Topic 13 - Tabu Search
Monday, April 11

"Taboo" = "Tabu"

Think about H-C. You walk up a hill, and immediately get stuck. Options:
(1) Random Restarts
(2) Sometimes go downhill (simulated annealing)
(3) Go the best location nearby that <u>we</u> <u>haven't already been to</u>, even if it's downhill (Tabu Search)

<u>Main Idea</u>: Keep a list of solutions you've tried so far.
Do steepest ascent hill-climbing: move to the best neighbor that you have <u>not already</u> <u>been to</u>, even if that means going downhill.

<u>Note</u>: Only makes sense on discrete problems or discretizations of continuous problems.

Problems:

Small problem: can be slow to check if a solution has been seen before

huge problem: this would use way too much memory

Fix (quick sketch):

#1) Keep a list only of the N most recent things seen.

#2) Don't even keep the whole solution, just keep the tweak that created it.