

EE422C Project 4 (Critters) README

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Fall 2016

Git URL: https://github.com/mvandinh/mv24772_gsc535_Lab4

(Written by Minh Van-Dinh)

NOTES:

A List was used to hold the Critters
No new classes were implemented

ADDED FIELDS:

movement_flag - integer that indicates the movement status of the critter

- 0 - the critter has not moved
- 1 - the critter has not moved and is attempting to flee a fight
- 2 - the critter has moved

critRemove - List <Critters> that will be removed from the population at the end of the time step

DATA STRUCTURE:

main.java is called to accept valid commands to do different things

- show - display the world, call Critter.displayWorld()
- step - execute time step(s) for each critter, call Critter.worldTimeStep()
- seed - set the seed
- make - make critter(s), call Critter.makeCritters(critter_class_name)
- stats - display stats, call Critter.getInstance(critter_class_name) and
 Critter.runStats(class)
- quit - terminate the program

(Critter).walk(direction) moves the critter one space in a specified direction
if the critter has already moved, do not move
if the critter is fleeing from a fight, do not move if the new space is occupied

(Critter).run(direction) moves the critter two spaces in a specified direction
if the critter has already moved, do not move
if the critter is fleeing from a fight, do not move if the new space is occupied

(Critter).reproduce(offspring, direction) initializes the energy and position for the child
if the critter does not have sufficient energy, return immediately
assign half of the energy (rounded down) to the child

place the child in an adjacent tile according to the specified direction

`Critter.makeCritter(critter_class_name)`
makes critter(s) if it is a valid type

`Critter.getInstance(critter_class_name)`
get all instances of a valid critter type

`Critter.runStats(critters)`
get quantity and gene directions for a list of critters

`Critter.clearWorld()`
clears the world of all critters

`Critter.worldTimeStep()`
invoke time step action for each critter
add dead critters to dead critter list
simulate encounter
see if A wants to fight
see if B wants to fight
if A or B want to fight, then battle
award winner half of loser's energy
add loser to dead critter list
deduct rest energy
add dead critters to dead critter list
remove dead critters from population
add algae to the world
add babies to the population

`Critter.displayWorld()`
displays grid of simulation