



**ELECTRICAL & COMPUTER
ENGINEERING**
TEXAS A&M UNIVERSITY

PA5: High Concurrency without many Threads

Maria Dmitrievskaia

UIN: 927009911

CSCE 313 – 512

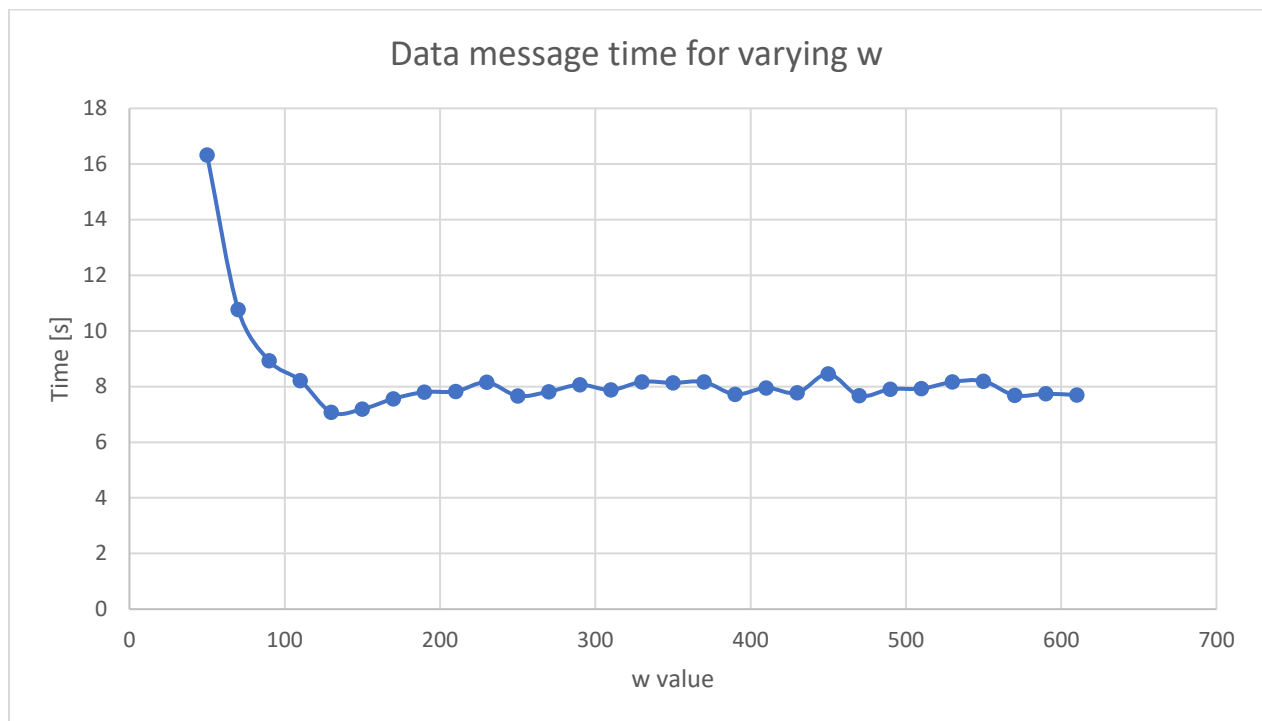
Due Date: November 6th, 2020

Design:

