Project Name: Tic Tac Toe game

1.0 Objective:

To design and develop a web-based Tic Tac Toe game using HTML, CSS, and JavaScript that demonstrates basic front-end development skills and provides an engaging user experience.

2.0 Abstract:

This project is a simple yet interactive two-player web game—Tic Tac Toe—built using front-end technologies. The purpose is to showcase logical problem-solving, event handling, and UI design. The game alternates turns between two players and determines the result (win or draw) through a JavaScript-driven algorithm. It also includes sound effects and visual animations to enhance user experience.

3.0 Introduction:

Tic Tac Toe is a classic 3x3 grid game that requires players to align their symbols (X or O) either horizontally, vertically, or diagonally to win. It is often used as a beginner's project to learn the fundamentals of front-end development. In this project, the game interface is created using HTML and styled with CSS, while game logic and user interactions are handled using JavaScript.

4.0 Literature Review:

- **Past Work Reference:** Tic Tac Toe games have long been used as learning models for game development and logical structuring in programming courses.
- **Importance in Education:** Many online tutorials and courses use it as a fundamental project for mastering event handling, arrays, conditionals, and UI interaction in JavaScript.
- **Technology Perspective:** Previously, the game was implemented using C/C++, Java, or console-based Python apps. Now, it is widely implemented using front-end web tech for better interactivity and accessibility.

5.0 Methodology:

- **UI Design:**

1. Used HTML to create a 3x3 grid layout
2. CSS Grid/Flexbox used for alignment and responsiveness
3. Visuals include hover effects and game animations

- **Game Logic in JavaScript:**

1. Game state management (turn, isGameOver)
2. Click event handlers for user moves
3. Win checking algorithm using predefined win combinations
4. DOM manipulation for visual feedback

- **Reset Functionality:**

1. Clear all cells
2. Reset variables
3. Restart audio

- **Sound & Media Integration:**

1. Used Audio() constructor for sound effects on click and win
2. Added winning image animation via CSS and JS

6.0 Resources Required Used:

- **Software:**

1. Visual Studio Code (Code Editor)
2. Web Browsers (Chrome)

- **Languages/Tech Stack:**

1. HTML5
2. CSS3
3. JavaScript

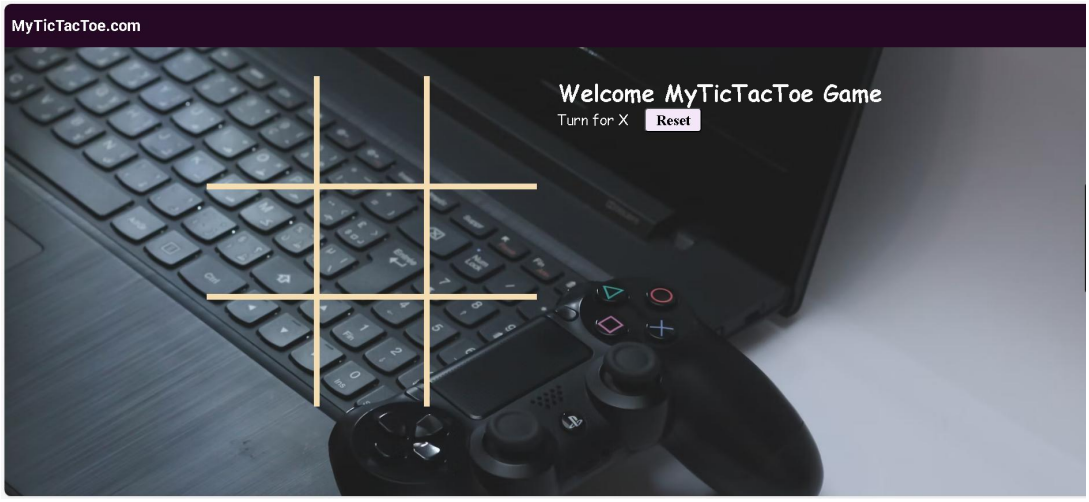
- **Assets:**

1. Audio files (click.mp3, gameover.mp3)
2. Image file (win.gif)

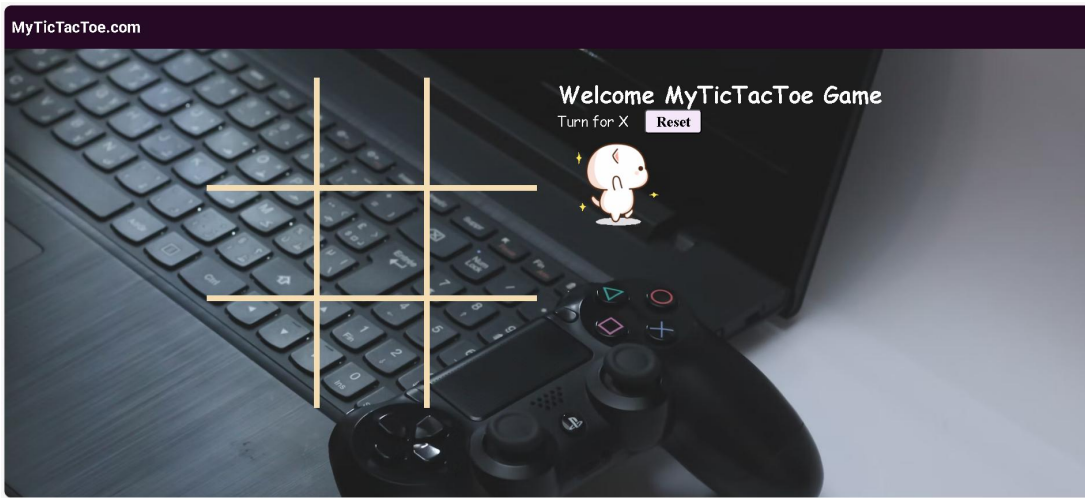
- **System:**

1. Windows with modern browser support

7.0 Output:


MyTicTacToe.com
Welcome MyTicTacToe Game
Turn for X
Reset


MyTicTacToe.com
X X X
0 X
0 0
Welcome MyTicTacToe Game
X Won
Reset



8.0 Advantages:

- Easy to build and understand for beginners
- Enhances logical and problem-solving skills
- Demonstrates core front-end development skills
- No external libraries/frameworks required
- Lightweight and fast loading

9.0 Disadvantages:

- No AI mode or single-player option
- No score tracking between rounds
- No backend or data persistence
- Cannot play over network/internet
- Limited to only 2 players on one device

10.0 Future Scope:

- Add AI using minimax algorithm to play against the computer
- Include scoring system across multiple rounds
- Improve UI with animations and mobile-first design
- Add multiplayer support via WebSockets
- Deploy the app online (GitHub Pages)

11.0 Conclusion:

This project helped in understanding and applying front-end development skills, JavaScript logic, DOM manipulation, and event handling. The Tic Tac Toe game proves to be an ideal beginner-friendly application that strengthens the core concepts of interactive web design. The simplicity of the game logic also made it a good base to explore advanced game development features in future iterations.

12.0 References:

- HTML, CSS, and JavaScript tutorials
- W3Schools – JavaScript Event Handling
- FreeCodeCamp – Tic Tac Toe Mini Projects
- Stack Overflow – JavaScript Win Condition Logic
- Developer.mozilla.org – Audio() object usage
- GitHub – Community versions of Tic Tac Toe for reference