

# Problem Solving and Programming in Business

## Homework 3

*E-mail me your project and print out the non-generated code to hand in. I need both.*

Using your skeleton application from previous homework, make a new Windows application for Tic-Tac-Toe.

Deliverables:

1. The Environment
  - a. Put your customer feedback form in the Help menu and make the questions relevant to the users opinion of the quality of the game.
  - b. Be sure that the checked or unchecked “Confirm exit” item on the File menu is working properly.
  - c. Have a “New Game” option on the file menu that starts a new game.
  - d. Create an “Options” menu with items that...
    1. specify whether or not the (human) player goes first
    2. allow for human vs. computer or computer vs. computer play.
2. The Game
  - a. Place nine boxes on the form to hold the X’s and O’s. (I suggest using large buttons, but feel free to use whatever controls you like.)
  - b. Be sure that the correct player goes first (according to the setting in your “options” menu).
  - c. Automate the computer move. (In other words, the human player doesn’t need to do anything but look at the screen while the computer moves.)
  - d. Use a two-dimensional (3 x 3) array to internally represent the board.
  - e. Represent the game play on the form by displaying the X’s and O’s and allowing the human player to click on an empty location to move there.
  - f. Check that any location selected by the human player is in fact a valid move. (Is that location already occupied?)
  - g. Detect the winner or a tie as soon as possible.
  - h. For extra credit: the computer should never lose.

Be sure to use your best programming practices. These include but are certainly not limited to:

- Descriptive control object and variable identifier names
- Informative and meaningful comments in the source code
- Careful setting of the tab order
- Keeping to the “zero, one, infinity” principle
- Keeping to the “law of least astonishment”
- Aesthetic visual design
- Keeping the code “behind” the buttons to a minimum
- ... and everything else we’ve talked about (unless you want to hear me go on an on about them again and again!)