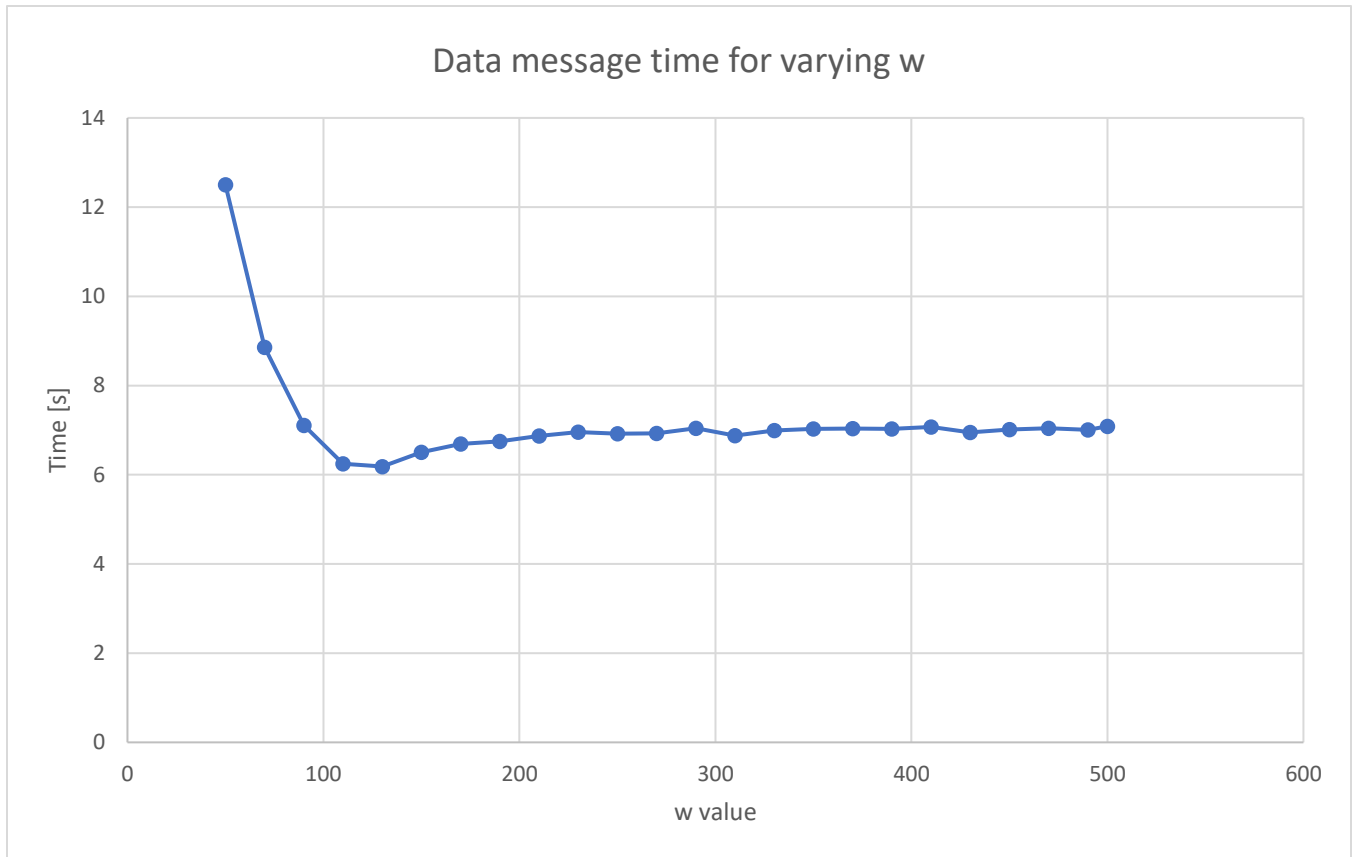
The design of this code builds on the code of PA4 and further improves the performance of the client by reducing the thread management overhead. This is done by replacing the worker threads by one thread to manage all of the request channels. The worker thread in PA5 avoids the idle time between sending a request and receiving a response by decoupling two operation and using the saved time on the rest of the channels. Epoll is used to monitor activity in several IPC endpoints.

