



Pacman Project 2

Search

【人工智慧概論】

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日期 / 2016.03.17

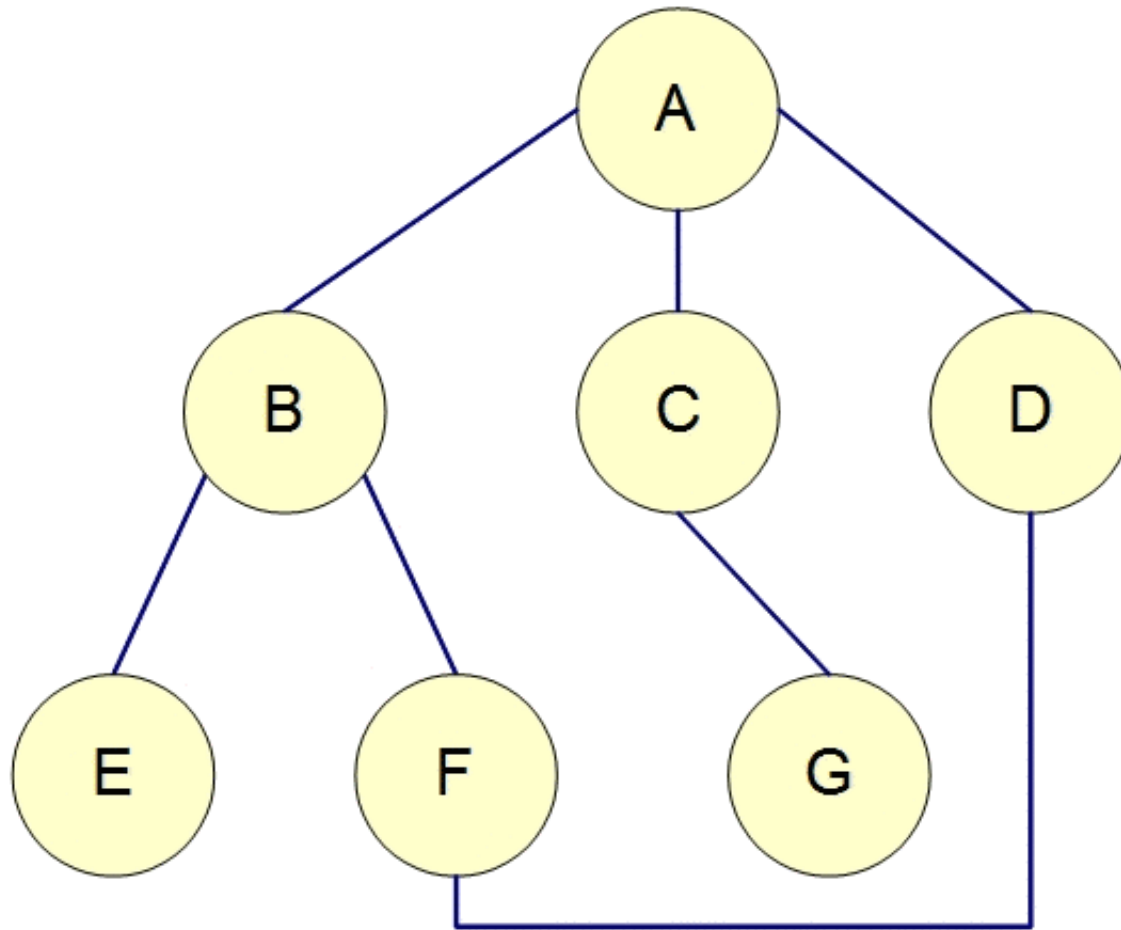




-
- **Algorithms**
