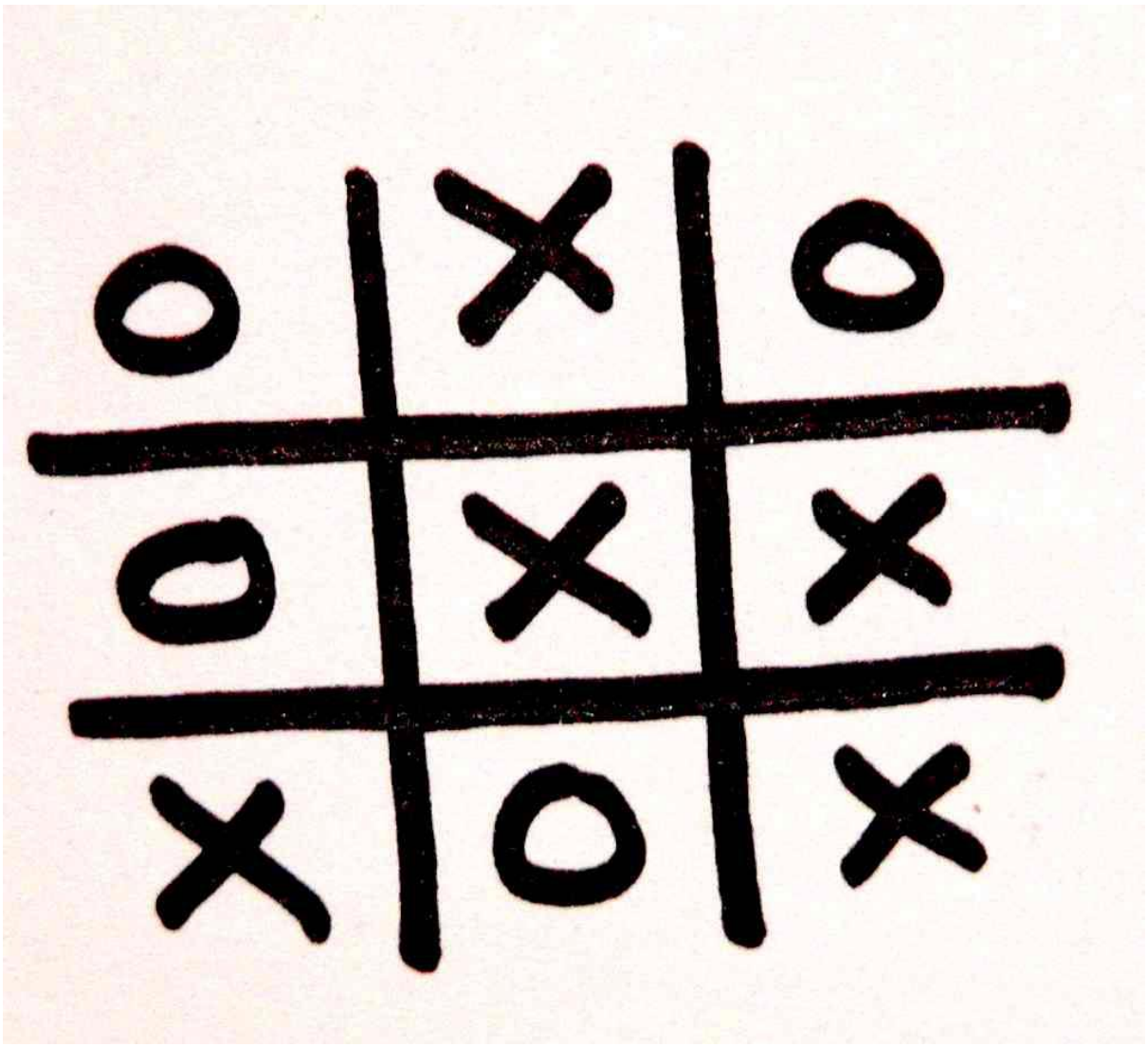
Program Name- Implementation of Tic-Tac-Toe game a.k.a Noughts and crosses

Project Category- Game Algorithm

Explanation-

Most of us have played this game-



The above picture is of “Tic-Tac-Toe”, one of the favourite childhood time-pass game.

Have you ever thought about implementing it in our favourite programming language.
Can we? Yes.

The rules are simple.

The game is to be played between two people (in this program between HUMAN and COMPUTER). One of the player chooses ‘O’ and the other ‘X’ to mark their respective cells. The game starts with one of the players and the game ends when one of the players has one whole row/ column/ diagonal filled with his/her respective character (‘O’ or ‘X’). Otherwise if no one wins, then the game is said to be draw.

Implementation-

In our program the moves taken by the computer and the human are chosen randomly.
We use rand() function for this.

How this program can be changed ?-

The program is in not played optimally by both sides because the moves are chosen randomly.

The program can be easily modified so that both players play optimally (which will fall under the category of Artificial Intelligence).

Also the program can be modified such that the user himself gives the input (using scanf() or cin).

The above changes are left as an exercise to the readers.

Winning Strategy – An Interesting Fact-

If both the players play optimally then it is destined that you will never lose (“*although the match can still be drawn*”). It doesn’t matter whether you play first or second.

In another ways - “ *Two expert players will always draw* ”.

Isn’t this interesting ?

To find a great discussion on the "winning/never losing" strategy go to-

https://www.quora.com/Is-there-a-way-to-never-lose-at-Tic-Tac-Toe
http://www.wikihow.com/Win-at-Tic-Tac-Toe#Never_Losing_when_Playing_Second_sub

An Interesting Variant of this game-

As said above, if two experienced players are playing the Tic-Tac-Toe, then the game will always draw.

There is another viral variant of this game- Ultimate Tic-Tac-Toe, which aims to make the normal Tic-Tac-Toe more interesting and less predictable.

Have a look at the game here-

https://mathwithbaddrawings.com/2013/06/16/ultimate-tic-tac-toe/

http://www.geek.com/games/tic-tac-toe-made-much-more-interesting-with-a-simple-tweak-1559289/