Lab2 - Matrix multiplication report

The implementation of multi threading in a matrix multiplication is not necessarily the optimal solution. Depending on your computer, the results of using multiple thread wan vary. Moreover, not only the computer influence the execution time, but also the sata. The size of the matrix to multiply will make the multithreading better in some cases, but not all the time.

For example, in this program, depending on the size of the matrix, the execution time will vary. If the matrix is small, the multithreading process will not be worth the time it takes to be use, so the execution time will be higher than a normal execution. However, of the matrix is big, the multithreading will be much more performant and better execution time will be archived.

This are some execution time result from the program on 30 iterations:

Matrix size	**100x100**	**1010x1000**
Thread program	16.6ms	2874.66666666667ms
No thread program	4.2ms	10259.7333333333ms
Ratio	~3.9	~3.5

In this example, the program was launch 30 times for each type of program (with and without threads). The result show that for a small matrix multiplication, the program that use no thread is almost 4 times faster that the program that uses thread. However, the program with thread is 3.5 times faster that the one without thread.

To conclude, the use of thread is not always a good thing to do. It depends on your computers and the size of your data set. Each cases are different and need to determine if it is necessary to use multithreading in the project.