CLASS: F.Y. MCA   SEM: I

COURSE CODE: MC503

SUBJECT NAME: SOFTWARE ENGINEERING

ROLL NO.:   2022510053   BATCH: D

NAME: Aditya Salunke

EXPERIMENT NO: 01

EXPERIMENT TITLE: To Check Feasibility Study and prepare SRS

PI1: On Time	PI2: Case study Analysis (Solution)	PI3: Identification of Problem Parameters (Notations)	PI4: Documentation [Template]/ [specification]	PI5: Lab Ethics	Marks Per Experiment	Sign
0.5	1	2	1	0.5	5	

Case Study: Tic Tac Toe

Abstract:

Tic-tac-toe, noughts and crosses, or Xs and Os is a paper-and-pencil game for two players who take turns marking the spaces in a three-by-three grid with X or O. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row is the winner.

Tic Tac Toe - The Web App was created to provide a charming user interface to the user. The app is available on all operating systems where a user can play a game of Tic Tac Toe as long as he has access to a browser and a stable internet connection.

The app allows user to play against other player, the game session is hosted locally. The app allows user to play against bots to pastime. The app also user to pit bots against other bots.

The final result would be displayed after the game session has ended. The user can retry to win the game after the round has ended

The system compromises of 3 major modules as follows:

1. Player module
   - Selects Player
   - Computes Backend Logic to display player moves
   - Loads appropriate GIF on menu screen

2. Bot module
   - Selects Bot
   - Computes Backend Logic to make appropriate moves to win
   - Restricts opponent to win by computing appropriate moves to counter
   - Loads appropriate GIF on menu screen

3. Result module
   - Displays the result to the user

4. Game Session Module
   - Ensures that a player can't overwrite his opponent mark
   - Computes backend Logic to check if any of the two players has won the match

Objective of the system:

The main objective of this project was to provides user with the clean user interface (UI) to play Tic Tac Toe on any platform as long as the user has a browser and a stable internet connection.

The user can play against bots or he can also pit bots against another bot

Additional Improvement:

Additional modules which can be added in future:

- Online Multiplayer Functionality.
- Record of the score in the session to be stored on the cloud.

<u>Software Requirements Specification Document</u>

For Users to Play Game

1. Introduction

- **Purpose**

The purpose of this document is to describe the external requirements for Tic Tac Toe the Web Game. It also describes the interface of the system

- **Scope**

This document describes the requirements of the above-mentioned system. It is meant to be used by the developers and will be the basis for validating the final delivered system. Any changes made to the requirements in the future will be made with the permission of the client. The developer is responsible for asking for clarifications, where necessary.

- **Definitions, Acronyms, Abbreviations**

Tic Tac Toe: Tic-tac-toe, noughts and crosses, or Xs and Os is a paper-and-pencil game for two players who take turns marking the spaces in a three-by-three grid with X or O. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row is the winner.

Minmax Algorithm: Mini-max algorithm is a recursive or backtracking algorithm which is used in decision-making and game theory. It provides an optimal move for the player assuming that opponent is also playing optimally.

- **References**

The Odin Project

Geeks for Geeks

2. Overall Description

- **Product Perspective**

  The Tic Tac Toe – the web game is a new way to play Tic Tac Toe that only requires a mainstream browser updated to latest release and a stable internet connection. The system is expected to evolve over several releases.

- **User Characteristics**

  Player X – Any user with a stable connection can play the game. Player X is the first player who makes his move. Player X moves is denoted as "X" on the Tic Tac Toe board.

  Player O - Any user with a stable connection can play the game. Player O is the second player who makes his move. Player O can't make his move unless Player X makes his move. Player O moves is denoted as "O" on the Tic Tac Toe board.

3. Functional Requirements

- **Collects User submitted input and perform appropriate actions**

User gets to choose if he wants to play against Player or Bot that is

(Player vs Player, Player vs Bot, Bot vs Bot)

Input for Player X:

- Player, Bot

Input for Player O:

- Player, Bot

- **Start Button**

    Display Appropriate Animation to the user

    Navigates user To the Game Screen

- **Replay Button**

    Display Appropriate Result to the user

    Ends the game

    Navigates user To the Home Screen

- **Return Button**

    Ends The Game

    Navigates user To the Home Screen

4. Other Non-functional Requirements

4.1. Performance

In every case the response time will be less than 1 second except for the cases where internet connection is used.

Tic Tac Toe Block Diagram