This program will simulate a "flocking" bahavior using calculations to determin how hard the agents try to be together (cohesion), how far apart the agents stay from each other (speration), and how closely the agents match eachother's speed (alignment).

Agents make decisions to change their speed, direction, and velocity based on the location, speed, and velocity of other agents in the system, or based on input given from the user. They will always try to move to the precieved center of mass, or a target location designated by the user.

The agents movements are calculated by picking the next location to move to, and attempting to move there while staying a set distance from other agents, and at the same time matching each other's speed.

Input:

The user can influence the simulation by changing the values of how hard they stay togeather, how far they stay apart, and how much they match each other's speed. The user can also choose for the agent to ignore their center of mass and go for a target location that the user can change.

Output:

The user can see if agents are in free roam mode, what elements are being changed and by how much, and if they are in target mode, where the target location is.