AP COMPUTER SCIENCE   Project 31
DR. PAUL BAILEY   January 28, 2020

Email zip of completed NetBeans project to `paul.bailey@basised.com` prior to 11:59 PM on Thursday, February 6, 2020. Delete the `build` and `dist` directories prior to zip. The entire project must compile. Late projects will not receive full credit.

Program 1. Rename your project ⟨*myName*⟩`World`, where ⟨*myName*⟩ is your name.

Program 2. Incorporate all of your GridWorld code from the exercises into your ⟨*myName*⟩`World` project. Put these into packages named `exercises.`⟨*majorClassName*⟩, as indicated:

- `exercises.circlebug`
- `exercises.spiralbug`
- `exercises.zbug`
- `exercises.dancingbug`
- `exercises.jumper`
- `exercises.rockhound`
- `exercises.blustercritter`
- `exercises.quickcrab`
- `exercises.kingcrab`

Program 3. (Bonus) The Gridworld source code appears as four packages:

- `info.gridworld.actor`
- `info.gridworld.grid`
- `info.gridworld.gui`
- `info.gridworld.world`

Try your hand at these tasks.

(a) Modify the original source code to allow for eliminating or changing color of the gridlines, changing the color of the background, and zooming out to a higher extent.

(b) Modify the world to keep track of the current step, and modify the frame to display the number of the current step.

Program 4. (Bonus) Create a new package in your ⟨*myName*⟩`World` project called `life`. Implement the Conway's life simulation using the Gridworld classes for display. The rules of Life are:

- Any live cell with fewer than two live neighbours dies, as if caused by underpopulation.
- Any live cell with two or three live neighbours lives on to the next generation.
- Any live cell with more than three live neighbours dies, as if by overpopulation.
- Any dead cell with exactly three live neighbours becomes a live cell, as if by reproduction.

You may interpret "dead cell" to mean: empty location in the grid.

You may create a class `Cell` which extends `Actor` and overrides the `act` method to live, die, or reproduce. Or, you may create a class `Cell` which does not act, and control the life, death, and growth from some other divine actor.

Some examples you can use for testing are here:
`http://en.wikipedia.org/wiki/Conways_Game_of_Life`