Friday, April 28, 2023/	
Friday, April 28, 2023 Lecture #40	1
MSSC 6000	
Announcements	
* Honework 6 due	the last day of class
	11:59pm
* Final Exam Itak	e-home) assigned last
day of class, d	e-home) assigned last he Friday, May 13, 11:59pm are open
* Course Evaluations	and other
Cour 2 Voltage notice	and open
Topic 14 - Tabu Sec	arch (continued)
	/

Pseudorode: generation = 0 taboo = dict() # track when a move is

Allowed again tabou_time = 20 x = random element of search space while True: generation = generation +1
neighbors = nbhd(x) #each neighbor is a par (s,m) where s is the solution, and m is the move that turned x mto 5 (new_x, move) = the pair (s,m) in the set of neighbors such that either m is not a key in "taboo" or taboo[m] = generation taboo [move] = generation + taboo_time

Advanced Topics



- Sometimes using just the 'move's as the taboo is too restrictive. In this case, you can a taboo list of (move, score) pairs this only prevents a move it it would lead to the score you got last time you did that move.
- *Aspiration Critera: Decide to ignore the tabou list in some cases, for example if you find a taboo solution that's better than anything you've ever seen.
- * If neighborhoods are large (like TSP)

 this mokes things slow. Two options:

 (1) change the tweak function to allow

 Ex: Knapsack. One possible tweak constraint

 function is:

 violation

With n items, the gree of the neighborhood is $O(n^2)$.

New tweak:

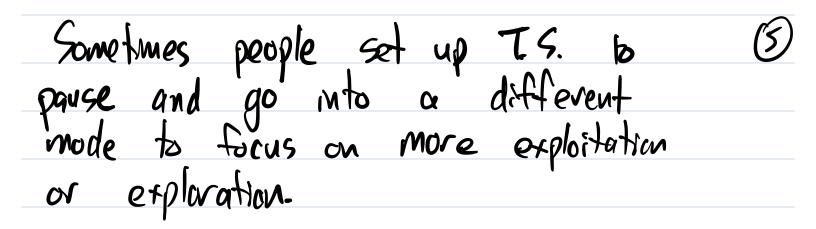
add litem of remove litem

O(n)

might exceed capacity—allow this
but with a score penalty

(2) another way to deal with large neighborhoods is: instead of steepest ascent (check the entire neighborhood) just check some fraction of the neighborhood (1º10, 10º10)

* extra intensitivation (exploitation) or diversification (exploration)



- Keep track of how often certain components of solutions are used in best/worst/any condidate.

Ex. How often a porticular item is used among the 100 best or 100 worst solutions you've ever seen.

If more intensification is needed:
restart the search with the best solution so far and require
some of the items to be in the knapsack.

If more diversitivation => forbid those items