

Artificial Intelligence

Programming Assignment -2

1. Design a 3x3 grid-based User Vs Computer Tic-tac-Toe game using
 - a. Minimax
 - b. Alpha Beta Pruning.

Give +1,0 and -1 to win, draw and lose states respectively w.r.t to the user. Also, the first action should be performed by the user.

Compare and contrast the performance when decision is made using Minimax and alpha-Beta pruning.

(20+20+15)

2. Given there are M courses and N lecture halls and P professors who are in-charge of these M courses. Assume a 5 day per week schedule with 8 different time slots each day. Design the time-table which can be followed given the logical constraints.
 - a. Define various logical constraints for the given problem.
 - b. Use Genetic and Memetic Algorithm to find a solution to the problem in hand considering the constraints defined in part (a). Explicitly state the various aspects of the process followed in the report.
 - c. Compare and contrast the performance of approach by GA and MA.
 - d. Find the solution using CSP approach.

(10 + (30 + 15) + 15 + 20)

General purpose libraries are allowed for the assignment such as NumPy. But all the algorithm specific functions to the assignments (Minimax, GA, etc.) are to be made from scratch.

Assumptions, Methodology, Algorithms, Observations, Results and Inference are to be included in report. (30)