**This lab is worth 5% of your final AI4Games grade.**

**Due date October 13th 5pm**

**Lab 5**

On blackboard you will find a VS project called Formation.

This is an extension of the flocking project from before.

In addition to the Flocking and Swarming behaviours, the project implements a circle formation when the ‘c’ key is pressed.

Download and review this project to become familiar with the main components. This is a rudimentary implementation, in that we have not employed a full-blown formation manager or pattern data structure (I have just added a new group behaviour to the flocking and swarming).

**To do:**

1. Modify the code so that many more boids are drawn and see how the algorithm handles them.

**Answer**: It makes the boids outside of the leader, circle the leader the more boids, the bigger the circle is around leader.

1. Change the leader to be a different member of the flock instead of member 0. What is the consequence of this on the formation?

**Answer**: It depends where you do it if you change the leader inside the game.cpp  
if (i == (leader + 10))

b.isLeader = true;  
Then it will make the boid from that slot not be part of the formation and only goes straight line.  
BUT if you do it in game.h  
int leader = 2; // The leader of the formation will be the boid in this slot  
Then it will make 1 of the slots empty but that particular boid will go into another boids position.

1. Back in your program from Lab 4, implement your own formation which is activated by pressing a key of your choice.
2. Implement steering functionality for the leader (just like the player character in Lab 3). You should be able to steer the formation using the arrow keys then.
3. Submit zipped project to Blackboard.