**CSCI 3110 Fall 2016 Open Lab Assignment 4**

Due: **Oct 18, midnight**

**Objectives**

1. Recursion

Here's a backtrack problem.  It's a very simple puzzle – just arrange the nine squares so that the edges that touch each add to zero.  There are 95,126,814,720 ways to arrange the squares (9!\*49) and four solutions (actually only one solution with four orientations).

The program combines a number of important course concepts:   
         backtracking and recursion   
         pruning   
         algorithm analysis

Solving the problem requires a real understanding of backtracking, pruning and real comfort with recursion.

**(sample) input file ola4data.txt**

A -4 1 -3 2

B -2 4 3 -2

C -3 1 -2 4

D 3 2 -1 -4

E 2 -1 4 -3

F -4 1 3 -2

G -3 -2 2 1

H -1 -4 2 3

I -2 1 2 -1

**sample output (this is not a correct solution – just a format)**

**B0 A3 G2 ……**

*B0 -2 4 3 2 (no rotation)*

*A3 1 -3 2 -4 (3 rotation – clockwise)*

*G2 2 1 -3 -2 (2 rotation – clockwise)*

The **first person submitting a correct solution** ( manually solving is one way) do not need to write a program. Submit your solution on D2L and I will use D2L **timestamp**.

**How to submit the program**

Submit your VS project on D2L dropbox “Recursion project”

Read **Howto\_Submit\_Visual Studio Project** page for details.

