## Lab 2

## Tile Match

Your name and student number must be at the top of every file.

You cannot use <string>or anything else except char ,ints and an array of chars.

Apart from cout, you **can only use functions that you have written**.

You may ask for some help but the code must be substantially yours.

You not use any form of plagiarism including generative AI.

All code must be consistently indented and variables given appropriate names.

int ReplaceWithMinusOne(int array[4][6]) **30 Marks**

The level is stored as an array of integers starting off with values 1 to 4 for. 0’s are not included.

Starting from 0,0 in the array test each column in the first row, then the second row , going from left to right until the end of the array is reached

Find **One** cluster of 3 or more identical items connected horizontally or vertically. Check for a horizontal line first and then a vertical line for each array position in turn.

Score the cluster by adding up the values (1 to 4) in the cluster.

Replace that cluster with ‘-1’s and returns a score

Example

Before

{ {0,0,3,1,3,4},

{0,0,2,3,4,3},

{0,0,1,3,3,2},

{0,0,2,2,2,2} };

After:

{ {0,0,3,1,3,4},

{0,0,2,3,4,3},

{0,0,1,3,3,2},

{0,0,-1,-1,-1,-1} };

Score would be 8

Return 8.

void PrintArray(int array[4][6]) **10 Marks**

Print the array in rows and columns. Only function you use cout.

FallDownAndReplace(int array[4][6]) **30 Marks**

‘Remove’ the -1’s in the array and the items above fall into their position. All items above fall into the ‘empty’ position below them.

New items are added to the top of the array with values of -2 and will not be part of the next cluster.

Example

Before :

{ {0,0,3,3,4,3},

{0,0,-1,3,4,3},

{0,0,-1,3,3,2},

{0,0,-1,2,3,3} };

After:

{{0,0,-2,3,4,3},

{0,0,-2,3,4,3},

{0,0,-2,3,3,2},

{0,0, 3,2,3,3} };

**Testing**

Create tests that you did to show that the code is tested well. It is up to you to demonstrate that it works correctly.