Ecosystem Phase 5:

In addition to the work done in previous phases of the ecosystem, the pray have taken on another attribute: flocking. Also, the class they are a part of has been renamed to boids, which doesn’t have an effect on the code. Flocking uses three factors: separation, alignment, and cohesion. Separation keeps the boids a certain distance away from each other and repels two boids that get to close to each other away from each other by a very small amount by adjusting the acceleration. Alignment keeps boids within a certain range of each other pointing and moving all in the same direction by finding the average in the boid’s velocities and adjusting their accelerations based off that average. Cohesion keeps all the boids that are within a certain range together by adjusting the acceleration of each boid to point towards the center of its neighboring boids. All three of these are required to achieve flocking that works well, because without them all the flocking look and act a way that isn’t intended: no separation and the boids would overlap, no alignment and the boids would all attempt to move in different directions, no cohesion and the boids wouldn’t stay together. The way the flocks interact with the predator is not to my liking. When the predator goes after a flock, the flock splits up instead of moving away as a single group.