Lab 9 report

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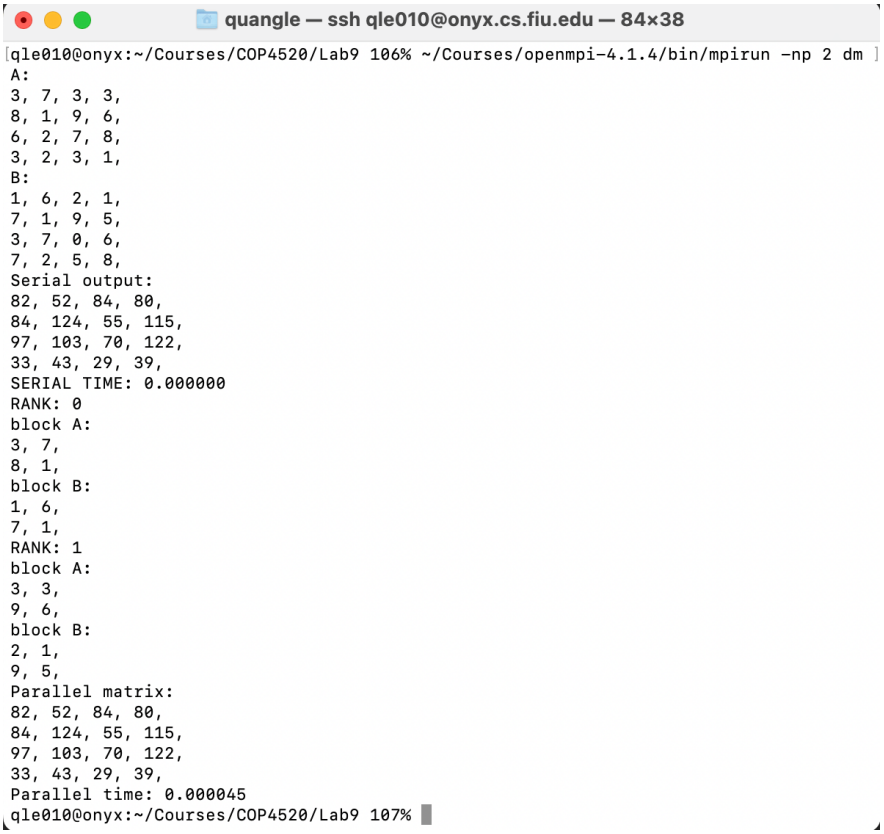
Task: Biological Systems

- Here is the result to prove the execution is correct when serial output and parallel output are equal:



- Here is the result for the performance of four pairs of n and q (n is divisible by q), n is the matrix size nxn, and q is the block size. To be fair for the performance between serial code and parallel code, I commented all print parts because the code is proved executing correctly.

nxn & q	Serial time	Parallel time
4x4 & 2 (with np=2)	0.000000	0.000028
100x100 & 2 (with np=4)	0.003359	0.003629
500x500 & 4 (with np=4)	0.598247	0.596592
600x600 & 8 (with np=16)	0.992589	0.895435

- From what I see, the performance of serial and parallel matrix multiply are quite approximate. For small matrix sizes, the overhead of parallelization seems outweigh the benefits, so the time execution is greater. But when the matrix size grows larger, parallelization is more effective.