

CDS251HW5 Report

Submission: Write a short report about your experience with implementing Bubble Sort

The homework itself was pretty simple, acting mostly as an extension from the lab. Indexing is a clever trick I had yet to use in my programming past, and definitely plan to incorporate that in future projects. During the lab upon initial introduction it was intuitive and easy to understand, a good experience all around. I've not personally done much with "handmade" Bubble sorting, as in my experience I've been able to rely upon prebuilt sorting methods.

Extra Credit:

Numbers2.txt user runtime:

14.137s

200k numbers O() Time:

Compute how long it would take 200,000 numbers to be sorted using $O()$ formula from algorithm complexity:

$$t_2 = t_1 \cdot \left(\frac{n_2}{n_1}\right)^2$$
$$t_2 = 14.137s \cdot \left(\frac{200,000}{100,000}\right)^2 = 14.137s \cdot (2)^2 = 14.137s \cdot 4 = 56.548s$$

Numbers3.txt user runtime:

1m38.679s

Compare Theoretical and Actual Run time:

The actual run time significantly outpaced the theoretical run time, almost double the expectation.