# SIT315 – Programming Paradigms

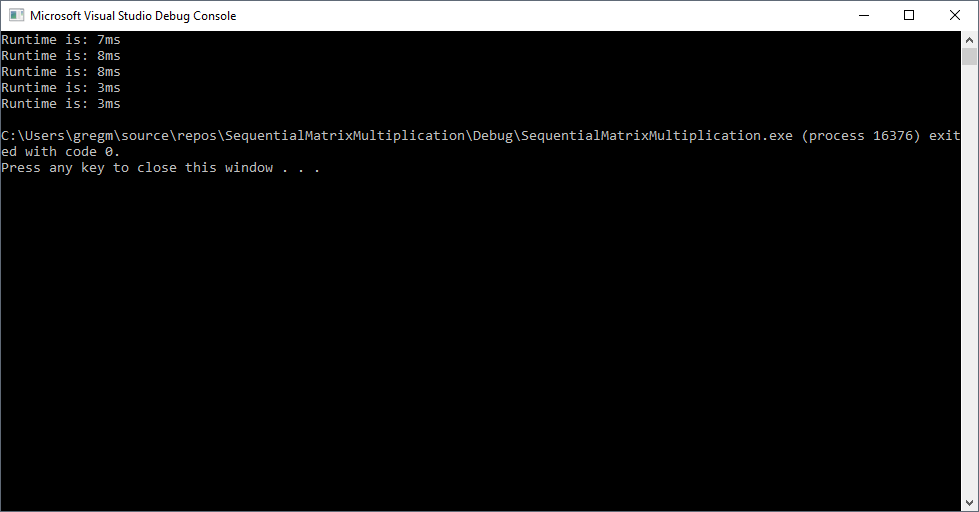
TaskM2.T1P: Parallel Matrix Multiplication

### 1. Implement a sequential matrix multiplication program in C or C++.

Written in C++.

<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M2.T1P%20-%20Parallel%20Matrix%20Multiplication>

### 2. At the end of the program, please print the execution time.



### 3. Once you have completed and tested the program, please review your code and develop a roadmap to parallelise your code.

To parallelise my code, I would like to have the following loops happen in parallel:

value = 0;

for (int k = 0; k < n; k++)

{

value += array1[i][k] \* array2[k][j];

}

arrayOut[i][j] = value;

the array values are independent of each other and should be able to be implemented parallel.

### 4. Implement your parallel algorithm in C or C++ using pthread library

Same Git

<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M2.T1P%20-%20Parallel%20Matrix%20Multiplication>

### 5. Evaluate the performance of your program

### 6. Modify your sequential program to use OpenMP to achieve parallelism

Same Git

<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M2.T1P%20-%20Parallel%20Matrix%20Multiplication>

### 7. Evaluate the performance of the OpenMP implementation vs pthread implementation vs the sequential program

### 8. Submit your task as detailed on the submission details section above to OnTrack

Submitted