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Programming Assignment #1

In this assignment, different ai movement have been setup, notably :

- Seek
- Flee
- Wander
- Arrive
- Pursue

These behaviors have all been setup with kinematic movement, on a toroidal plane in a 2.5D environment.

These can all be tested in the first scene to test the movement where each behavior can be activated through a simple click on the keyboard.

The seek will run after the second ai but will glitch on arrival.

This behavior is “fixed” in the arrive behavior where we can see that the first ai will stop moving when reaching the other ai.

The Flee behavior will make the ai run away from the other ai.

The Wander behavior will take a random number weighted towards 0 (added up and divided 5 numbers between -1 and 1) and turn according to that number while always walking straight forward.

The Pursue behavior will setup the target ahead of the other ai by measuring the time it would take to get to the ai and adding the current velocity of the other ai with the time to its position. It will restrict this however to a certain distance forward of the enemy and seek out that target.

Other than the first scene to test out these behaviors, we have two other scenes that implement the game Capture the flag, where we can see AIs try to get to the opposing flag and retrieve it.

Though as soon as an enemy ai gets to its part of the field, the closest ai will try to defend its flag by using the movement pursue, if they then collide, the ai in enemy territory will be frozen. All ai’s that aren’t frozen or chasing the flag will pursue (if there is anyone to pursue).

When someone is frozen, the closest ally ai will come to “save it”. All ai’s that aren’t frozen, chasing the flag or pursuing will try to save (if there is anyone to save).

Note : both of the above behaviors can be canceled for a higher priority behavior (they have been written in descending order of priority).

If an ai has nothing to do, it will simply wander.

The first scene of capture the flag features 5 AIs starting at set up mirrored locations.

The second scene of capture the flag features 2 to 10 equal teams that are however all at random locations (not mirrored).