



Running Time Analysis:

In my homework submission I gave the asymptotical upper bound that the algorithm will run, in worst-case, n^3 .

I ran a few tests on my computer that check the running time for multiple test cases where n is substantially different.

Those cases are:

$n = 50$
 $n = 100$
 $n = 200$
 $n = 300$
 $n = 400$
 $n = 500$

The Results: (milli-seconds)

$n = 50 : 52.3$
 $n = 100 : 88.67$
 $n = 200 : 1184$
 $n = 300 : 6643.67$
 $n = 400 : 26171.67$
 $n = 500 : 72770.34$

The graphs that I have rendered show a steady increase in slope within the running times of my program, and you can see the steady trend of an increasingly high running time as n starts to near relatively high values. At around $n = 500$ my computer was

taking around 5 minutes to compute the average of 3 tests, which becomes increasingly difficult to test. I can assume that the running time I stated, $O(n^3)$ will definitely hold as a running time exceeding that does not seem plausible.