Lecturer: Dr Oisín Cawley

Continuous Assessment 1
Value: 15% of overall mark
Due Date: 14th Jan 2021

Sort of 3D Connect 4

You must produce a digital version of the game 4TEC. **The aim of the game is to achieve 4 of your pieces in a row, in any direction**.

You must implement an AI that can play the game against a human.

The rules are simple enough:

- A player can only place one piece at a time (per turn)
- A piece can be placed in any free position on any level
- The first player to get 4 in a row wins.

Project Details

Game to be produced in **C++** with **SFML** and documented using Doxygen. Please use an environment variable **$SFML_SDK** to point to your SFML install location. I will be annoyed if I have to edit your project properties☺.

Marks for each component as specified below:
50% of the marks going for the AI. The "General Algorithm" refers to your implementation of Minimax. The "Difficulty Level" is to allow the game to be more/less challenging. "Efficiency considerations" refers to how you handle the large search space, so for example, implementing Alpha-Beta pruning.
5% bonus available for extras (make sure it is obvious or that I know about it). Wouldn't it be cool if the AI could also be set as the player, then the AI could play itself!
Note the 5 points for enjoyability (it's an overall thing - you know it when you see it).

CA1 - 4TECH (15%)											
Game World			AI				Other				
Internal World Representation	Player Interface	Piece Movement	General Algorithm	Evaluation Function	Difficulty Level	Efficiency Considerations	Doxygen	Code Quality	Enjoyability	Extra	Total
10	10	10	15	15	10	10	5	5	5	5	100

This is **a team (of 2) project**. You must email me the names of the people in your team asap. Project submission must include the % of each component that each student contributed to. For example, you might simple agree the effort was 50/50 therefore you would both get equal marks. Often this is not the case, and so the team must therefore agree on these %s when submitting (the total must add up to 100).

Ensure that any specific technical requirements of the game are clearly highlighted. If you use external libraries, for example Thor, make sure they are part of your project. I don't want to have to go looking for and installing stuff.
The best way to provide the above information is to submit an accompanying **Readme.txt** file with the project indicting the %s and any other points you think are important.