Local Search: 8-Queens Problem

Due Oct 5, 2020 by 11:59pm **Points** 35 **Submitting** a file upload

Consider the 8-queens problem as described in the book.

Write a function

hillclimb_sa

That uses hill climbing with steepest-ascent to attempt to solve the problem. Have your code detect a plateau or local maximum and give up if those are encountered.

Next, write a function

hillclimb_fc

That implements first-choice hill climbing for the same problem.

Next, write a function

sim_anneal

That implements simulated annealing for the problem. Choose your temperature and schedule.

Analysis

Generate a large number of random initial states and run each of your algorithms on those states. Calculate the average number of steps overall for each of the algorithms to find a solution. (If an algorithm fails to find a solution, don't count that.) Writeup your results and put them in readme.txt

Grading:

Steepest-ascent - 10

First-choice - 10

Simulated annealing - 10

Analysis - 5

HW2

Criteria	Ratings					Pts
Steepest-ascent - 10 pts	**10 pts Full Marks**	**8 pts Minor mistakes**	**6 pts Mistakes (code/ output) but idea is correct**	**3 pts incorrect answer (code is has major mistakes, producing incorrect results)**	**0 pts No Marks**	10 pts
First-choice - 10 pts	**10 pts Full Marks**	**8 pts Minor mistakes**	**6 pts Mistakes (code/ output) but idea is correct**	**3 pts incorrect answer (code is has major mistakes, producing incorrect results)**	**0 pts No Marks**	10 pts
Simulated annealing - 10 pts	**10 pts Full Marks**	**8 pts Minor mistakes**	**6 pts Mistakes (code/ output) but idea is correct**	**3 pts incorrect answer (code is has major mistakes, producing incorrect results)**	**0 pts No Marks**	10 pts
Analysis - 5 pts	**5 pts Full Marks**	**4 pts Minor mistakes**	**3 pts Mistakes (code/ output) but idea is correct**	**2 pts incorrect answer (code is has major mistakes, producing incorrect results)**	**0 pts No Marks**	5 pts
						Total Points: 35