Lecture 17 Outline

November 2, 2015

Reading: *text*, §9

1. Greetings and felicitations!
    a. Homework 3 is out – 20 extra points if in by Wednesday, 10 if by Friday; due Monday, November 9
    b. Extra Credit 1 due tonight
    c. Extra Credit 2 is out and due November 9
2. Recursion
    a. Expressing a problem in terms of a simpler version of itself — use *n*! and searching a character string
    b. Function calling itself
    c. Similar to mathematical induction, but backwards
    d. Structure: base case, recursive case
    e. What happens if you omit the base case? (Bad things . . .)
3. How it works
    a. Program stack
    b. Walk through `nfact`, with $n = 4$
    c. Note `nfact` calls `nfact`
4. The argument list
    a. Go through how `main` in *nfact.c* gets integer
5. Recursive greatest common divisor
    a. Go through Euclidean algorithm for computing gcd
    b. Walk through function `gcd`, with $m = 4$ and $n = 6$
    c. Do it again with $m = 14$ and $n = 35$
    d. Go through program *gcd.c*