CS250 – ARTIFICIAL INTELLIGENCE LAB

Assignment-10: Genetic Algorithm

shorturl.at/EHPRV

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

Date: 05th April 2023

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

Instructions:

- 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.
- Make necessary assumptions.

Problem:

- Implement a basic genetic algorithm setup (fitness, mating, crossover, mutation etc.)
- Perform the genetic algorithm on a simple example function by aiming to maximize the following equation:
  - F(x) = aW + bX + cY + dZ
  - Where W = 4; X = -2; Y = 3.5; Z = -4.2;.
  - The goal is to optimize a, b, c, d to maximize the function F(x).
  - Assume a, b, c, d are in range [-15.0, 15.0]
  - Begin with a set of inputs of, and then specify the number of weights.
  - Then specify a number of generations to mate through, and the best solutions are chosen at the end.
- Report the final best solution (values for a, b, c, d)
- Report the best solution's fitness.