



CS206 Introduction to Data Structures

Towers of Hanoi Extra Credit

Must be completed prior to April 15

This extra credit is for a maximum of 10 points added to your homework grade.

What you will need to complete this extra credit.

1. Sheet of cardboard, approximately 18x24 inches (25x35cm).
Corrugated cardboard works best.
2. 3 large paper clips
3. Tape
4. Scissors
5. (Optional) colored pens
6. Phone or other device capable of video recording.

First make your cardboard towers of Hanoi.

1. From your cardboard, cut a 12x12 inch (18x18 cm) square
2. Bend your paper clips so that they have a single point about 1 inch (2cm) tall (See the picture).
3. Draw a line that bisects your cardboard square
4. Equidistant along this line mark points 1, 2 and 3.
5. Tape your bent paperclips to the cardboard square at points 1, 2 and 3. (The picture is my board after step 5.)
6. From the remainder of your cardboard cut 5, 6 or 7 disks such that disk 1 is the smallest, disk 2 is larger than disk1, etc. The disks need not be circles – square “disks” are fine. Importantly, the largest disk should be smaller than the distance between points 1 and 2.
7. Cut a hole in the center of each disk. The hole should be about 1/4 inch (0.5cm) in diameter.
8. (Optional) Color your disks (or at least write 1, 2, 3, 4, ... on them)
9. Put all of the disks on the paper clip at point 1.

Second, record yourself doing the towers of Hanoi. It will probably work best if you have someone else take the video.

Third, send me a copy of your video.

5 disks (31 disk moves) = 8 extra credit points

6 disks (63 disk moves) = 9 points

7 disks (127 disk moves) = 10 points.

The fastest person at each size will receive 1 bonus point.