CAP 4053 Artificial Intelligence for Computer Games: Minimax

CAP 4053 Artificial Intelligence for Computer Games: Minimax Lecture Notes

Introduction

Minimax is a decision-making algorithm used in artificial intelligence for two-player games such as tic-tac-toe, checkers, and chess. It is a recursive algorithm that considers all possible moves that a player could make, then evaluates the best move based on the opponent's countermove. The goal of the algorithm is to minimize the maximum loss (or maximize the minimum gain) for a player.

Key Concepts

* Minimax is a decision-making algorithm used in artificial intelligence for two-player games.

* It is a recursive algorithm that considers all possible moves that a player could make, then evaluates the best move based on the opponent's countermove.

* The goal of the algorithm is to minimize the maximum loss (or maximize the minimum gain) for a player.

Definitions

* **Minimax Algorithm** - A decision-making algorithm used in artificial intelligence for two-player games. It is a recursive algorithm that considers all possible moves that a player could make, then evaluates the best move based on the opponent's countermove.

* **Recursive Algorithm** - An algorithm that calls itself repeatedly until a certain condition is met.

* **Maximin** - A strategy used in game theory where a player maximizes their minimum gain.

Practice Multiple Choice Questions

Q1. What is the goal of the Minimax algorithm?

A. To minimize the maximum loss

B. To maximize the minimum gain

C. To find the best move

D. To win the game

Answer: A. To minimize the maximum loss

Explanation: The goal of the Minimax algorithm is to minimize the maximum loss (or maximize the minimum gain) for a player.