**Module 1 Report on Mini Project**

**Introduction**

Tic-tac-toe also known as X’s and O’s is a game played between two players which is normally played with pen and paper, where both players 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. It is a solved game, with a forced draw assuming best play from both players.

**Research**

The game seems to have originated from Egypt, historians aren’t exactly sure of the time however. Though as simple as the game may seem, there are over 255,000 different outcomes of the game! The name "tic-tac-toe" may ultimately derive from "tick-tack", the name of an old version of backgammon first described in 1558. The first print reference to a game called "tick-tack-toe" occurred in 1884, but referred to "a children's game played on a slate, consisting in trying with the eyes shut to bring the pencil down on one of the numbers of a set, the number hit being scored".

**Key Advantages**

TicTacToe is a game mainly played by kids. It has noticeable advantages for the development of brains of young minds.

\* Tic Tac Toe is in itself a wonderful game for developing planning skills.

\* Game is great for encouraging visual tracking and visual perceptual skills.

\* Playing Tic-Tac-Toe can help a child predict the outcome of another’s moves.

\* Helps in development of strategy.

\* Tic Tac Toe is a zero-sum and perfect information game. It means that each participant’s gain is equal to the other participants’ losses and we know everything about the current game state.

**High Level Requirements**

|  |  |
| --- | --- |
| **ID** | **DESCRIPTION** |
| HL1 | Players shall be able to start the game.| |
| HL2 | Player shall be able to see the leader board.| |
| HL3 | Player shall be able to enter their name.| |
| HL4 | Player shall be able to choose between X or O.| |
| HL5 | The outcome shall be a win and a loss or a draw.| |

**Low Level Requirements**

|  |  |  |
| --- | --- | --- |
| **HLR ID** | **LLR ID** | **Description** |
| HLR 1 | LLR 1 | If the player hits '1', they'll be able to start the game. |
| HLR 2 | LLR 2 | If the player hits '2', they'll be able to view the leaderboard. |
| HLR 3 | LLR 3 | After hitting '1', players will be prompted to enter their names. |
| HLR 4 | LLR 4 | Player will choose between 'X' or 'O' and choose its place in 3x3 matrix. |
| HLR 5 | LLR 5 | Player who gets a combination of 3 same characters either diagonal or horizontally or vertically will be declared as the winner. |

**SWOT ANALYSIS**

**Strengths**

\* Develops planning skills.

\* Visual tracking and perceptual skills.

\* Predicting the outcome.

\* Rules are simple to understand.

**Weaknesses**

\* Game results in draw a number of times.

\* Input from a single keyboard between 2 players.

**Opportunities**

\* Keeps young minds occupied.

\* Base for more complex games and sports.

\* Developing of stratgy.

\* Knowledge of Zero-sum concept.

**Threats**

\* No attractive UI for the game.

\* Basic in complexity compared to other games

**4W's and 1'H**

**Who:**

* Anyone can play this game.

**What:**

* This game is for recreational purposes.
* Does not consume a lot of time.

**When:**

* Played with acquaintances, colleagues to relax.

**Where:**

* Various sites on the internet provide the game.
* A simple [Google search](https://www.google.com/search?client=firefox-b-d&q=tictactoe) gives a ready game to play.

**How:**

* It can be implemented using a strategy. The strategy is to select the best possible position by considering all the possible moves of the competition and making the move accordingly.

**Structure & Behavioral Diagrams**





