CS250 - ARTIFICIAL INTELLIGENCE LAB

Short URL: shorturl.at/HKST0

(Read all the instructions carefully & adhere to them.)

Date: 26th April 2023

Total Credit: 10 (Implementation: 5 Explanation: 5)

Instructions:

- You are not allowed to use the internet (other than Google Gogle collab).
- Markings will be based on the correctness and soundness of the outputs.
- Marks will be deducted in case of plagiarism.
- Proper indentation and appropriate comments are mandatory.
- Comments/explanations/intuitions should be provided in a separate text/word etc. document and not the code file.

Problem Statements:

- Implement NOR and XOR using the perceptron and a multi-layer perceptron (MLP). Report the reason behind the performances of these two settings.

- Implement a genetic algorithm to solve the traveling salesman problem (TSP) for a given set of cities. Use a population size of 50, mutation rate of 0.01, and run the algorithm for 100 generations.

	A	B	C	D	E	F	G	H	I	J
A	0	2	1	3	2	4	3	5	4	6
B	2	0	2	4	3	5	4	6	5	7
C	1	2	0	2	1	3	2	4	3	5

D	3	4	2	0	1	1	2	4	3	5
E	2	3	1	1	0	2	1	3	2	4
F	4	5	3	1	2	0	3	5	4	6
G	3	4	2	2	1	3	0	2	1	3
H	5	6	4	4	3	5	2	0	3	1
I	4	5	3	3	2	4	1	3	0	2
J	6	7	5	5	4	6	3	1	2	0