You will create a game Tic-Tac-Toe for two players. One player places the X pieces and the other player places the O pieces. The basic game board is a grid of 9 spaces, in a 3 x 3 arrangement. When one player covers an entire row, column or diagonal, the player wins the game.

In this program, you will design a class TicTacToe with appropriate-designed data fields and member functions for the game. Your program will

* Allow two users to play Tic-Tac-Toe
* Display the board
* Allow users to place pieces (X or O) by taking turns (Note: If a space is taken by a player, the other player cannot place a piece in that space.)
* Check for a winner

Comments:

* The board, with the actions that can be taken on it, will be in the TicTacToe class.
* The board should be displayed after each turn. Empty (available) spaces should appear blank. Used spaces should have the appropriate character (X or 0) in them.
* Users should indicate where to place their pieces by using a number for row and a number for column (the row number and the column number in the grid start from 1, not 0).
* Users may place pieces only in empty spaces – check before you place the piece.
* You must enforce the alternating turns of 'X' and 'O'.
* The game ends as soon as a player has filled one row or one column or one full diagonal.

A REQUIRED output is shown below. (with input)

$ ./game.out

[ ] [ ] [ ]

[ ] [ ] [ ]

[ ] [ ] [ ]

Player X

Enter your row:1

Enter your column:1

[X] [ ] [ ]

[ ] [ ] [ ]

[ ] [ ] [ ]

Player O

Enter your row:2

Enter your column:1

[X] [ ] [ ]

[O] [ ] [ ]

[ ] [ ] [ ]

Player X

Enter your row:1

Enter your column:2

[X] [X] [ ]

[O] [ ] [ ]

[ ] [ ] [ ]

Player O

Enter your row:2

Enter your column:2

[X] [X] [ ]

[O] [O] [ ]

[ ] [ ] [ ]

Player X

Enter your row:1

Enter your column:3

[X] [X] [X]

[O] [O] [ ]

[ ] [ ] [ ]

WE HAVE A WINNER!!!

X wins!!