Bilkent University

Computer Engineering

CS 342 – Operating Systems

Fall 2016

Project 3

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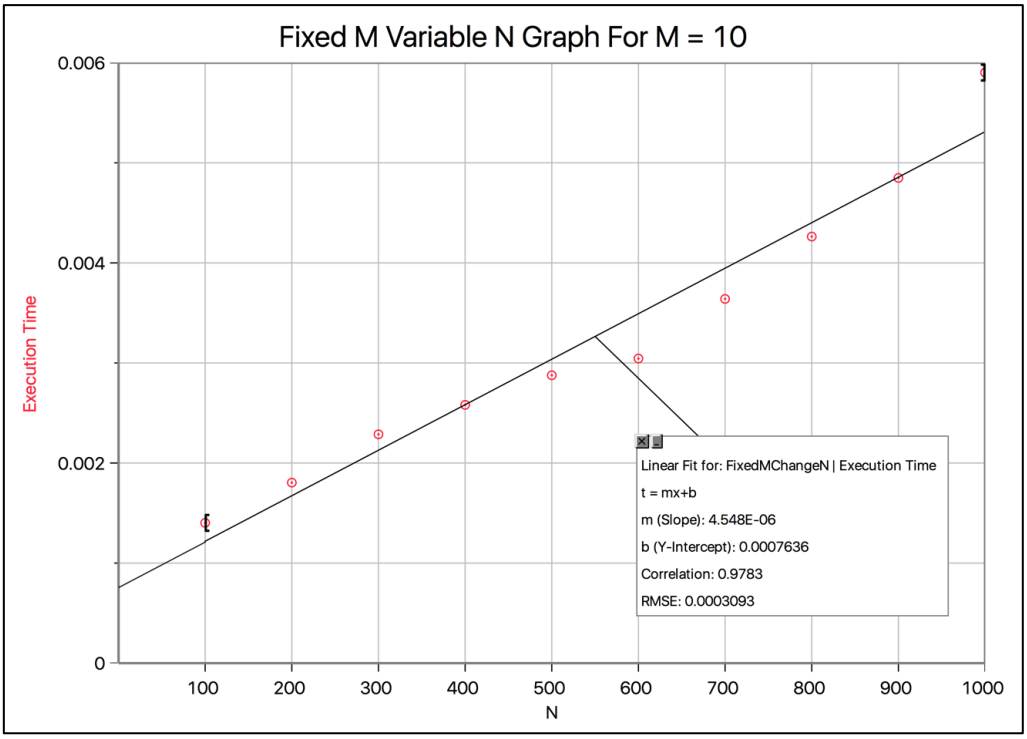
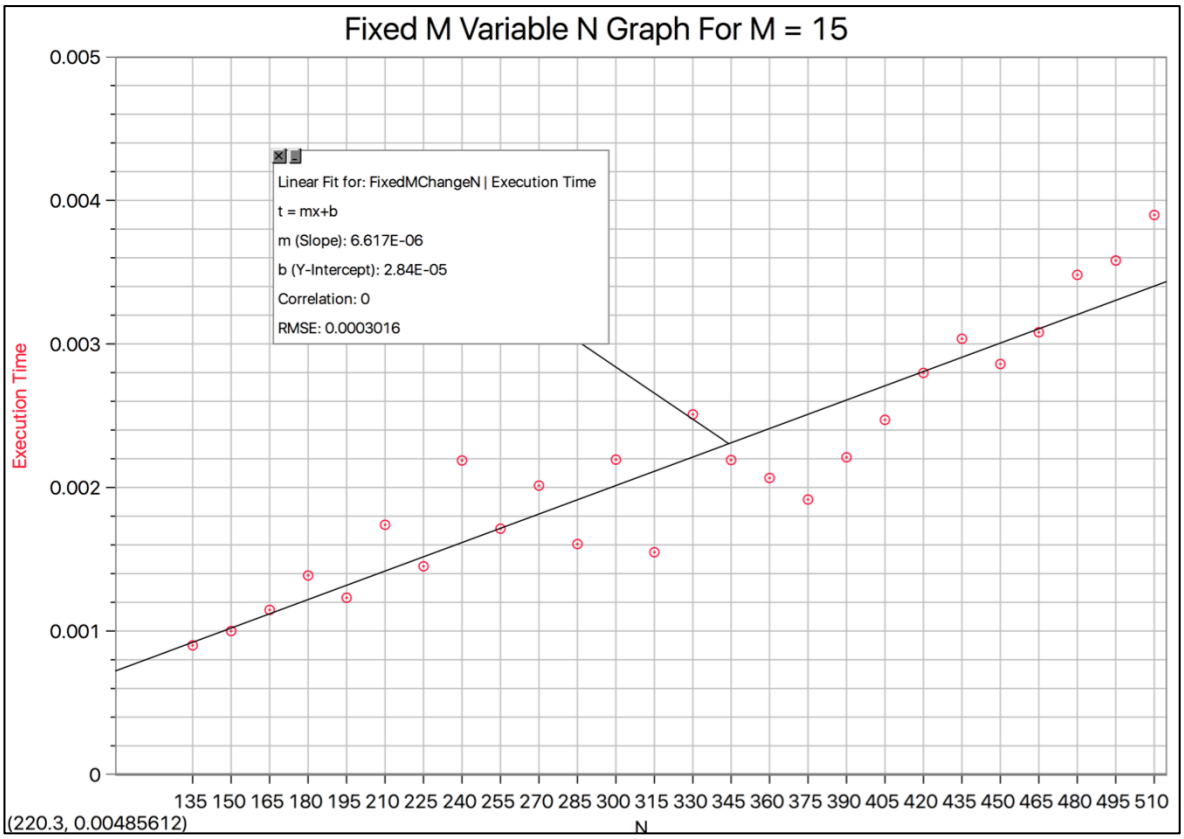
Assigned: November 10, 2016

