Jinesh · N
Roll No : 6 Topic :
Batch C2

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Assignment - 02 [AIES]

* Tittle :
Implementation of Minmax Algo for tic-tac toe game.

* Aim :
Solving tic tac toe game using minmax algo.

* Objective :
To study and implement minmax algo.

* Theory :

(1) Adversial search :
It is a search strategy used in decision making problems where multiple agents compete against each other.
It is commonly used in the field of game theory and AI.

(2) Tic Tac Toe solving steps : Game represn. initial state, move generation, evaluation of game states, minmax algo., alpha beta prunning.

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3. Data Structures :

Key features
Game tree : nodes, edge
Board repres^n : A 2D array
Move list
Evaluate func^n

Key Concepts :

-> depth and pruning
-> optimal strategy
-> utility values.

* Input :
Initial state

* Output :
Soln / goal state with optimal path

* Algorithm :
Minmax

* Platform :
Linux

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* FAQ's :

Q.1. Compare informed search and adversial search.

→ Informed search :
- Utilises domain specific knowledge
- Goal oriented : Focuses on finding the shortest costly path to a goal state.
- Explores path in a state space.
- Heuristic : used to estimate cost to goal.
- Single agent problems.

Adversial search
- Represents all possible moves in the game from current game.
- Alpha beta pruning
- Multi agent problems
- Explore game trees.

Q.2. Explain alpha-beta pruning.

→ Alpha bet is an optimisn technique for the minmax algo used in adversial search scenarios.

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Key Concepts :

(1) Alpha
(2) Beta
(3) Pruning

How it works :

Initial call
recursive search
pruning search

Max Node