Exercise – Agents

Exercise 1:

Based on the lecture notes, Implement an **Agent** Class. The Agent should have a virtual update / draw function.

In order to allow movement, implement some basic physics variables to the agent, such as:

- Position
- Velocity
- Acceleration
- Force

And some basic Functions, Such as “AddForce”

In the agents update, calculate the appropriate new position of the agent.

With the above added, an agent should be movable simply by calling “AddForce” on an agent each frame.

Exercise 2:

Create an IBehaviour class, such as that displayed in the lecture. Include a virtual Update function which takes an Agent ptr and DeltaTime as input.

Update the agent class to contain a collection of IBehaviour pointers. In the Agents update, iterate over them and call the IBehaviour’s Update function.

Exercise 3:

Finally, lets create some behaviours.

- KeyboardControler behaviour.
  Create a KeyboardControlerClass that inherits from IBehaviour. This should override the update function, and apply force to the agent passed into the update based on key press.

- Create a DrunkenModifier behaviour.
  This should override the update function, this will need to calculate accumulative time. Apply a force to the agent, using the accumulative time passed into the sin function.

Don’t forget to actually create instances of these behaviours and apply them to an agent instance.