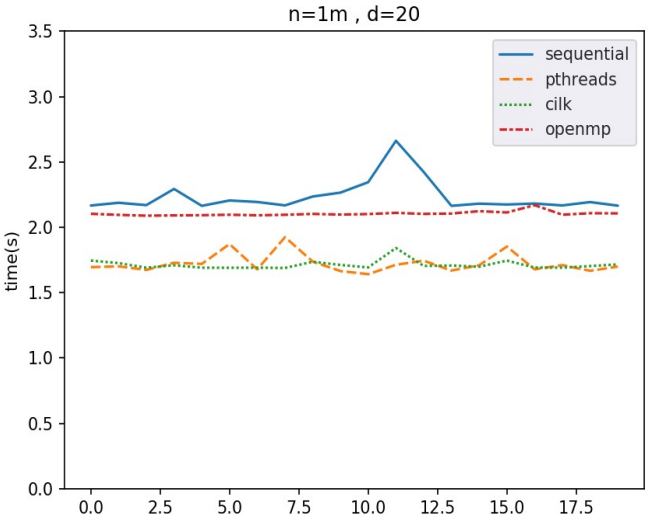
Diagram after 20 repetitions:



➔ Test with N:1M , D:20 , Single execution:

- Sequential: 2.293388s
- Pthreads: 1.728449s
- CILK: 1.709189s
- OpenMP: 2.091284s

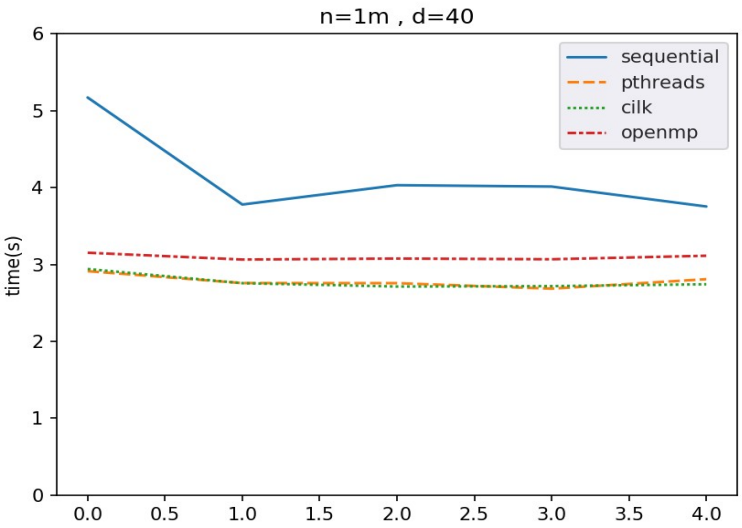
Diagram after 20 repetitions:



➔ Test with N:1M , D:40 , Single execution:

- Sequential: 4.031638s
- Pthreads: 2.757231s
- CILK: 2.713561s
- OpenMP: 3.077271s

Diagram after 5 repetitions:



➔ Test with N:1.2M , D:30 , Single execution:

- Sequential: 3.714139s
- Pthreads: 2.746347s
- CILK: 2.919117s
- OpenMP: 3.170140s

Diagram after 5 repetitions: