
CSC 121 Homework #1

Due Friday, January 27, 2006.

1. Your three-year-old niece knows her numbers but can only compare two numbers at a time to say which is larger. Assume that she has six cups along with six coins each having different random numbers from 0 to 99 printed on them. The coins are currently in no order but are placed one inside each cup. Tell her in simple directions, by only comparing two coins at a time, how to sort the values from lowest to highest from left to right.
2. The Towers of Hanoi problem considers how to move a stack of discs from one pole to another, given three poles and several discs that vary in size from largest diameter to smallest diameter with none the same size. Assuming that all the discs are placed on one pole from largest on bottom to smallest on top in order, describe how to move the discs all to one of the other two poles so that they form a similar stack (sorted largest on bottom to smallest on top). You may only move one disc at a time to either pole (even though they must all end up on the same pole). You may never place a larger disc on top of a smaller disc.
3. Research the idea of "pair programming." It considers programming in teams of two, a "driver" and a "navigator" that aid each other in programming projects. Write a (typed) page or two discussing the main ideas, possible advantages, workflow, etc.