

2-D Arrays: Tic Tac Toe

— Problem Analysis —

- Comments about the problem
 - I need to keep track of the rows and columns.
 - I need to be able to manipulate this data.
 - I need to know how to print this data in a way that is understandable.
 - I need to be able to get user input in a way they can understand.
 - I need to know how to ask a user if they want to restart the game.
 - I need to know how to check if someone has won the game.
- Description of Knowledge Base
 - I can use 2D arrays
 - I can change what's in them
 - I can print this in lines by array entry
 - I can get the user input with input
 - I can use while
 - I can use for
 - I can use if
 - I can use try
 - I can use input to restart the game
 - I can check the array for a win condition
- ## Program Design
- I need a get turn method
 - It will get a valid move in the form of x,y coords starting from 0,0 in the top left to 2,2 in the bottom right
 - It will return a modified version of the board with the correct piece in the right spot
- Check Horizontal Method
 - This method checks to see if any of the horizontals have a winning match and returns the character of the winning version
 - It takes just the game board as a parameter

- Check Vertical Win
 - Same as horizontal but checks up and down the columns
- Check Diagonal Win
 - Same as previous but checks the diagonal threes
- Get Win Status
 - Checks the horizontal vertical and diagonal wins for if they are true and returns the correct one if they are true (as in a win was found)
- Board Is Full
 - Takes the game board as a parameter
 - Just checks every space to make sure it isn't empty.
- Print Board
 - Takes the board as a parameter and prints the board in a way that is pretty.
 - It prints the first row with string formats and keeps going with the characters
- Setup
 - Gets a game and sets up the board as empty. Asks for the starting piece and sets it.
- Get Next Piece
 - Checks for the original pieces and returns the character for whatever turn it is depending on what it started on and what's in the board.
- Main
 - Has a loop to continue the game and calls all the highest level functions.
 - Prints when someone has won and asks if you want to continue at the end of the game.

— Program Implementation / Testing —

- Next Week