Time Graphs:

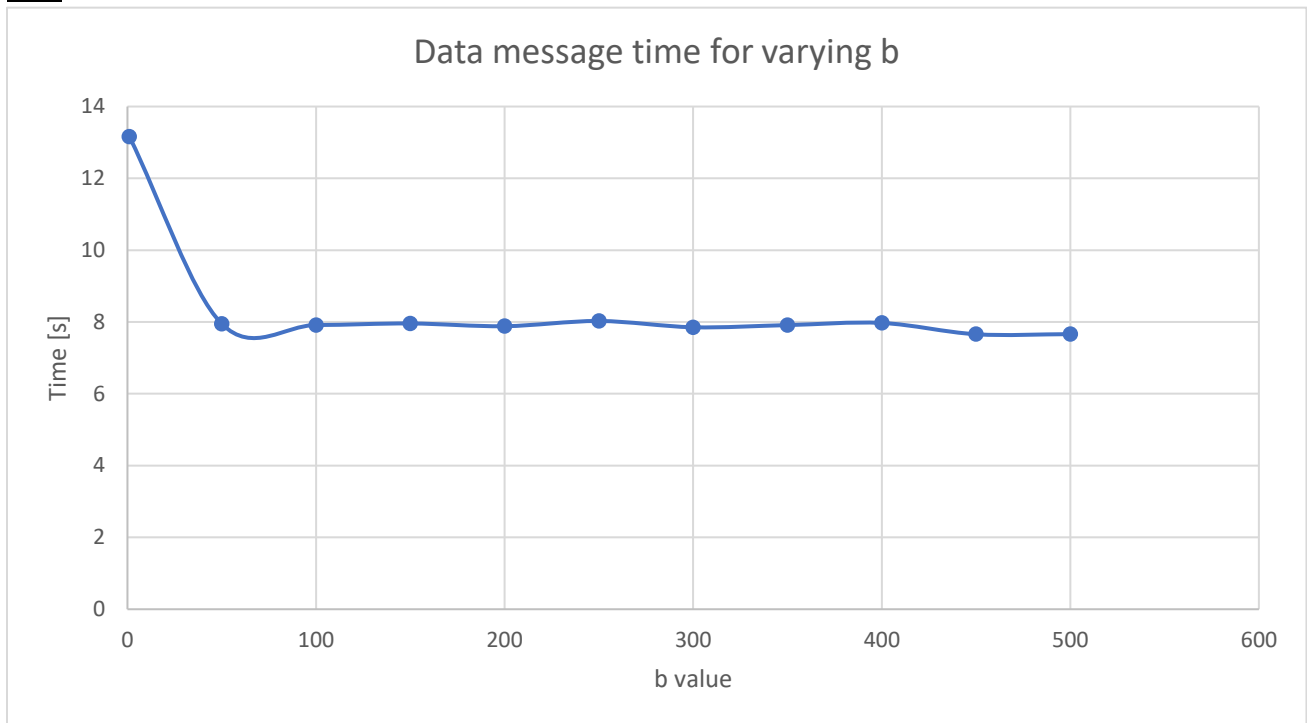
PA4:



