

EE3980 Algorithms

Homework 7. Linear Sort

Due: Apr. 20, 2019

In homework 2 we have implemented heap sort that reaches $\mathcal{O}(n \lg n)$ complexity, which was claimed to be best in comparison-based sorting algorithms. Yet, non-comparison-based algorithms were shown to have even lower complexity of $\mathcal{O}(n)$. Your assignment in this homework is to implement an $\mathcal{O}(n)$ sorting algorithm that is capable of sorting English wordlists. Nine wordlist files, `w11.dat`–`w19.dat`, are also provided for you to test your algorithm. The followings are known for those wordlist files:

1. All words are consist of lower-case letters only.
2. The maximum number of letters of the words is 14.

You are encouraged to compare the performance of this new algorithms with the heap sort in homework 2.

Notes.

1. One executable and error-free **C** source file should be turned in. This source file should be named as `hw07.c`.
2. A `pdf` file is also needed. This report file should be named as `hw07a.pdf`.
3. Submit your `hw07.c` and `hw07a.pdf` on EE workstations using the following command:

```
$ ~ee3980/bin/submit hw07 hw07.c hw07a.pdf
```

where `hw07` indicates homework 7.

4. Your report should be clearly written such that I can understand it. The writing, including English grammar, is part of the grading criteria.