62:206 Lab 6

1. Show that (n+1)5 is O(n5).

K = 1

Assuming n>1

(n+1) 5/n5 < (n+n) 5/n5 = (2n)5/n5 = 32n5/n5 = 32

C = 32

Because (n+1)5 <= 32n5 when n >= 1 we can say that (n+1)5 is O(n5)

1. In class we went through 2 algorithms for Prefix Averages, one that ran in big-Oh n2 time and a second that ran in big-Oh n time. Code up methods for both algorithms. Show through different input examples and using the Current Time method call how the polynomial time algorithm runs slower than the linear time version. Use system.out.println statement to show your results.

Because the N2 algorithm has a substantially longer running time, especially for the second instance of it, it shows that the N algorithm is indeed more efficient.