

CS 3500 Section A, Spring 2000
Programming Assignment #2 — due Monday, April 24

General description

For this assignment you are required to implement heapsort with binary, 3-ary, and 4-ary heaps. Grading will be based on the correctness of your three heapsort variants (90%) and programming style (10%).

Specifics

The code you turn in should read from the standard input the number n of integers to be sorted (on a line by itself) followed by n integers, one integer per line. Your code should always print to the standard output the sorting time (I/O not included) in CPU seconds, in the following format

```
# sorting time:  nnn.nnn
```

In addition, your code must recognize the following command line arguments:

`-p`

If this argument is specified, your code should print to the standard output the list of sorted integers (in non-decreasing order).

`-2, -3, -4`

These parameters should have the effect that binary, 3-ary, respectively 4-ary heaps are used internally for sorting. Exactly one of these parameters will be specified.

Sample C code handling above command line arguments and containing interval timer routines can be found on `acme` in `~im7/Pub/3500/proj2.c`. Test instances (`i1000-i1000000`) and an instance generator (`gen2.c`) are also available in this directory.

Programming language

As in the first assignment, you may use either C, C++, or Java for completing the project. Your code should compile and execute on `acme`; `gcc` is the default compiler, please specify in your submission if you used a different compiler. If your source is spread over several files you must also provide a `make` file.

Turn-in

E-mail your source code to `mandoiu@cc` by midnight, Monday, April 24.