

**9612 Post Lab Assignment Experiment 1:**

1. What is the easiest trick to win Tic-Tac-Toe?

The easiest trick to win Tic-Tac-Toe is to play as the first player and place the symbol in the center square, as this move maximizes the chances of winning if the opponent fails to make the best moves.

2. What is the algorithm to follow to win a  $5 \times 5$  Tic-Tac-Toe?

While there isn't a guaranteed algorithm to win a  $5 \times 5$  Tic-Tac-Toe due to the increased complexity of the larger grid size, strategies akin to those in regular  $3 \times 3$  Tic-Tac-Toe can still be utilized. These strategies involve aiming to create a winning line while simultaneously thwarting the opponent's attempts to do the same.

3. Is there a way to never lose at Tic-Tac-Toe?

Achieving never losing in practicality relies on the opponent making mistakes or not following optimal strategies, while it is theoretically possible. The game has a finite number of possible board positions, so a perfect player could force a draw every time against the opponent.

4. What can Tic-Tac-Toe help you with?

Playing Tic-Tac-Toe can be a fun way to engage in friendly competition and pass time. It is often used as a teaching tool for basic game theory and as a simple introduction to more complex board games. Additionally, Tic-Tac-Toe can help with several cognitive skills, including strategic thinking, pattern recognition, decision-making, and planning ahead.