Opening Discussion

- Minute essay comments:
  - Getting recursion to be your friend.
  - Odds on lCPs.
  - Final exam. (9:30 section is noon on the 14th, 10:30 section is 8:30 on the 15th)
  - Closing sources.
  - Next lCp is showing your assignment.
  - Having things click.
  - Final is not explicitly cumulative.
  - I have no thoughts on Windows phones.
- Last assignment due during finals period. You can pick which chapter 16 project to do.
- You can “recreate your own project.”
- Animating towers of hanoi.
- My guess is that if SOPA had passed it would have been repealed shortly after.
Fibonacci Numbers

- The simplest example of a recursive function that calls itself more than once is the Fibonacci numbers.
  - 1, 1, 2, 3, 5, 8, 13, 21, ...
- Each number is the sum of the two before it.
  - \( f(n) = \text{if}(n>2) f(n-1)+f(n-2) \text{ else } 1 \)
- Simple, but not great.
A classic example of recursion is solving the Towers of Hanoi. This game is generally made with disks and three pegs. You need to move the disks from one peg to another.
- Can only move one disk at a time.
- Can't place a disk on one smaller than it.

Solution to $N$ disks: move $N-1$ disks, move 1 disk, move $N-1$ disks.
My favorite example is mazes.

Consider a maze as a 2-D grid with each square either filled or not.

Now the challenge is to find the length of the shortest path through the maze.

How do you do that?
Minute Essay

- What questions do you have about stuff?