Fall 2020: CSCI 4588/5588 Prog. Assignment #1

DUE: Monday, Sep/07/2020 (**Softcopy** @3 PM via Moodle)

Instruction

All work must be your own (other than the instructor provided codes and hints to be used). You are not to work in teams on this assignment.

Format: Your solution must be typed. Submit as a single compressed file (via Moodle) **containing all the related files in it including the following report**. Name it as PA1_<Your_name_id>.

Your report should contain the well-commented code and some snapshots of the outputs.

The top/cover page of the report should have the title, "Fall 2020: CSCI 4588/5588 Programming Assignment #1". Then your, "Name:_____ and ID:_____

Part 1 [Marks 50]

#1. Write a *Hill-Climbing* algorithm to find the maximum value of a function *f*, where *f* = |13 • one (*v*) -170|. Here, *v* is the input binary variable of 40 bits and the *one* counts the number of '1's in *v*. Set MAX =100, and thus *reset* algorithm 100 times for the global maximum and print the found maximum-value for each *reset* separated by a comma in the Output.txt file.

Part 2 [Marks 50]

#2. Write a *Simulated-Annealing* algorithm to find the maximum value of a function *f*, where *f* = |14 • one (*v*) -190|. Here, *v* is the input binary variable of 50 bits and the *one* counts the number of '1's in *v*. Set MAX =200, and thus *reset* algorithm 200 times for the global maximum and print the found maximum-value for each *reset* separated by a comma in the Output.txt file.

To Do:

- Submit program code such a way so that it can be run to check and verify the result, preferrably visually.
- Describe, 'How to run your code', in your *run_readme.txt* file.
- Output.txt will contain the output of your program.
- Please, avoid asking to install (programming) package to run your program, rather provide executable(s).
- Well commented programming code will score high.

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