

# CS486 Assignment 3

Due February 28th 10PM ET

In class, we determined an algorithm to create HSTs. Your homework this week is:

1. implement that algorithm
2. experimentally observe that distances don't seem to increase too much in expectation

For implementing the algorithm, you can either start from scratch or use this skeleton structure I've started for you (if you open this file online, you should be able to click on this as a link).

For observing distances don't seem to increase too much, start with an instance on the line with vertices at  $1, 2, \dots, n$  and then check what the average distance on the tree is between  $\frac{n}{2}$  and  $\frac{n}{2} + 1$  over some large number (say, 1000?) of trials as  $n$  ranges from like 5 to 100. Note that I've already done this for you if you use the file I linked above.