

TITLE:- TIC TAC TOE GAME

1.Introduction:-

This Software Requirements Specification (SRS) outlines the requirements for a Tic-Tac-Toe game implemented in Java. Tic-Tac-Toe is a classic two-player game where players take turns marking spaces in a 3x3 grid with their respective symbols (X or O). The objective is to be the first player to form a horizontal, vertical, or diagonal line of three identical symbols. The game will provide a user-friendly interface for players to interact with and determine the winner or a draw.

2. General Description:-

This document outlines the Software Requirements Specification (SRS) for a Tic-Tac-Toe game implemented in Java. The game will be a two-player console-based application. Players will take turns marking spaces in a 3x3 grid with 'X' or 'O'. The objective is to form a continuous line of three of their own marks horizontally, vertically, or diagonally. The game will determine the winner or declare a draw based on the final board state. This document will specify the functional and non-functional requirements for the game.

3.Functional Requirements:-

I. Game Initialization:

- The game should initialize with an empty 3x3 grid.
- Players can choose between a human opponent or the computer.

II. Gameplay:

- Players take turns placing their symbol (X or O) on an empty cell.
- The game checks for a win condition or a draw after each turn.
- Winning Conditions:
 - The game recognizes three consecutive symbols horizontally, vertically, or diagonally as a win.
 - The game declares a draw if all cells are filled without a win.

4. Interface Requirements:

I. Main Game Window:

- The main window should display the 3x3 grid for the Tic Tac Toe game.
- Each cell in the grid should be represented by a button that players can click to place their symbol (X or O).
- The window should have a clear title, such as "Tic Tac Toe".

II. Player Selection Screen:

- An initial screen for players to select their mode: Player vs. Player or Player vs. Computer.
- Buttons or radio buttons for each mode.
- A start button to begin the game.

III. Current Player Indicator:

- A label or text field indicating the current player's turn (e.g., "Player 1's turn (X)" or "Player 2's turn (O)").
- The indicator should update after each move.

IV. Game Status Display:

- A label or message area to display the game's status (e.g., "Player 1 wins!", "Player 2 wins!", "It's a draw!").
- The status display should update at the end of each game.

V. Reset Button:

- A button to reset the game and clear the board.
- Clicking this button should restart the game without restarting the application.

5. Design Tools:

I. Java Swing:

- The GUI will be developed using the Java Swing framework.
- Swing components such as JFrame, JPanel, JButton, and JLabel will be used to create the game interface.

II. Layout Managers:

- Appropriate layout managers (e.g., GridLayout, BorderLayout) will be used to organize components within the main window and other screens.
- By following these interface requirements, the Tic Tac Toe game will provide a user-friendly and engaging experience for players, whether they are playing against another person or the computer.

6. Project Objectives:-

- Develop a functional Tic-Tac-Toe game with a user-friendly interface.
- Implement game logic for determining the winner or a draw.
- Ensure the game is playable on different platforms (e.g., desktop, web).
- Provide clear instructions for users.

7. Key Points:

- Use a 2D array to represent the game board.
- Implement methods for checking win conditions, draw conditions, and player turns.
- Use a graphical library like Swing or JavaFX for the UI.
- Consider using object-oriented principles to structure the code.

8. CONCLUSION:-

This SRS document provides a comprehensive overview of the requirements for developing a Tic-Tac-Toe game using Java. By adhering to these specifications, the development team can create a robust, user-friendly, and engaging game. Future enhancements could include multiplayer functionality, different board sizes, and artificial intelligence opponents.