Mini-project: Ms. Pacman

Working group assignment

Submit:

- Your group report (within a zip file) to http://www.deei.fct.ualg.pt/IA/Entregas/

  including:

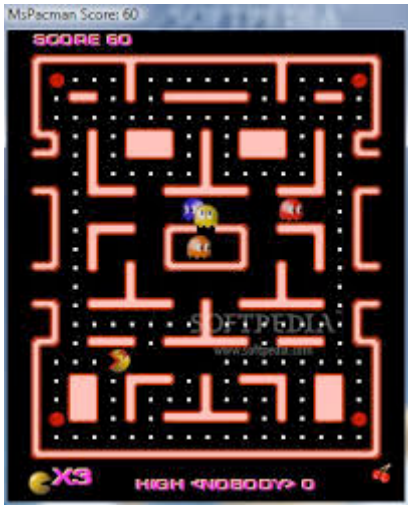
  i) The problem id, your group number, and its elements;
  ii) Your description of the problem and the used algorithm(s)
  iii) The unit tests developed
  iv) All design options taken
  v) Java code developed and changed
  vi) Javadoc
  vii) The implementation UML class diagram, if applicable (see www.objectaid.com)
  viii) Results, analysis, and discussion
  ix) Main conclusions or remarks
  x) Bibliographic references used, if any

Up to January 3, 2022

Task

Ms. Pacman is a classic, non-deterministic, multi-agent game that is considered difficult for most humans [1, 2].

Download the local version of the Ms. Pacman framework, install it, and get familiar with it.



Your task:

1. Design a controller for Ms. Pacman. Any AI approach, other than that already available in the framework, is acceptable.

2. Implement your controller, using the API of the code framework. The implementation is to be made in the file pacman\src\screenpac\controllers\<Group id>.java. Change the controller to be used in a simulation in the function main of the class pacman\src\screenpac.model.Game

3. Document all the experiments including the observed behaviour of the Pacman. Collect relevant results and analyse them.

Game on

Each group is invited to take part in one competition which will take place in the lab class right after the deadline. For taking part in the competition send your code within a zip file to the instructor (jvo.ualg.pt@gmail.com) up to the beginning of the lab class where the competition takes place.

The competition is won by the group with the highest average score taken over three runs. Should a draw occur, the total duration time of the runs will be used as performance measure. The lower the better.

Rules

1 – The competition has two stages;
2 – All groups are invited to the first stage of the competition, under the following conditions:

- 3 (three) simulations with 4 (four) lives each;
- Ghost team used: PincerTeam

3 – A group ranking will be produced based on the score of the three simulations.
4 – Only the three first ranked groups will have the chance to participate in the second phase (finals), which will take place under to following conditions:

- 3 (three) simulations with 4 (four) lives each;
- Ghost team used: LegacyTeam

5 – The competition rank will be that of the finals followed by the group rank obtained in the first stage.
6 – No code changes are allowed during the competition.
7 – Unspecified events will be judged by the instructor;
8 – Appeals, complaints or grievance claims are not accepted.

Rewards

The following bonus for the lab class grades will be award to the final rank, *i.e.*, a max of eight groups will be rewarded.

Place	1st	2nd	3rd	4th	5th	6th	7th	8th
Points	20	16	12	10	8	6	4	2

The three first places will be invited to present their work to the class.

References

[1] http://www.pacman-vs-ghosts.net/
[2] https://en.wikipedia.org/wiki/Ms._Pac-Man