Ananiya Deneke - Gaussian report 5/10/23

To perform Gaussian elimination using pthreads, we can take advantage of the fact that each row of the matrix U can be processed independently of the other rows. Therefore, we can create a pthread for each row of the matrix U and have each pthread perform the same computations as the original serial code, but only for that row.

|  |  |
| --- | --- |
| Matrix sizes | Test Pass/Fail |
| 512 x 512 | Pass |
| 1024 x 1024 | Pass |
| 2048 x 2048 | Pass |

The program given to us accepts the width of the square matrix as the command-line parameter. The upper-diagonal matrix generated by the multi-threaded code is compared against the reference single-threaded result and if the solutions match within a certain tolerance, the application will print out “TEST PASSED” to the screen before exiting.

I tested the code for matrix sizes 512, 1024, and 2048