A computer network connection between the world and the earth

Description automatically generated with medium confidence

Cairo University

Faculty of Computers and Artificial Intelligence

**CS213**

**Object Oriented Programming**

**Assigment-3 (part 2)**

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**GitHub**

A screenshot of a computer

Description automatically generated**A screenshot of a computer

Description automatically generated**

Dividing the work:

Anas Adel 20220070:

Have done the first game (Pyramid X O)

Yassin Ali 20220381:

Have done the second game (connect four)

Youssef Abdulmoneim 20220399:

Have done the third game (5\*5 X O)

**Pyramid X O description:**

1. In pyramid board class constructor we initialize the rows to be 3 and the columns in every row are 2i + 1 (and I is the index of the row)

2. in the is\_winner function we first check if the middle column has a winner or not.

Then we check the left diagonal and then the right one.

Lastly, we check the last row which has 5 cells.

That’s why we will check the first 3 cells in the row and then the middle 3 and then the last 3.

3. in the main of this game it is the same as the main of the doctor’s game (normal XO) but the difference that we pass to the game generator a pyramic\_board instead of XO\_board.

**Four-in-a-row (Connect Four) X O description:**

**5 \* 5 X O description:**

1. Firstly, in the class constructor we initialize a 5\*5 grid and in update\_board function we first check if the given coordinates of a cell are valid, we update the cell with the symbol (X or O), incrementing the total number of moves done.
2. Number\_of\_all\_wins function takes a character as a parameter (X or O in this board) and checks the number of sequences this character has in the board (threes in a row). First checks the rows, the columns and diagonals.
3. display\_board function prints the 5\*5 board and when the number of moves reaches 24, function number\_of\_all\_wins is called for each symbol.
4. Function is\_winner prints a message stating the winning player and always returns false.
5. Function game\_is\_over returns true if number of moves is >= 24 and function is\_draw returns true if number of moves >= 24 and number of X sequences = number of O sequences.