So in the game tree, we have a layer of Max, a layer of MIN, and each layer is called as Ply. Max places x, then MIN puts o to prevent Max from winning, and this game continues until the terminal node.

In this either MIN wins, MAX wins, or it's a draw. This game-tree is the whole search space of possibilities that MIN and MAX are playing tic-tac-toe and taking turns alternately.

● Adversarial Search Techniques

Adversarial search is a search, where we examine the problem which arises when we try to plan ahead of the world and other agents are planning against us.

In previous topics, we have studied the search strategies which are only associated with a single agent that aims to find the solution which is often expressed in the form of a sequence of actions.

But, there might be some situations where more than one agent is searching for the solution in the same search space, and this situation usually occurs in game playing.

The environment with more than one agent is termed a multi-agent environment, in which each agent is an opponent of another agent and playing against each other. Each agent needs to consider the action of another agent and the effect of that action on their performance.

So, Searches in which two or more players with conflicting goals are trying to explore the same search space for the solution, are called adversarial searches, often known as Games.

Games are modeled as a Search problem and heuristic evaluation function, and these are the two main factors which help to model and solve games in AI.

● Mini-Max Algorithm in Artificial Intelligence

Mini-max algorithm is a recursive or backtracking algorithm which is used in decision-making and game theory. It provides an optimal move for the player assuming that the opponent is also playing optimally.

The Min-Max algorithm uses recursion to search through the game-tree.

The Min-Max algorithm is mostly used for game playing in AI. Such as Chess, Checkers, tic-tac-toe, go, and various two-players games. This Algorithm computes the minimax decision for the current state.

In this algorithm two players play the game, one is called MAX and other is called MIN.