TDDC17 Artificial Intelligence :

Lab 2 : Search Algorithms

Arnaud Pecoraro

September 2015

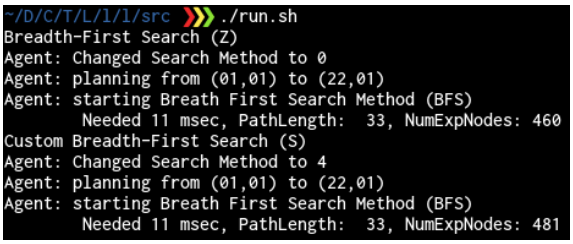
1 Implementing CustomGraphSearch

1.1 Aim

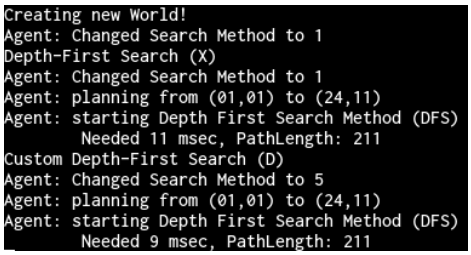
This second lab session explores the concept of graph search algorithms. The agent is still a Vacuum cleaner evolving in a simple grid. Each square of that grid is either clean filled with dirt, or a wall. The vacuum cleaner uses search algorithm to locate the dirt squares. The purpose of this lab is to write our own implementation of *Breadth First Search* and *Depth First Search* algorithms which inherit from a *CustomGraphSearch* class.

Using the Java GUI included in the project files, it is possible to compare the efficiency of differents search algorithms : BFS, DFS, IDS, A*.

1.2 Implementation



(a)



(b)

FIGURE 1 – Comparison between builtin and custom implementation (a) BFS - (b) DFS

2 Theory

Question 1

Question 2

Question 3

Question 4

Question 5

Question 6

Question 7