Tic-Tac-Toe

Player's Guide

Overview

Tic-Tac-Toe is a classic two-player strategy game played on a 3 × 3 grid. Players take turns placing their mark, either an X or an O, and the first to place three in a row (horizontally, vertically, or diagonally) wins. If all nine cells are filled with no winner, the game is a draw.

This implementation features an unbeatable CPU opponent powered by the minimax algorithm, full score tracking, and a clean, responsive interface that works in any modern browser on desktop or mobile.

The purpose of implementing an unbeatable game is to demonstrate strategies you can use for more complex games like 4x4x4 tic-tac-toe (Qubic) and Connect 4.

How to Play

Starting a Game

There are two ways to begin a new game:

- **Implicit Start:** Click or tap any empty cell on the grid. The game begins immediately, assigning you X and letting you move first. This is the fastest way to jump in.
- **Explicit Start:** Use the control buttons above the board to choose who moves first. You can select *You First (X)* or *CPU First (X)* at any time, including mid-session.

Making Your Move

Click or tap any empty cell to place your mark. The CPU responds automatically after a short pause. The game ends as soon as three in a row is detected or all cells are filled.

Winning, Losing, and Drawing

- **Win:** Get three of your marks in a row — horizontally, vertically, or diagonally. The winning cells are highlighted.
- **Loss:** The CPU places three in a row first. The winning cells are highlighted.
- **Draw:** All nine cells are filled with no three in a row.

Controls

Use the buttons at the top of the screen to manage the game session.

Control	Description
You First (X)	Resets the board and allows you to make the first move as X.
CPU First (X)	Resets the board and prompts the computer to make the first move as X.
Reset	Clear the board and return the game to its initial state.

Understanding the UI

The interface is minimal and always up to date.

UI Element	What It Shows
Status Text	Whose turn it is ('Your turn', 'CPU thinking…') or the game outcome.
Scoreboard	Tracks wins for You, wins for CPU, and total Draws during the current session.

Board Cells

Each of the nine cells in the 3 × 3 grid acts as a button. Cells display X (in blue) or O (in red) once claimed. Winning cells turn solid red with white text to mark the winning line.

Score Persistence

Scores accumulate across games during the current browser session. The counters track your wins, CPU wins, and draws separately. Reloading the page clears the board and resets all scores to zero.

Strategy Tips

- **Center first:** If you go first, taking the center cell (position 5) maximizes your options and puts the CPU on the defensive.
- **Corner openings:** Opening with a corner is the second-best first move. It creates fork opportunities that can be difficult to block.
- **CPU first move:** When the CPU goes first it picks a random corner or the center, making every opening game slightly different.