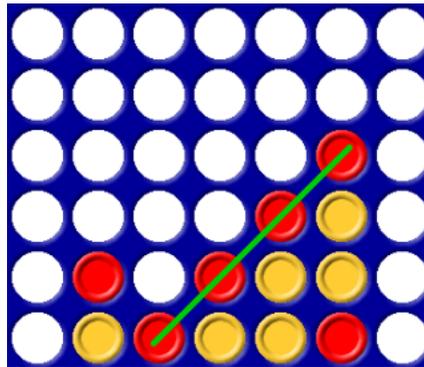


1 Instructions

Create a folder on the desktop using your person-number as the name. Only files in this folder will be your submission. To pass the practical part your Visual Studio project must compile and meet the criteria when tested. Put your theory answers in a plain text file called `theory.txt` in your submission folder. Create the text file with Notepad (not with Word).

2 Practical Question



You will write a simple two player version of connect-4 that plays on an arbitrary size of board. In this game each player uses one colour of counters. These are dropped from the top of a column until they land; either in the bottom cell or on the top of the highest counter in that column. When a player has four of their counters in a line (either horizontal, vertical or diagonal) they win the game. Your program will start by asking for the size of the board and then asking for the number of pieces in a row to win. Your board will be square.

- On each turn display the board, use X characters for player one's counters, O for player two's counters and spaces for empty cells.
- Ask the player which column they will drop a counter into.
- Update the board
- If the player has won then display a message and exit.
- Otherwise start the next turn with the other player.

3 Theory Questions

1. What is the difference between the `/` operator and the `%` operator?
2. What is the difference between a function definition and its declaration?
3. What parts are necessary in a function definition? Explain giving an example.

4. What is meant by recursion?
5. What is the purpose of the `&` operator and `*` operator?
6. Explain the difference between an `int` variable and a `int*` variable?
7. Explain the difference between a struct and a class.