

TBI Assignment No. 1. Module 2.

1. Variables ~

- `const board = Array(9).fill(null);`
 - Creates an array with 9 null values, representing the 3x3 Tic-Tac-Toe grid.
- `let currentPlayer = "x";`
 - Tracks the current player (x or o).
- `let gameActive = true;`
 - A flag to track whether the game is active or has ended.

2. Functions

- `renderBoard()`
 - Clears the board and re-renders it based on the board array.
 - Loops over each cell in the board array, creates a div element for each cell, and attaches an onclick event to handle player moves.
- `makeMove(index)`
 - Handles player moves by updating the board array at the specified index.
 - Switches the current player (x or o).
 - Calls `checkWinner()` to check for a winner after each move.
 - Calls `renderBoard()` to update the displayed board.
- `checkWinner()`
 - Checks all the possible winning combinations to determine if a player is winning.
 - If a winning combination is found, it displays a message with the winning player and disables further moves.
 - If a game is a draw, it displays a draw message.
- `restartGame()`
 - Resets the game by clearing the board array, setting current player to "x" and re-establishing `gameActive = true`.

3. DOM Manipulation →

- `document.getElementById("board")`.
 - Returns the `div` with the `id = "board"`, where the game grid will be rendered.
- `document.createElement("div")`.
 - Creates a new `div` element for each cell in grid.
- `cellDiv.onclick = () => makeMove(index);`
 - Assigns a click event handler to each cell, calling `makeMove(index)` when the cell is clicked.
- `document.getElementById("winner").innerText = ...`
 - Updates the text inside the `p` element with the `id = "winner"` to display the winner or a draw message.

4. Event Handling →

- `onclick = "restartGame()"`
 - calls the `restartGame()` function when the "Restart Game" button is clicked.
- `cellDiv.onclick = () => makeMove(index);`
 - Binds the `makeMove()` func. to the `onclick` event of each cell. It passes the cell index as an argument to handle the move.

5. Arrays & Loops.

- `Array(3).fill(null)`
 - Initializes an array with 3 `null` values to represent the empty cells in the Tic-Tac-Toe grid.
- `winningCombinations.forEach(combo => { ... })`
 - Loops over the predefined array of winning combinations and checks if any of them are completed by the current player.