

CLE ASSIGNMENT 1

By:

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General Concept (Main Thread)

- Reads parameters (files, worker count)
- Generates shared memory content, including a FIFO task queue and a result storage area
- Initializes Workers
- Waits for workers to finish and prints results

General Concept (Worker Threads)

- Workers can do IO work or process file chunks
- If an IO worker cannot queue up further chunk processing they handle chunk themselves
- IO workers eventually degrade into normal workers
- All workers do IO while there are enough available files

Word Count

- Processable chunks are char arrays.
- After reading 450 bytes IO worker stops reading at end of next word and publishes a chunk.

Determinant Calculus

- Processable chunks are matrices

Results (average times)

5 files
Word Count (full dataset):

- 1 worker: 0.00336s
- 2 workers: 0.00179s
- 4 workers: 0.00127s
- 8 workers: 0.00113s

4 files
Determinant Calculus (short dataset):

- 1 worker: 3.522s
- 2 workers: 1.781s
- 4 workers: 0.969s
- 8 workers: 0.819s