Due Date: November 24, 2016

1. Fixed M Changing N Graphs



Graph 1 – Graph of Execution Time vs. N (Number of Buckets) For M = 10 (Number of Buckets in a Region)



Graph 2 - *Graph of Execution Time vs. N (Number of Buckets) For M = 15 (Number of Buckets in a Region)*

2. Mean and Standard Deviation for Executing Multi–Threaded Program 100 Times for Fixed N and M

N = 480, M = 15

Mean = 0.00168955

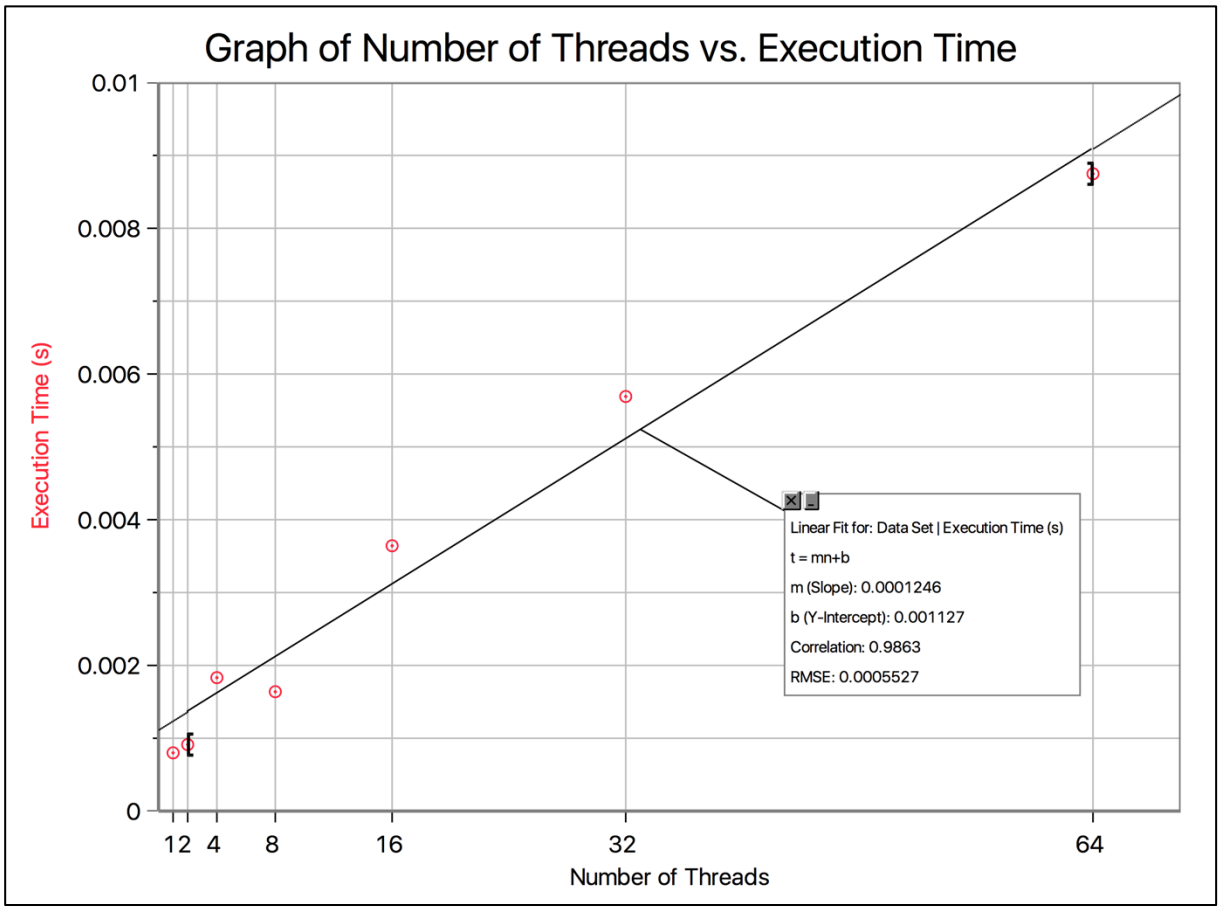
Standard Deviation = 0.01417388

0.001295	0.004630	0.000301	0.001522
0.003632	0.001988	0.001237	0.001001
0.001125	0.001037	0.000484	0.000771
0.002627	0.001131	0.001619	0.001400
0.002889	0.000872	0.003338	0.000961
0.002845	0.000862	0.002073	0.001038
0.001324	0.001317	0.001390	0.000626
0.000909	0.001206	0.001148	0.000550
0.000904	0.001073	0.000982	0.005702
0.000870	0.006039	0.001189	0.000690
0.001343	0.000819	0.001513	0.001403
0.001113	0.001018	0.001513	0.001237
0.001249	0.001274	0.001281	0.001131
0.000728	0.005264	0.000741	0.001032
0.000432	0.003479	0.000588	0.001273
0.000311	0.005300	0.001393	0.001018
0.000977	0.000969	0.002395	0.000722
0.001156	0.003021	0.001295	0.005111
0.000999	0.001358	0.001287	0.000968
0.000474	0.004492	0.006164	0.001174
0.001013	0.005148	0.001116	0.004832
0.000598	0.001211	0.001267	0.001110
0.000986	0.000920	0.000689	0.001073
0.000682	0.000986	0.000802	0.002418
0.000729	0.005278	0.001478	0.001007

