Lecture 8: April 25, 2024

Reading: *zyBooks text*, §10.1–10.2, 10.5, 10.8 **Assignments:** Homework 2, due May 6

1. Recursion
   (a) Expressing a problem in terms of a simpler version of itself — use n!
   (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 . . .)
2. How it works
   (a) Program stack
   (b) Walk through *nfact.c*, with $n = 4$
   (c) Note `nfact` calls `nfact`
3. Recursive palindrome program
   (a) Go through algorithm, working from outside in
   (b) Write recursive case
   (c) Write base case
   (d) Put them together in *ispal.c*
4. 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 $m = 126$ and $n = 28$
   (d) Go through program *gcd.c*
5. Reverse a string [*reverse.c*]
6. Tower of Hanoi [*tower.c*]