

## CS 457/557 Homework 8 – due 2pm, Tuesday, November 29, 2005

Hand in your solution on paper *and* email it to `cs457acc@cs.pdx.edu`. It should be placed in a file called `hw8.hs`, which should be an attachment.

Choose a small programming problem of interest to you, and solve it in Haskell. You should aim for something that can be coded naturally in 1-2 pages. Your solution must make significant use of at least *two* of the following language features:

- new algebraic data types and pattern matching (lists don't count)
- functions as data structures (like representing a set by its membership function)
- type classes (you must define new classes or at least new instances)
- lazy evaluation
- monads (if you've been reading ahead; the IO monad doesn't count)

It is acceptable to recode a problem that you have previously solved for another class (as long as you didn't use Haskell to solve it that time!). As usual, if you borrow an algorithm or some other aspect of your solution from another source, you must cite it.

If you are really at a loss for ideas, consider doing one of the open-ended exercises from Hudak Chapter 15 (reactive animations) or 20-23 (music composition). But be warned that these require mastering non-trivial amounts of infrastructure.

Make sure to include comments in your program specifying what it is expected to do, and how to run it.