Table 1 – Table of Execution Times for Fixed N and M

3. Execution Time For Different Number of Threads of Fixed N and M

N = 480, M = 15

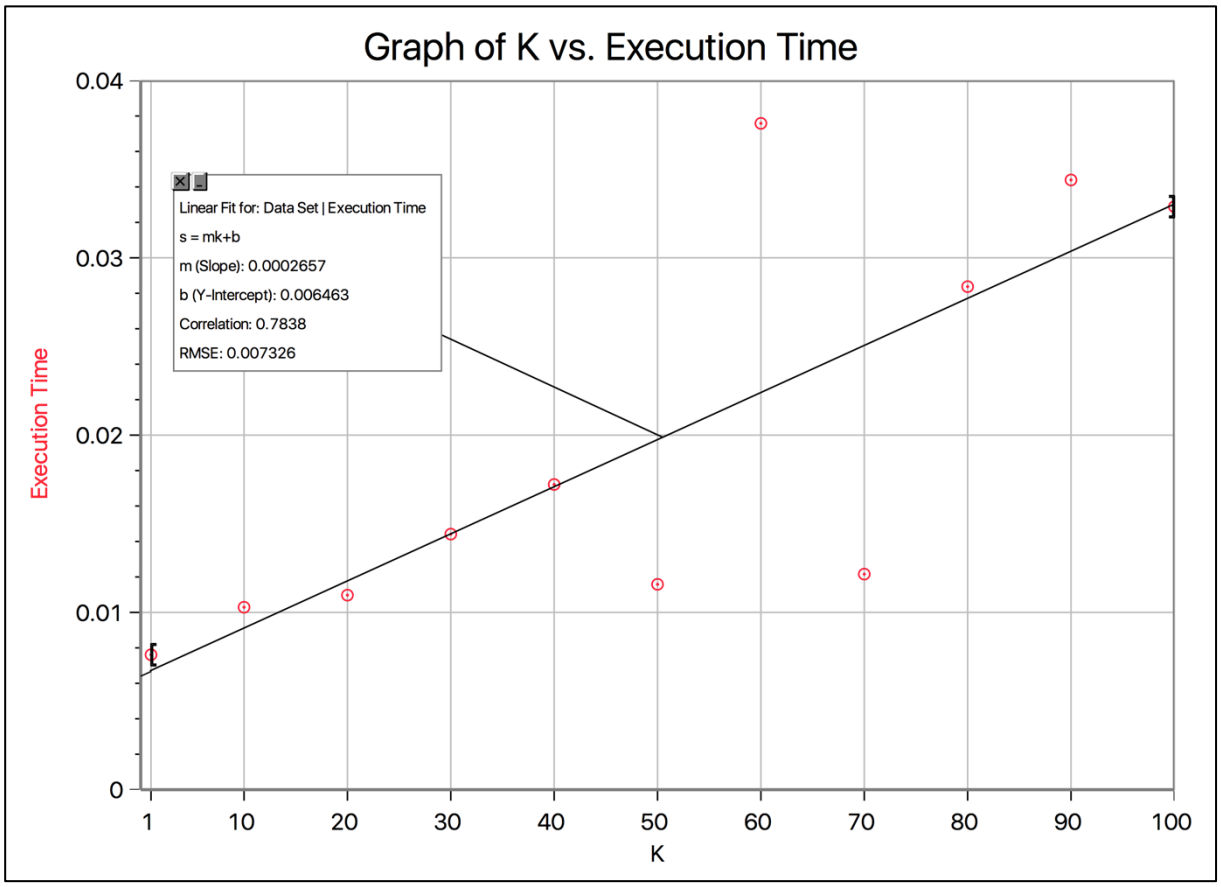


Graph 3 – Graph of Number of Threads vs. Execution Time for Fixed N and M

By luck, there was a linear fit with a high correlation was obtained for different number of threads, however, this can sometimes involve a lot of anomalies because of the overheads caused by creating new threads.

4. Execution Time For Different Number of Threads of Fixed N and M

N = 1000



Graph 4 – Graph of K = N/M vs. Execution Time for Fixed N and Changing M

This graph had a linear fit, but the correlation is too low, meaning that there were a lot of anomalies, causing the linear fit to be not very straight. Therefore the standard deviation is very high. The first five values were linear, but because of the overhead, the remaining execution time values are so different. They decrease the correlation.