
Assignment 4: Tic-Tac-Toe with Time Travel and Win History Tracker

Objective:

Build a fully functional Tic-Tac-Toe game in React using Redux with additional logic-heavy features:

- Track move history (time travel to any past move).
- Detect winner and track win stats.
- Prevent overwriting moves.
- Highlight winning combination.

Key Features:

1. Game Board (3x3 grid):

- Players take turns placing X and O.
- Prevent overriding an occupied cell.
- After every move, check for winner or draw.

2. Time Travel:

- Maintain full history of each move (board state + player).
- Allow user to click a button to jump to any past move.
- On jump, board should reflect the past state.

3. Winner Detection:

- On each move, check rows, columns, and diagonals.
- If winner is found:
 - Highlight the winning combination.
 - Show a message.

4. Stats Tracker:

- Count how many times:
 - Player X won.
 - Player O won.
 - Draws occurred.

- Store and update in Redux.

5. Reset Button:

- Resets the board but keeps the stats.

Technologies to Use:

- React functional components
- Redux Toolkit for state management
- Conditional rendering
- Array manipulation and comparison logic

Suggested Components:

- `<GameBoard />`: Displays 3x3 grid of `<Cell />`
- `<Cell />`: One square of the board
- `<History />`: List of past moves for time travel
- `<Stats />`: Win/loss/draw counter
- `<Controls />`: Buttons for reset and navigation