Problem Set 1 Solutions

ECS 20 — Fall 2008

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Problem 1

Here you'll put your solution to problem 1. A most *excellent* solution to problem 1. Make all of your solutions excellent and you will make me happy. Don't you want me to be happy?

Problem 2

To turn this file into a *dvi* file type `latex sample.tex`. The resulting `sample.dvi` can be looked at using a previewer such as *xdvi* (on UNIX) or *yap* (on Windows), and it can be printed out from those programs. To create a *pdf* file you can say `pdflatex sample.tex`.

When working under Windows I use *MiKTeX*, a free distribution of LaTeX and associated programs. You can download it from various web sites; just google *miktex*. After downloading *MiKTeX* you can put its directory of executables in your path and use a command prompt (DOS window) to do things, editing your tex-files with a Windows-based version of *vi* or *emacs*. Alternatively, get your LaTeX distribution under *cygwin*.

Problem 3

One of the most important aspects of LaTeX is its math mode. Mathematical symbols should look like a or X_5 or or A_{ij}^* or Ctr^i; never write something like x in ordinary text mode—it looks terrible, and means something different from x. Indeed you should regard x, `x`, x, X, and $\mathcal{X}$ as all distinct things.

Problem 4

To produce an offset formula you can write things like

$$\begin{aligned} \sum_{i=1}^{n} i &= \frac{n(n+1)}{2} \\ &\in O(n^2) \end{aligned}$$

Problem 5

I won't suggest that becoming good with LaTeX is easy; it isn't. But essentially all computer science researchers use this program nowadays—and lots of other scientists and non-scientists do, too. If you are or want to be a "serious" academic, you should learn to use LaTeX. I would say that it is the program of choice even for your essays in English or GE classes—it not *just* for typesetting technical stuff. There are numerous good books on LaTeX. The "classical" one is *LaTeX: A Document Preparation System* (2nd edition), by Leslie Lamport. A more recent one is *Guide to LaTeX* (4th edition), by Kopka and Daly.

Problem 6

I'm afraid that producing drawings for inclusion into LaTeX opens up a can of worms (yum). I personally use *xfig*, *Illustrator*, or *Visio*; others use different tools. Regardless, doing beautiful drawings takes substantial time and care. I suggest that, if you do want to typeset your homework solutions, just do any accompanying drawings in pencil or ink.