Engr 123 **Assigned: March 13, 2017**
Assignment 06 **Due: March 27, 2017**

Reminder: This is a programming project, and work on this assignment should be done individually. Assistance from other students is limited to questions about specific issues as noted in the syllabus.

Magic Squares

A magic square is a 2D grid of integers in which the sum of the integers in any row, column, or along the two major diagonals is the same. For example, Figure 1 shows a 3 x 3 magic square where the sum is 15.

8	1	6
3	5	7
4	9	2

Figure 1
A 3 x 3 magic square in which the sum of the rows, columns, or major diagonals is 15.

There are a number of different algorithms for creating your own magic squares. (See Wikipedia at https://en.wikipedia.org/wiki/Magic_square). The algorithm we will use for this assignment creates a magic square of n x n where n is odd.

Place a 1 in the top row center box.
Move one space up and one space right for the next number. If that space is outside the grid wrap it around. If that space is occupied move one row down from the last number.
Continue filling in numbers sequentially until all squares are filled in.

Here is an example of the algorithm for a 3 x 3 grid.

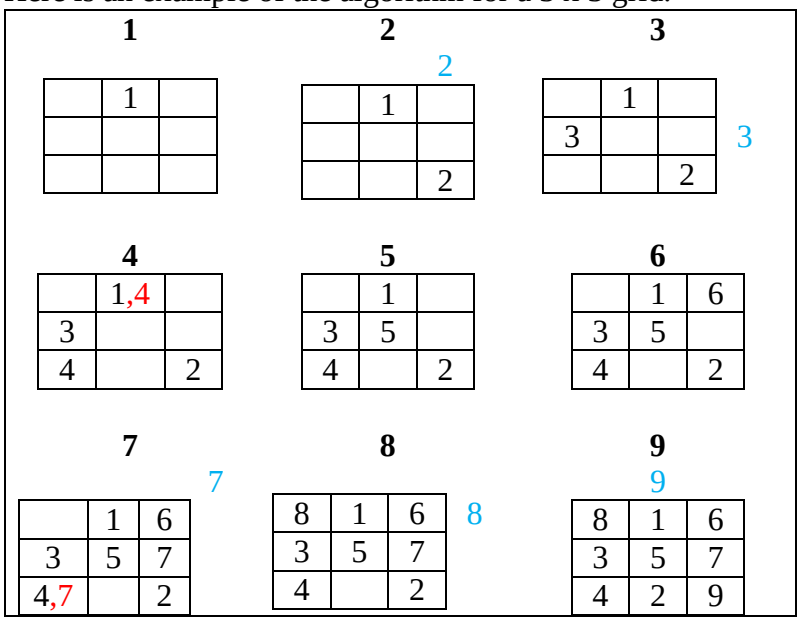

Figure 2
Creating a 3 x 3 magic square.

For this assignment create a GUI application that allows the user to enter the size of the magic square. The size must be an odd integer in the range 1 to 25. If the user's number is not an odd integer in this range, you should issue the appropriate error message and ask

for another number. The magic square your program produces should be made up of a grid of labels or text boxes which are dynamically created by your program. (There are notes on the website as to how to create dynamic labels.)

After you get your program running correctly, right click on the *project folder* and choose Send To → Compressed zip file. Rename the compressed zip file as Asn06XXX.zip where XXX are you three initials. Upload the renamed file to \\cecsfp01\users\everyone\engr123.