CS653A : Tic-Tac-Toe AI

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Project Proposal

The following is the project proposal submitted by me at the beginning of the course.

Tic-Tac-Toe is a popular board game whose board is usually $3X3$ but in general can be nXn where $n \geq 3$. The first player is called X and the second one is called O. X starts first and then the players alternately place Xs and Os on the board to achieve n Xs or Os in a row/column/diagonal. The player to achieve this task first is the winner of the game and if none of them is able to achieve it and all n^2 squares get filled, then the game is said to have ended in a tie. I will try to implement $3X3$ Tic-Tac-Toe AI that plays a perfect game. This AI will consider all possible cases and make the most optimal move using the minimax algorithm. If time permits, I will try to extend it to a general nXn Tic-Tac-Toe AI.

What has been implemented?

I have implemented $3X3$ Tic-Tac-Toe AI which plays an optimal move using the mimimax algorithm. It considers all possible moves and plays the best possible move. The game can only end with a draw or the AI winning the game.
The player is always X and the AI is O. The game requires the player to specify the position at which he would like to move and the AI then decides its move. The state of the board is printed on the terminal after the move of the computer. At the end of a game, it asks the player whether the player would like to play another game, if yes then the game restarts, else the application exits. I could not implement it for a general nXn board.

Following is a screenshot of the application:

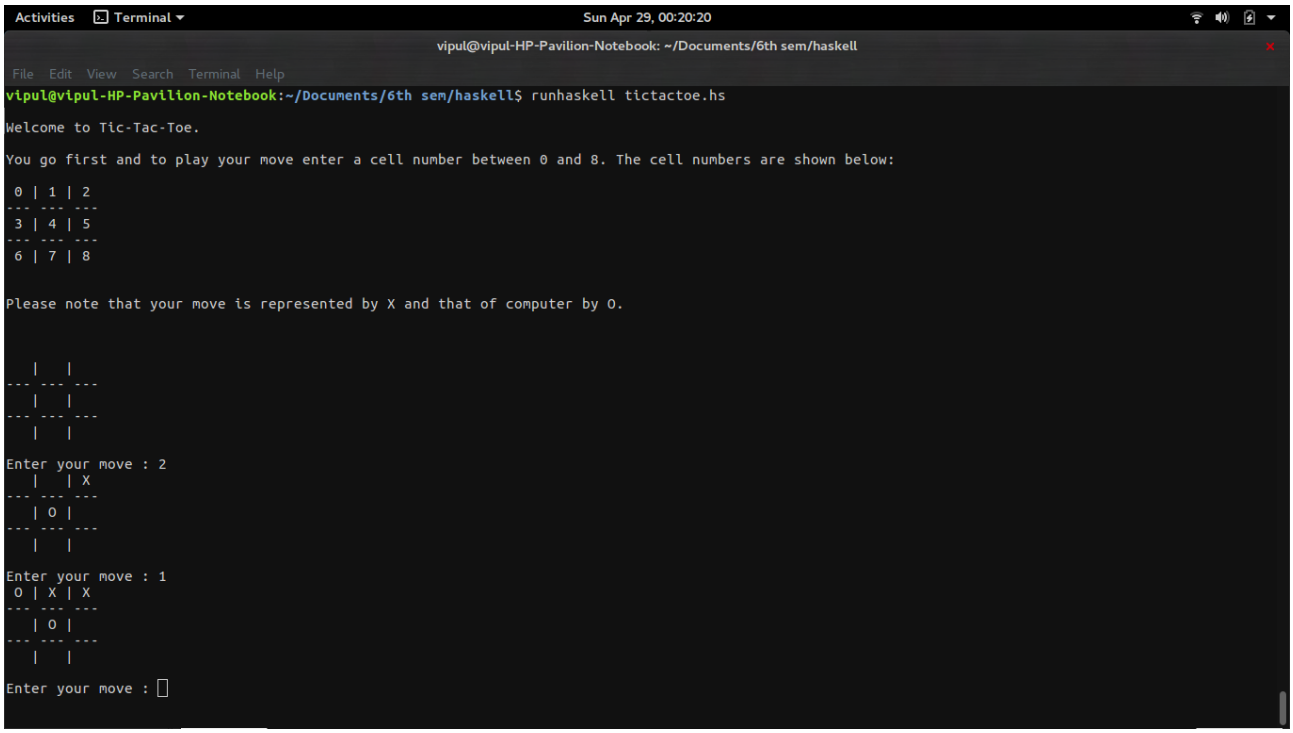

Figure 1: Screenshot of the game