AP Computer Science
GridWorld Case Study
Critter LAB Packet IV #A

For number 1, just modify the existing ChameleonCritter and ChameleonCritterRunner. For 2 and 3, create a class and a runner for each one (Ex: SuperChameleon.java and SuperChameleonRunner.java). For this assignment, you don't have to javadoc.

1. (20 points) Modify the processActors method in ChameleonCritter so that if the list of actors to process is empty, the color of the ChameleonCritter will darken. Instead of copying code from the Flower class, use the darker() method from the Color class (object method, not class), which returns a darker color using the calling Color. Note: There is also a brighter() method in the Color class.

In the following exercises, your first step should be to decide which of the five methods – getActors, processActors, getMoveLocations, selectMoveLocation, and makeMove – should be changed to get the desired result. Do NOT override the Critter act method:

2. (40 points) Create a class called SuperChameleon that extends ChameleonCritter as modified in exercise 1. A SuperChameleon changes the color of all actors in the direction it is facing (like a laser) to the color of the SuperChameleon, UNLESS they are other SuperChameleons. If there are actors to process, the SuperChameleon also brightens its own color. If there are no actors in the direction it is facing that it can process, then the SuperChameleon darkens like the modified ChameleonCritter. That means that if the only actors in its path are Superchameleon's, it will darken, not brighten.

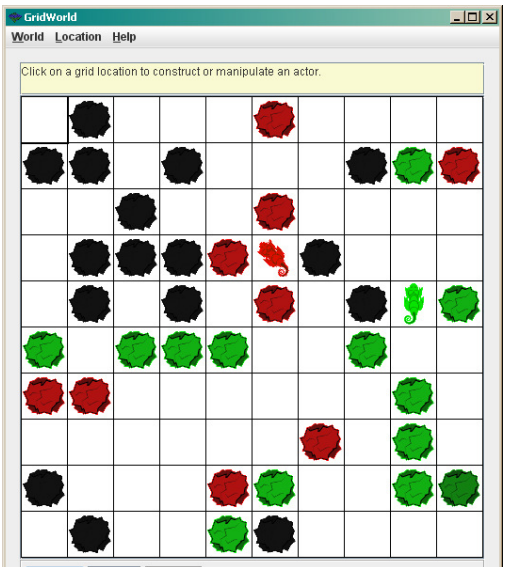
   Since a SuperChameleon's color is important, you must provide a SuperChameleon constructor which sets its color to a specified color.

   To test, you can simply make a for loop in the tester that adds a bunch of Rocks or Actors to the grid. Then add a couple of specifically colored SuperChameleons.

3. (40 points) Create a class called FlowerChild that extends Critter. A FlowerChild gets the actors to be processed in the same way as a Critter. It changes any rocks in that list to randomly colored flowers (use Math.random). A FlowerChild moves to a random empty location within the grid.

   You can test in the same way as recommended for SuperChameleon.

SuperChameleon:



FlowerChild: