

## Paper 1: Report on Timing Results

**Due date:** Friday, March 20, 2009 – beginning of class

### **Description:**

You will run timing tests with five programs: my array-based insertion sort, my quicksort, and your three programs from programming assignment 2. For data, you must use the nine example files I have provided, plus any others you choose to construct. Executables for my two sorts are available in /home/mecalif/public/itk279/Program2. Note that I am providing executables only, not code. You will have to run your tests on a Sun other than gemini, since I have compiled the programs for the other machines, and binary files are not compatible between gemini and the other Suns. Be sure to run all tests on the same machine, since timing tests on different machines are not necessarily comparable. The quicksort is basic quicksort: no median of 3, no cutoffs. The insertion sort is standard insertion sort.

You will write a paper presenting the results of your timing tests. The paper must include at least one table and/or graph of the results along with 2-3 pages **of text** in Times New Roman 12pt with 1.5 line spacing and 1" margins. If you wish to use multiple tables and graphs, feel free to do so. You must clearly present all of the results of running all 5 programs on each of the 9 data sets provided. In the text, you must **briefly** describe in **your own words** the various sorting algorithms and the data used to test them. Then you must describe the results and discuss/explain them. The explanation and discussion are the **heart** of your paper. The other pieces are important and should be well-done, but **do not** skimp on the discussion. Do not use a cover page. Paper-clip or staple the pages together. Do not put the paper in a folder or report cover. Do not use headings in the paper.

A comment about style: aim for brevity and clarity. Do not try to impress me with words: I don't impress easily. It is better to have a short paper that covers what you have to say than a long one with the same content. On the other hand, I'm requiring 2-3 pages because you should be able to produce that much content on this subject. Don't be afraid of telling me what I already know; I'm interested in discovering whether you understand your results.

### Organization of the paper:

- Begin with an introduction of some kind.
- Describe the algorithms in your own words briefly. No more than 3 sentences per algorithm – 2 sentences would be better.
- Describe the experiment—the data used and so on.
- Present the results.
- Discuss the results.
- Conclude the paper.

Make your paper coherent and unified. Do not assume that your reader knows anything about the assignment you have been given, though you should assume that he or she knows about asymptotic notation and has a basic understanding of computational complexity. Do not refer explicitly to the assignment.

**Grading criteria:**

‘A’ papers carefully address the assignment, presenting the algorithms and the results of the experiment clearly, and explaining the results well. They will be well-organized. They will also be well-written, in clear, concise English, with attention to detail. They will flow smoothly. They will contain very few grammar, spelling, or punctuation errors, all minor. They will have a compelling introduction and an appropriate conclusion. The paper will be consistently written to an appropriate audience.

‘B’ papers also carefully address the assignment, presenting the algorithms and the results of the experiment clearly, and explaining the results well. They are generally well-written, but may have minor problems in organization or flow. They may contain several minor grammar, spelling, or punctuation errors, or may contain one or two more serious grammar errors. They may lack clarity on one or two points, or may be overly wordy in spots. There will be a clear introduction and conclusion. These papers will be written to an appropriate audience, but may occasionally vary from that aim.

‘C’ papers address the assignment, but may show less careful organization. They are comprehensible, but may not be easy to read. They may contain several serious errors in grammar, spelling, or punctuation. They may be wordy, or have problems with transitions. They will have an introduction and a conclusion, but these may be weak. They may lose sight of the intended audience.

‘D’ papers may show little evidence of thought. They may lack supporting detail. They may jump from topic to topic. They may be somewhat difficult to read, using poor English, or having a difficult style. They may lack an introduction or conclusion. They may not clearly address an appropriate audience.

‘F’ papers do not address the assignment, or contain no substance, or are very poorly written, or lack any clear organizational pattern, or contain many errors.