Fall 2016 BIOSTAT 815 Problem Set #4

Submission Guide:

- Due is Wednesday December 7th 11:59pm.

- You will need to submit the following item:

    1. A google doc document containing the absolute paths to the binary and the source code of your homework, and the link to the google doc in Canvas submission.
    2. Make sure that the files have permission to read and execute (for binaries) by anyone, including your instructor.
    3. Make sure that you are observing similar results from the class slides.

Problem 1. Multithread programming and Matrix programming

Review the slides of Multithread Programming and Matrix Computation to complete the following six programs.

(a) Naive matrix ultiplication, single threaded.

(b) Naive matrix multiplication, four threads, using pthread.

(c) Naive matrix multiplication, four threads, using OpenMP.

(d) Transposed version of naive matrix multiplication, single threaded.

(e) Matrix multiplication using Eigen library.

(f) Matrix multiplication using OpenBLAS.

Name each of the program as `hw4a.cpp`, ..., `hw4f.cpp`, and name the binaries as `hw4a`, ..., `hw4f`, repectively. For each program, you must include the command lines used for compiling and running the code, with the screenshot (image) of the running results. Make sure that all of these files are accessible publicly so that the instructor can examine them.