 - **Objectives**

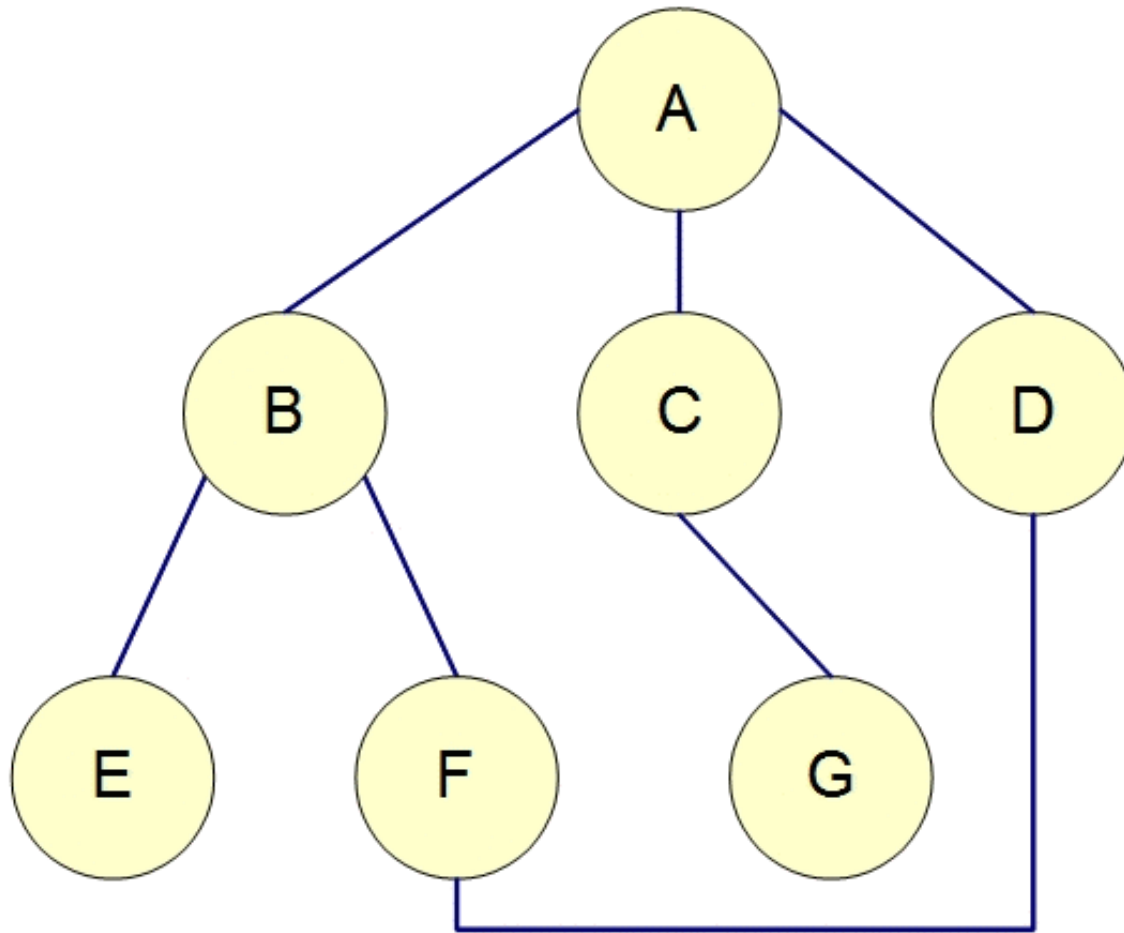


Depth-First Search



(Source)

Breadth-First Search

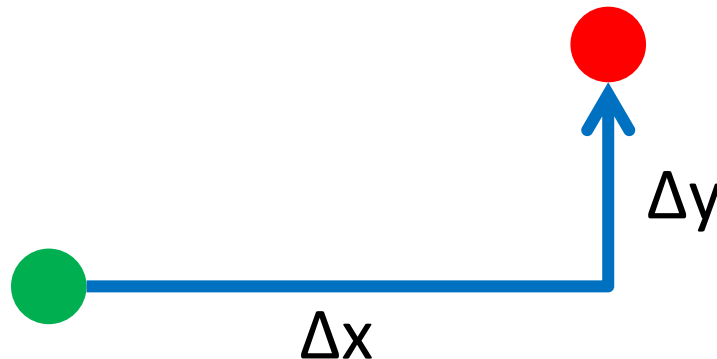


(Source)

