CS1428 Lab 5h

# Name: Section:

1. (40pts) Write code below (or type it and upload it as **lab5h\_0.cpp**) to multiply together two 3x3 matrices. You must declare the 2D-arrays that are the two matrices to multiply. You must initialize them at declaration (to save writing).

When you multiply two 3x3 matrices, you get back a 3x3 matrix. Each cell in this matrix is the “dot product” of a row from the first matrix and a column from the second matrix. For example, cell (c, r) s the dot product of row “r” from the first matrix and column “c” from the second matrix.

The “dot product” is computed by taking every element in one array and multiplying it by its corresponding element in the other array. Then you add up all the products.

1. (60pts) Create **lab5h\_01.cpp.** You must implement the game of life in a 10x10 2D array. The game of life is a finite-state-automaton. The “world” is a 2D array of cells. Each cell is either alive or dead. Alive is represented by say, a 1 and dead a 0. The world advances through iterations or generations. The pattern for the next generation is based upon what the pattern for the previous generation was.

Rules to compute generations:

If a living cell is surrounded by 2 or 3 cells, it stays alive.

If a dead cell is surrounded by exactly 3 cells, it becomes alive.

If a living cell has more than 3 neighbors, it dies.

Dead cells stay dead.

Your program must process at least 10 generations. Your program must display every generation. Keep in mind you must have a backup copy of your 2D array you read from when making your next generation because the act of making the next generation in the same array will corrupt the current generation!

**(\*\*Make sure to include the standard header discussed in lab and to name the file correctly\*\*) Upload your source file to my homework upload. Attach a hard copy of your programs to the back of this lab assignment.**