Assignment 1: Uninformed Search
Submission: Friday 24/08/2018 23h moodle
Groups of maximum 2 students

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Introduction to Artificial Intelligence, 2018-2

1. Create a window that shows the following maze of 30x30. You can find the data that represents the maze and the cost of each cell in the file maze.txt
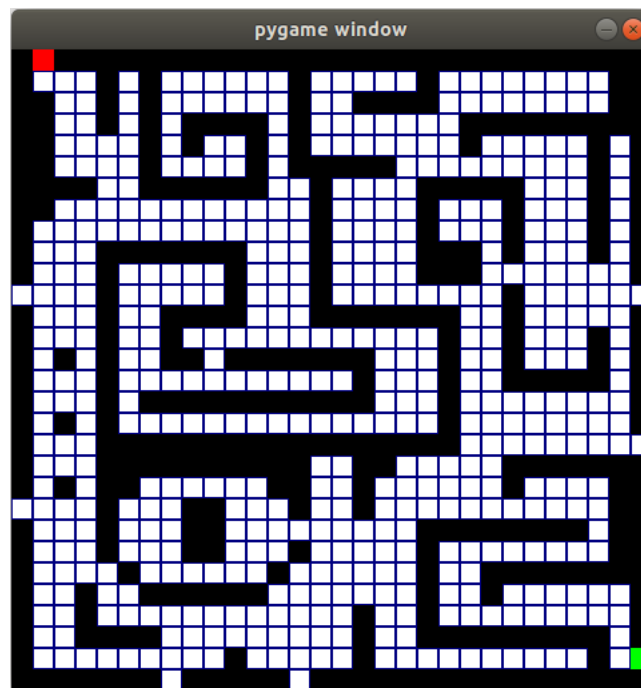

Figure 1: Maze

The red cell represents the star state, with coordinates (0,1). The green cell is the goal at (28,29).

2. You are going to implement an intelligent agent to solve the maze. The agent only can move in N,E,S,W directions. Formulate the search problem.

3. Implement the DFS, BFS and uniform cost search algorithms. As in the class notebook, the `util.py` has some data structures than can be useful to implement in the same function the three search algorithms, like queues, stacks and priority queues. The `search.py` allows you the inherit the class SearchProblem so you can define your own with the same functions.

4. Use DFS, BFS and UCS to find a solution for the maze. Use a color to mark in the maze the explored cells and another color to show the final path.

Report for each algorithm:

- The sequence of actions in the solution

- A picture of the solved maze

- The amount of explored states

- The cost of the path in terms of the maze's cost

- The elapse time until a solution was found

5. In your opinion, which algorithm was the best for solving the maze problem?

For the submission, explain in a readme file how to use your program. Submit your python files and your report in a compressed file.