EE3980 Algorithms

Homework 3. Heap Sort

Due: Mar. 29, 2020

Theoretically `heap sort` is one of the fastest algorithm of all the comparison-based sorting techniques. In this homework, please implement a heap sort function as the following:

```
void HeapSort(char **list, int n);
```

and compare its performance to those four sorting algorithms in Homework 1.

The same set of inputs, `s1.dat` – `s9.dat`, and the same measurement method as hw01 should be used. In this homework, however, please rearrange the inputs such that the best-case and worst-case performance can be measured and correlate to your best-case and worse-case analyses of all 5 algorithms.

Notes.

1. One executable and error-free `C` source file should be turned in. This source file should be named as `hw03.c`.
2. A `pdf` file is also needed. This report file should be named as `hw03a.pdf`.
3. Submit your `hw03.c` and `hw03a.pdf` on EE workstations using the following command:

   ```
   $ ~ee3980/bin/submit hw03 hw03.c hw03a.pdf
   ```

   where `hw03` indicates homework 3.
4. Your report should be clearly written such that I can understand it. The writing, including English grammar, is part of the grading criteria.
5. In comparing two strings, the following library function in the `<string.h>` package can be used.
   ```
   int strcmp(const char *s1, const char *s2);
   ```