

Total Marks: 40

Instruction

- Working by yourself or with ONE other student.

(40 Marks) Tic Tac Toe Game (question 18, page 460) modified to play against the computer

Write a program that allows one player (X) to play a game of tic-tac-toe against the computer (O).

Use a two-dimensional char array with three rows and three columns as the game board.

Each element of the array should be initialized with an asterisk(*).

Player X will be allowed to start the first game, then the Computer (O) will start the next game, etc...

The program should run a loop that does the following

- Display the contents of the board array
- Allows player 1 to select a location on the board for an X. The program should ask the user to input the row and column numbers.
- Allows the computer to select a location on the board for an O.
- Determines whether the player or computer has won, or tie has occurred. If someone has won, the program should declare that player the winner and end. If a tie has occurred, the program should ask the user if s/he wants to play another game (y/n) – for the second, fourth, and even number games, the computer will start and place an O.

Player 1 wins when there are three Xs in a row on the game board. The Xs can appear in a row, column, or diagonally across the board. Computer wins when there are three Os on the game board. The Os can appear in a row, column, or diagonally across the board.

Requirements:

- a header file that includes `const int SQUARESIZE = 3;` 2 marks []
- a two-dimensional array `square` 2 marks []
- `void displayBoard(char square [])` display tic tac toe board 6 marks []
- `void readData(char square[], char)` input X or O 6 marks []
- `void isWinner(char square[])` determines whether the array has three Xs or three Os in a row 6 marks []
- allows player 1 to first game with an X 6 marks []
- allows computer to start second, fourth, etc game with an 6 marks []
- at least 3 sample tic tac toe test games 6 marks []