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 $n$fact, with $n = 4$
   c. Note $n$fact calls $n$fact

4. The argument list
   a. Go through how main in $n$fact.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 $gcd.c$