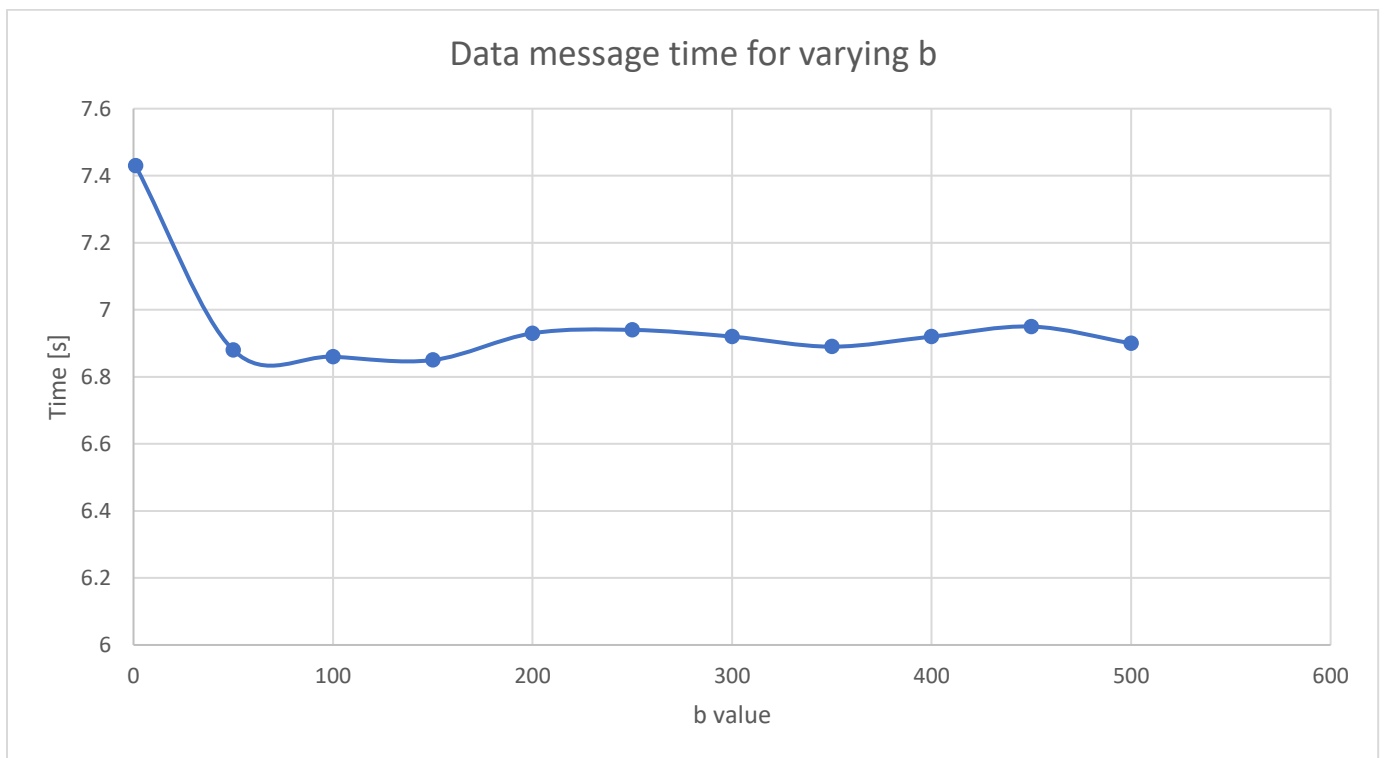
PA5:



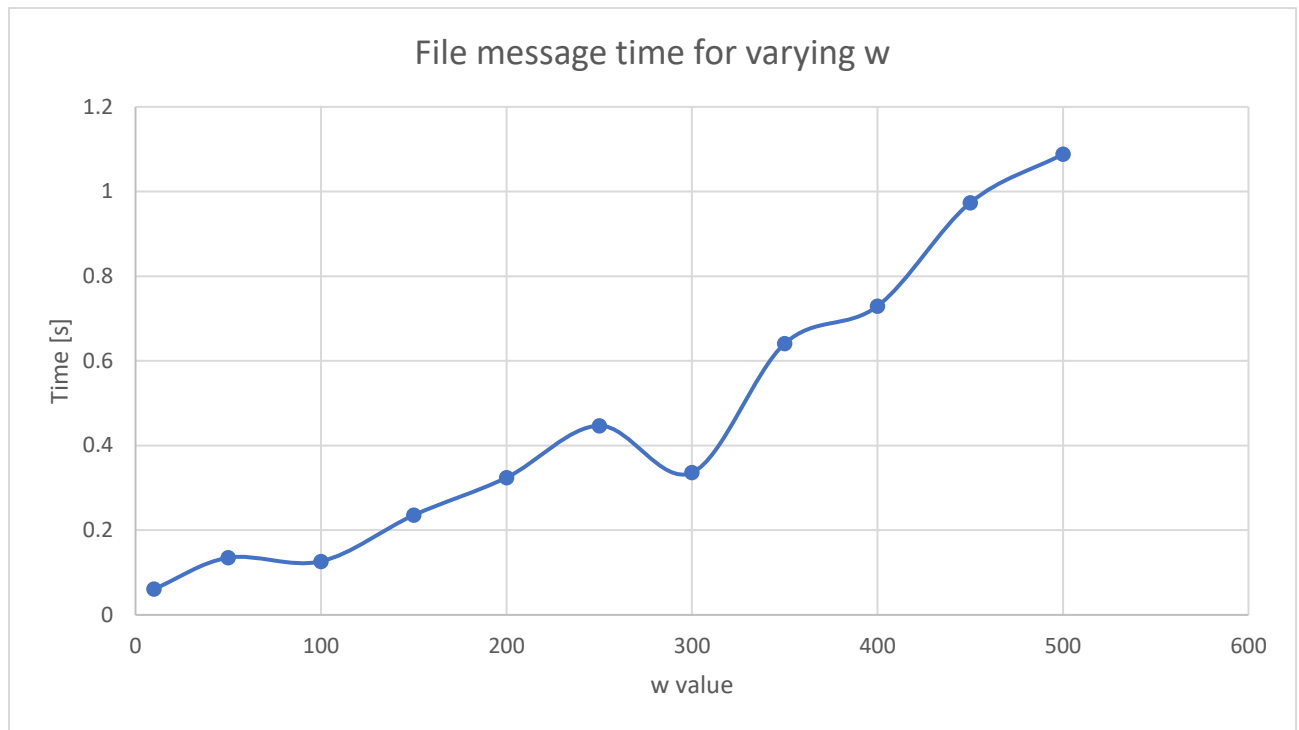
PA4:



