

Draft Acceptance Test Report for Group Prototype (Week 9)

> Antarctic Boids Simulation

Settings Manager

Purpose	Input	Expected Output
To read in a well-formed XML document describing the state of the World [Normal]	A well-formed XML document with no illegal data	To read it in and initialise the World correctly
To read in a well-formed XML document with illegal or out of bounds data [Illegal]	A well-formed XML document with illegal/out of bounds data	To refuse to read it in, and alert the user to the error
To read in a well-formed XML document with zero life form elements [Boundary]	A well-formed XML document with zero life forms	To read it in and initialise the World correctly

World

Purpose	Input	Expected Output
To iterate through all the life forms one by one to make them progress one tick [Normal]	Several life forms of each type into a test World, and call the tick method several times	It should be apparent from the visual output that the life forms are moving and interacting with each other
To retrieve the list of life forms from the world, after adding some life forms and iterating through them [Normal]	Add some life forms of each type into a test World, and call the tick method	Outputs the correct number of life forms of each type
To retrieve the list of life forms from the world, immediately after initialisation [Boundary]	Initialise a new World using correct parameters and add nothing	It should return zero life forms
To process the return instructions from creatures correctly [Normal]	Life forms will be engineered to return each of the return flags as listed in <i>WorldInstruction</i> , with correct parameters	If given an instruction to kill a life form, the life form should be removed. If given an instruction to accelerate, the life form should be accelerated. If asked to add a life form, it should be added to the World.
To terminate a misbehaving organism [Illegal]	A life form will intentionally cause an error	The life form should be removed

3D Renderer

Purpose	Input	Expected Output
To render a scene with undulating ground, a variety of life forms and distinction between water and air	A valid list of life forms and the ground array	The scene will render correctly, and smoothly

Fish

Purpose	Input	Expected Output
To flock, eat plankton, reproduce by means of producing spawn, and move gracefully in the simulation environment	Create a new World object and insert two schools of fish, and a mass of plankton	Watch the visual output, and observe that the fish move in a reasonable and rational manner as dictated by AI
To avoid predators	Create a new World object and insert two schools of fish, and several penguins	The fish should steer away from the predators, and split into two groups each in order to confuse the predator

Penguin

Purpose	Input	Expected Output
To flock, swim gracefully, reproduce by laying eggs on land, rise up to the surface for breathing and eat fish	Create a new World object and insert ten male and ten female penguins, and several schools of fish	Observe that the penguins behave as expected, in a rational and determinate manner
To avoid predators	Create a new World object and insert several penguins and several whales	The penguins should swim away from the whales

Plankton (All types)

Purpose	Input	Expected Output
To reproduce	Create a new World object and insert a mass of plankton	Observe that the plankton grows over time
To be eaten	Create a new World object, insert plankton and fish	Plankton should decrease in value until zero, whereupon they are removed from the system

Whale

Purpose	Input	Expected Output
To eat everything else, to breath at the surface, and to move around gracefully	Create a new World object and insert plankton, fish, penguins and Whales	Observe that the behaviour of the whales are as rational as expected

Current Generator

Purpose	Input	Expected Output
To generate a scientifically accurate model of current given the terrain and a point within that terrain	Create a ground array with hills and valleys, and provide a sample of points	It should give the same answer for the same terrain and the same location (i.e. not random), and it should be as expected according to the algorithm

Fishing Nets

Purpose	Input	Expected Output
To store up fish that run into the net, and then return to the surface when the net is full – this is to simulate the effect of fishing on the ecosystems	Create a new World object, and insert many schools of fish, and some nets	Observe the movement of the nets as they follow the current, and as the fish are captured by the nets