**Student Name/Grade: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Rubric:**

\_\_\_\_\_\_ / 5 Puts all example game boards in file and checks them

\_\_\_\_\_\_ / 30 All game boards give correct result

\_\_\_\_\_\_ / 5 Indicates that player 1, 2, or neither won each board

\_\_\_\_\_\_ / 5 Comments

\_\_\_\_\_\_ / 5 Assignment submitted correctly and on time

\_\_\_\_\_\_\_ Total

**Description:**

A game of Tic Tac Toe can be represented using a list of lists in Python. Basically, each row is a list of 3 items, and then there’s a list that holds all 3 rows. An example would look like this:

empty\_board = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]

but that’s basically impossible to read. Instead, write it on 3 lines like this and it suddenly looks like a tic tac toe board.

empty\_board = [[0, 0, 0],

[0, 0, 0],

[0, 0, 0]]

The goal this week is to write a program that will check a given game board and tell the user if player 1 won, player 2 won, or no one has won yet. You don’t have to actually write the game. That’s next week. For now we’ll just check if somebody has won.

The board will have a 0 if that space is empty, a 1 if player 1 has put an X there, or a 2 if player 2 has put an O there. Obviously the winner is the first to get either 3 1s in a row or 3 2s in a row. I’ll put several example boards on the next page and then again in the email. **Make sure your program works with all of them!**

You can tackle this problem however you want. Personally, I decided to use 4 methods that I called **check\_rows(board), check\_cols(board), check\_diags(board),** and then called all 3 in a method called **check\_winner(board).** You absolutely don’t have to do that; it just made sense to me. One more hint: there’s a winner if all the entries in a row, column, or diagonal are all equal and also not 0. That should save you some typing.

Name your file **check\_board\_lastname.py**, comment your code as usual and email it to me with the subject line **[ICS] Week 17 LastName.**

The next page has the boards that you should check for winners.

**Here are some example boards:**

empty\_board = [[0, 0, 0],

[0, 0, 0],

[0, 0, 0]]

winner\_is\_2 = [[2, 2, 2],

[2, 1, 0],

[0, 1, 1]]

winner\_is\_1 = [[1, 2, 0],

[2, 1, 0],

[2, 1, 1]]

winner\_is\_also\_1 = [[0, 1, 0],

[2, 1, 0],

[2, 1, 1]]

no\_winner = [[1, 2, 0],

[2, 1, 0],

[2, 1, 2]]

also\_no\_winner = [[1, 2, 0],

[2, 1, 0],

[2, 1, 0]]

Feel free to write more of your own if you want to check more things!