| /\* |  |
| --- | --- |
|  | \* AP(r) Computer Science GridWorld Case Study: |
|  | \* Copyright(c) 2005-2006 Cay S. Horstmann (http://horstmann.com) |
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|  | \* |
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|  | \*/ |
|  |  |
|  | import info.gridworld.actor.Actor; |
|  | import info.gridworld.actor.Critter; |
|  | import info.gridworld.grid.Location; |
|  | import java.awt.Color; |
|  | import java.util.ArrayList; |
|  |  |
|  | /\*\* |
|  | \* A <code>ChameleonCritter</code> takes on the color of neighboring actors as |
|  | \* it moves through the grid. <br /> |
|  | \* The implementation of this class is testable on the AP CS A and AB exams. |
|  | \*/ |
|  | public class ChameleonCritter extends Critter |
|  | { |
|  | /\*\* |
|  | \* This <code>DARKENING\_FACTOR</code> is, by default, set to one half. It is used to darken the color of the chameleon. |
|  | \*/ |
|  | private static final double DARKENING\_FACTOR = 0.5; |
|  |  |
|  | /\*\* |
|  | \* Randomly selects a neighbor and changes this critter's color to be the |
|  | \* same as that neighbor's. If there are no neighbors, the chameleon darkens itself. |
|  | \*/ |
|  | public void processActors(ArrayList<Actor> actors) |
|  | { |
|  | int n = actors.size(); |
|  | if (n == 0) |
|  | darken(); |
|  | else{ |
|  | int r = (int) (Math.random() \* n); |
|  | Actor other = actors.get(r); |
|  | setColor(other.getColor()); |
|  | } |
|  | } |
|  |  |
|  | /\*\* |
|  | \* Turns towards the new location as it moves. |
|  | \*/ |
|  | public void makeMove(Location loc) |
|  | { |
|  | setDirection(getLocation().getDirectionToward(loc)); |
|  | super.makeMove(loc); |
|  | } |
|  |  |
|  | /\*\* |
|  | \* Darkens the color of the chameleon by the specified darkening factor of one half. |
|  | \*/ |
|  | private void darken(){ |
|  | Color c = getColor(); |
|  | int red = (int) (c.getRed() \* (1 - DARKENING\_FACTOR)); |
|  | int green = (int) (c.getGreen() \* (1 - DARKENING\_FACTOR)); |
|  | int blue = (int) (c.getBlue() \* (1 - DARKENING\_FACTOR)); |
|  |  |
|  | setColor(new Color(red, green, blue)); |
|  | } |
|  | } |

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