

DATA SYSTEMS

ASSIGNMENT 2

Roll no : 2020201026

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1) System Configuration

Processor: Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz

System memory: 8GiB

Hard disk: 1TB

Base system: Linux Mint 19

2) Results

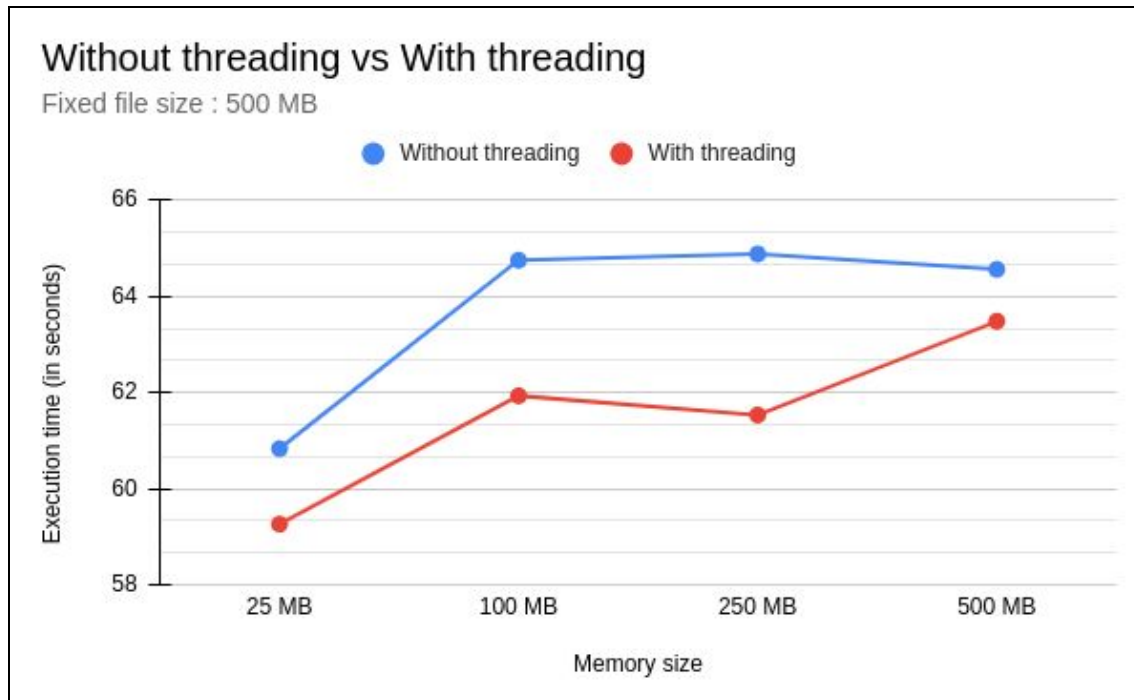
Part 1:

Fixed memory size : 100 MB	
File size	Execution Time (seconds)
5 MB	0.57
50 MB	5.85
500 MB	64.75
1 GB	143.87
2 GB	319.06



Part 2:

Fixed file size : 500 MB		
Memory size	Execution Time (seconds)	
	Without threading	With threading
25 MB	60.83	59.26
100 MB	64.75	61.93
250 MB	64.88	61.53
500 MB	64.56	63.48



3) Memory consumption check

Part-1

Phase1:

{ (no. of records read at a time) * (record size [without delimiter]) } <= (memory size)

Phase2:

{ (no. of records read from 1 subfile) * (no. of subfiles) * (record size [without delimiter]) } <= (memory size)

Part-2

Phase1:

{ (lines per thread) * (no. of threads) * (record size [without delimiter]) } <= (memory size)

Phase2:

{ (no. of records read from 1 subfile) * (no. of subfiles) * (record size [without delimiter]) } <= (memory size)

Feasibility check: at least 1 record should be read from each sub-file