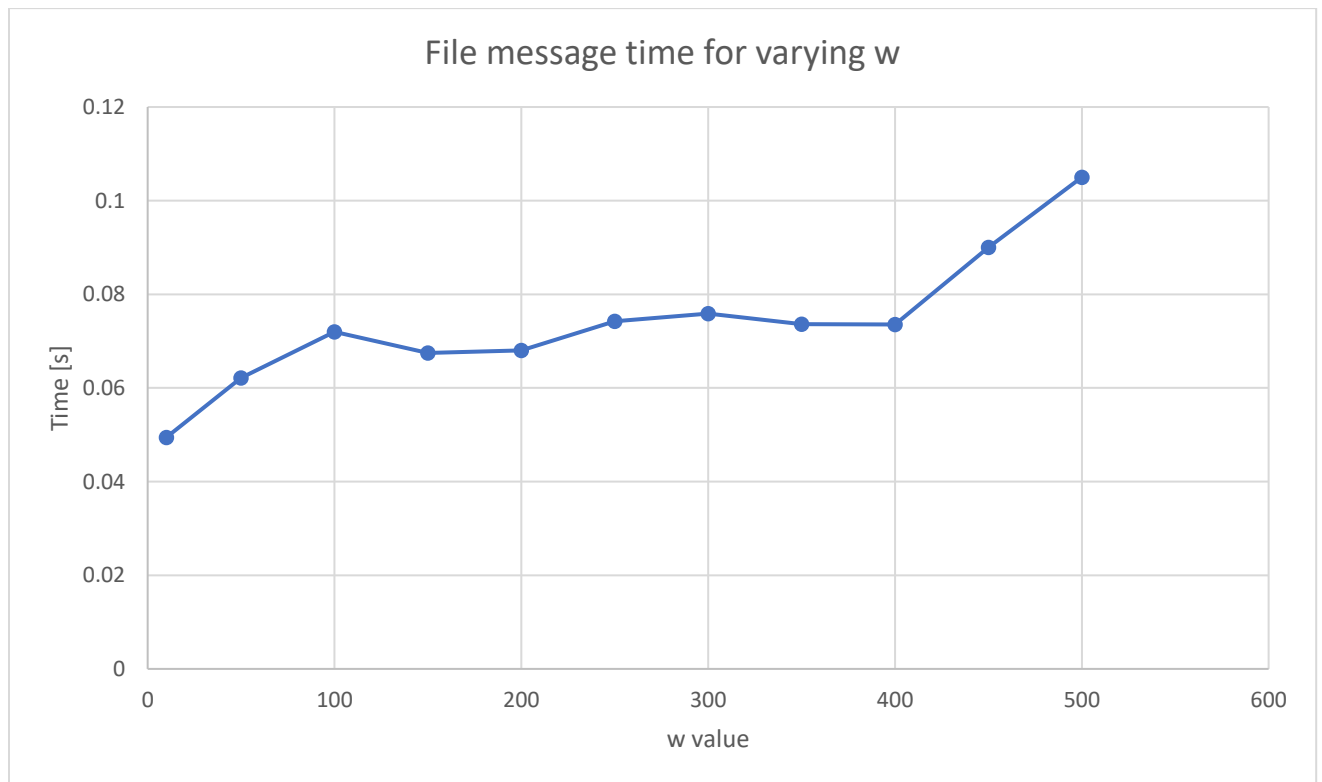
PA5:



