Homework 2
100 Points

2D Arrays

`22B_H_2A.cpp` (find and fix errors: print a table)
`22B_H_2B.cpp` (find and fix errors: quiz average)
`22B_H_2C.cpp` **Project: Minesweeper Counter** (see next page)

Grading

Program 2A   – 15
Program 2B   – 20
Program 2C
    1. The readGrid function   – 15
    2. The makeGrid function   – 25
    3. The writeScreen function   – 10
    4. The writeGrid function   – 10
    5. Self Assessment Report   – 5

Self Assessment Report: Write a short report, (see `22B_H_2Report.doc` form)
briefly explaining your code and containing an assesment of your implementation based
on the above grading criteria.

Run each program once and save the output at the end of the source file as a comment.
Compress the source files, input and output files (if any), and the report, and upload the
compressed file: 22B_LastName_FirstName_H2.zip

Project: **Minesweeper Counter**

In the game of Minesweeper, a player searches for hidden mines on a rectangular grid. The game board is represented by a greed of Boolean values stored as **0**s and **1**s marking the hidden mines locations with **1**. Given such a grid, create a new grid of integers storing the count of mines in each neighborhood. The neighborhood for a location includes the location itself and its eight adjacent locations.

Example:

Given grid:
```
1 0 0 0 1
0 0 0 0 1
0 0 0 1 1
```

The grid of counters:
```
1 1 0 2 2
1 1 1 4 4
0 0 1 3 3
```

Input Data: Data about the grid's number of rows and columns are on the first line in the input file. In our example, the input file appears as follows:

```
3 5                      // This grid has 3 rows and 5 columns
1 0 0 0 1
0 0 0 0 1
0 0 0 1 1
```

Output Data
1. Screen output: display the name of the input file, the grid's number of rows and columns, the values in the four corners (upper left, upper right, lower right, lower left) in the grid of counters, and the name of the output file as shown below

```
Input file name: "grid.txt"
Grid size: 3 x 5
Corners: 1, 2, 3, 0
Output file name: "gridOut.txt"
```

2. File output: write to an output file the grid's number of rows and columns and the contents of the grid of counters, as shown below:

```
3 5
1 1 0 2 2
1 1 1 4 4
0 0 1 3 3
```

Hint
To simplify the counting process, add a "frame" of 0s to the original grid:

```
0 0 0 0 0 0 0
0 1 0 0 0 1 0
0 0 0 0 0 1 0
0 0 0 0 1 1 0
0 0 0 0 0 0 0
```