Assignment – 02

Help(Taken from chatgpt in mini-max and Bharat in reinforcement Learning)

I have played 10 rounds of the Tic-tac-toe game with each algorithm and noted the result (Shivam vs Computer)

Reinforcement Learning Result;

Rounds	Winner	Remark
Round-1	Shivam	won in the 3rd move.
Round-2	Draw	I was given a chance to win the computer but they could not .
Round-3	Shivam	I have played seriously and computer also but I won in 5th move.
Round-4	Computer	This time the computer won intelligently.
Round-5	Draw	I have played seriously and computer also but finally drew.
Round-6	Shiva	won in the 5th move.
Round-7	Computer	The computer won in the 3rd move.
Round-8	Draw	There was equal effort from both sides.
Round-9	Draw	There was equal effort from both sides.
Round-10	Shivam	won in the 3rd move.

Conclusion:

The results of the Tic-Tac-Toe competition, with humans winning 4 times, the computer winning 3 times, and 3 draws, indicate a relatively balanced performance between human players and the implemented algorithms. While this outcome suggests a fair competition, there is always room for improvement and further optimization in the algorithms employed.

Min-Max Algorithm Result;

Rounds	Winner	Remark
Round-1	Draw	Both have put in equal effort.
Round-2	Computer	In this round I have given a chance .I want to check whether Computer can able to take benefit of this but finally computer won..
Round-3	Draw	Both have put in equal effort.
Round-4	Computer	This time the computer won because the human made a mistake.
Round-5	Draw	Both have put in equal effort.
Round-6	Draw	Both have put in equal effort.
Round-7	Computer	This time the computer won because the human made a mistake.
Round-8	Draw	Both have put in equal effort.

Round-9	Draw	Both have put in equal effort.
Round-10	Draw	Both have put in equal effort.

Conclusion:

In summary, the Tic-Tac-Toe competition results, with the computer winning 3 times and drawing 7 times, highlight the optimal and mistake-free game play of the Mini-Max algorithm. This deterministic approach ensures the computer constantly avoids losses and achieves either a win or a draw. While reinforcement learning offers adaptability, Mini-Max's exhaustive strategy proves superior in the specific context of Tic-Tac-Toe, providing a reliable and strategically sound performance.