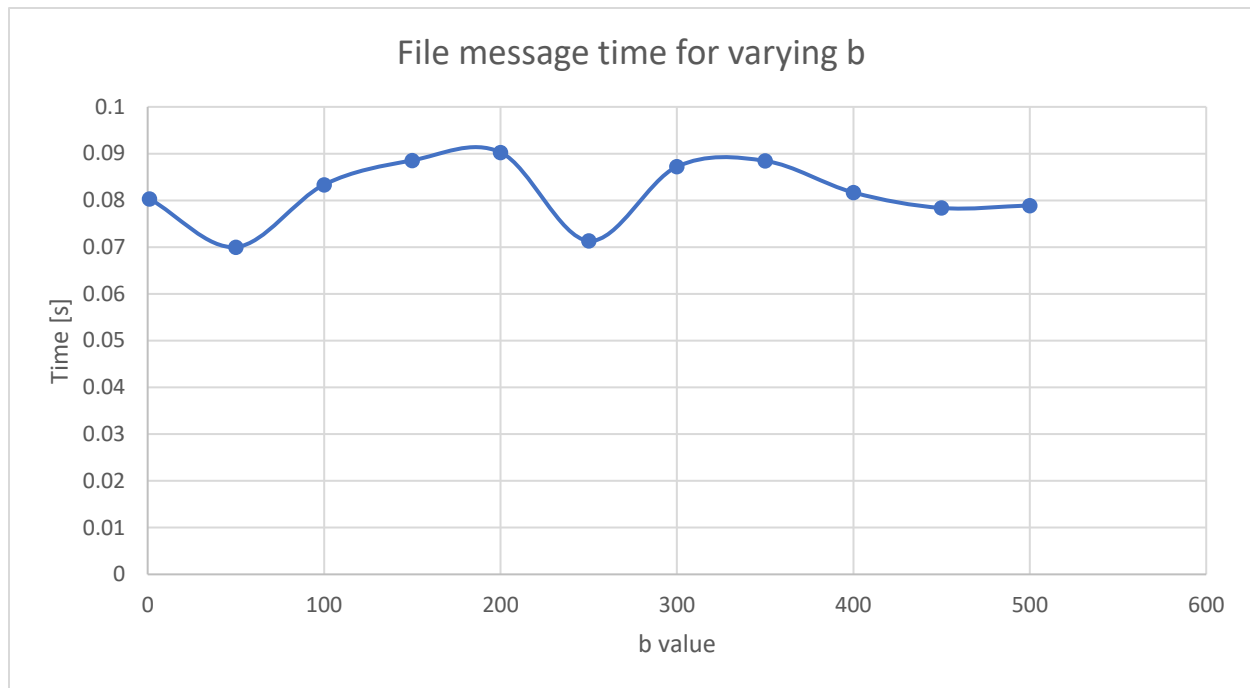
PA4:



PA5:



PA5:



Results:

Comparing the results from PA4, the runtime for PA5 is slightly faster. The point of diminishing return for PA4 was about 130 worker threads, which stayed roughly the same (around 130 for PA5). For the file transfers, PA5 solution is slightly faster, however, I believe this is due to me running the program on a different system.

Google Drive Video Link:

<https://drive.google.com/file/d/1HjS7ZkPgKZxHKWWKthgFVvHzgxULTib/view?usp=sharing>