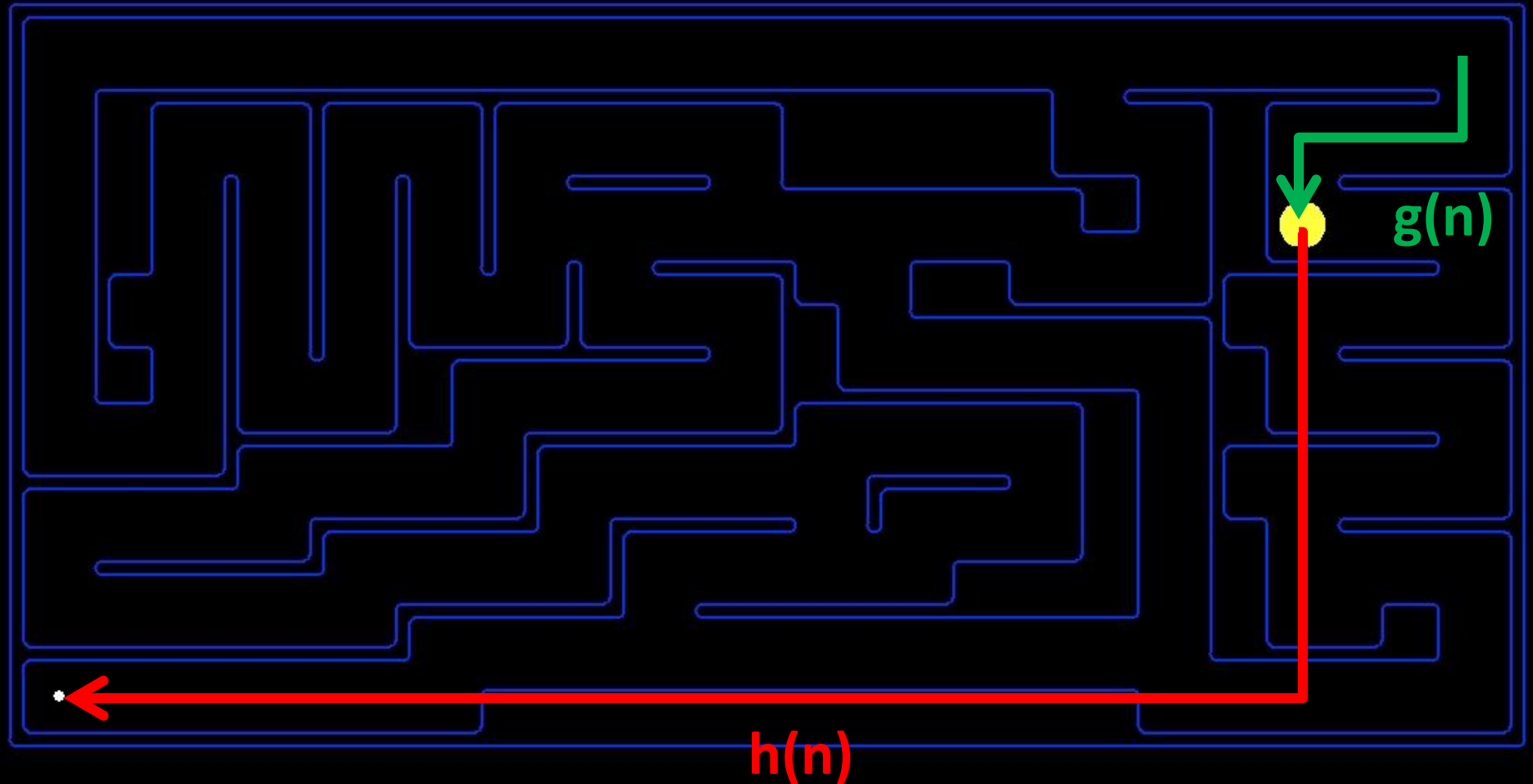
Algorithms(3/3)

A* Search

- $f(n) = g(n) + h(n)$
 - $g(n)$: the cost from the start
 - $h(n)$: heuristic; it estimates the cost to the goal
 - admissible: $h(n) \leq h^*(n)$ (real cost)
 - For Pacman, we use **Manhattan distance**



A* Search



SCORE: -81



Objectives

- P2-1 Depth-First Search (35%)
 - -l mediumMaze -p SearchAgent -a fn=**dfs**
- P2-2 Breadth-First Search (35%)
 - -l mediumMaze -p SearchAgent -a fn=**bfs**
- P2-3 A* Search (30%)
 - -l mediumMaze -p SearchAgent -a
fn=**astar,heuristic=manhattanHeuristic**

Objectives

Layouts

- tinyMaze
- smallMaze
- mediumMaze
- bigMaze
 - -z 0.5





Autograder

- For debugging your code.
 - P2-1: autograder.py -q q1
 - P2-2: autograder.py -q q2
 - P2-3: autograder.py -q q4

Autograder

- Pass

```
Starting on 3-15 at 22:56:32

Question q1
=====

*** PASS: test_cases\q1\graph_backtrack.test
***      solution:          ['1:A->C', '0:C->G']
***      expanded_states:   ['A', 'D', 'C']
*** PASS: test_cases\q1\graph_bfs_vs_dfs.test
***      solution:          ['2:A->D', '0:D->G']
***      expanded_states:   ['A', 'D']
*** PASS: test_cases\q1\graph_infinite.test
***      solution:          ['0:A->B', '1:B->C', '1:C->G']
***      expanded_states:   ['A', 'B', 'C']
*** PASS: test_cases\q1\graph_manypaths.test
***      solution:          ['2:A->B2', '0:B2->C', '0:C->D', '2:D->E']
***      expanded_states:   ['A', 'B2', 'C', 'D', 'E2', 'F']
*** PASS: test_cases\q1\pacman_1.test
***      pacman layout:      mediumMaze
***      solution length: 130
***      nodes expanded:     146

### Question q1: 3/3 ###

Finished at 22:56:32

Provisional grades
=====
Question q1: 3/3
-----
Total: 3/3

Your grades are NOT yet registered. To register your grades, make sure
to follow your instructor's guidelines to receive credit on your project.
```



Hints

- util.py
 - stack
 - queue

Submit

- Edit and upload **search.py** to e3
- Search for “[Project 2] YOUR CODE HERE”
- Deadline: **3/31** 23:59 (2 weeks)
- Late policy: 80%
- **No plagiarism**