

Tic-Tac-Toe Game Analysis Phase

This is a Tic Tac Toe game, where a user can play with two levels of difficulties which can be 'easy' and 'hard' mode that the users can select before playing the game.

The application itself contains the menu that has some options a user can select

- In the main menu, the program will ask the user for three options.
 - Start Game
 - Load Game
 - Exit Game
- When a user selects 'Start Game', it will navigate the user to another screen that will show another menu to the user with the option of difficulty.
 - Easy
 - hard
- If the user selects 'easy' mode, the program will first display empty tic-tac-toe that generates a random move. With this level mode, the user can easily win the game.
- If the user selects 'hard' mode, the program will first display the empty tic-tac-toe and play with an Artificial Intelligence algorithm. With this level mode, the program will be unbeatable.
- As a user selects the 'Load Game', the program will show all the history games that were saved before. The user can select based on their interest to load the game.

TicTacToe Use Cases

Preface: Assumptions and Analysis of Specifications

The total capacity to save the game is 3. If additional games are to be saved and if the game has reached the maximum capacity of saving the game and when a new game is saved, it will automatically delete the least latest game history.

By default, the user plays with the "X" and the computer will play with "O". The user always goes first while playing the game.

Start Game

Actor: Player

1. The user can click the "Start Game" button to start a new game.
2. After that, the system gives the player 2 options: Easy or Hard.
 - a. Easy: the game will automatically generate the random move that is not invalid.

- b. Hard: the algorithm becomes smart enough to prevent the player from winning and also can beat the player.
3. At the end of the game, the system will display the output to the user. There are only three outputs possible. The user wins the game, loses the game or the game is drawn.

Variation: The user selects the invalid move

The system will not generate the new move until the player selects the valid one.

Variation: Pressing on the played tile

If the user presses on a tile that has already been taken, the user won't be able to place his/her mark on that tile. The computer will not play its move until the user has placed the mark on an unplayed tile.

Save Game

Actor: Player

1. As playing the game, the user can click the 'Save' button to save the game for later.
2. Then, after finishing the game, the user can select the load game option and see that specific game again.

Variation: The capacity for saving game is full

1. The warning dialog will pop up to notify the users.
2. If the user confirms 'Yes'
 1. The least latest game-saving will be replaced by the new one.
3. 'No' it closes the warning dialog.

Load Game

Actor: Player

1. The window shows all the game-saving history of the game that the user saved.
2. The player selects one of the games saved and sees it.
3. The game will be load based on his/her selection, and they can continue their game.

Variation: No saved game

- The system notifies the player that there are no saved games.

Exit Game

Actor: Player

1. As playing the game, the user can click the 'Exit' button to exit the game without saving.
2. Whenever this button is pressed, the program will quit playing.

Tic-Tac-Toe User Guide

1. The Tic Tac Toe is of size 3x3.
2. The rules of the game are pretty simple.
3. The user can put the "X" mark by clicking on the unplayed tile.
4. If the user manages to put "X" in any three consecutive tiles, then the user wins.
5. If the computer manages to put "O" in any three consecutive tiles, then the computer wins.
6. The winning combinations can be, all 3 consecutive tiles of each row, all 3 consecutive tiles of each column and 3 consecutive tiles of diagonals.
7. When the game is over, the system will display the output to the screen so the user can see it.