Đại học Quốc gia TPHCM

Trường Đại học Khoa học tự nhiên

Khoa Công nghệ thông tin



**PROJECT REPORT**

Course: CTT303-Introduction to Artificial Intelligence

Topic : Search

Group:

* 1753099 – Nguyễn Duy Tân
* 1753113 – Nguyễn Trọng Triết
* 1753128 – Lê Quốc Việt
* 1753139 – Trương Trần Hải Yến

2019

Table of Contents

[**1. Member 3**](#_Toc418453474)

[**2. Plan 3**](#_Toc418453475)

[**3. Environment**](#_Toc418453476) **3**

**[4. Search Algorithm](#_Toc418453474) 3**

[**5. Comparison**](#_Toc418453475) **4**

[**6. The degree of completion level**](#_Toc418453474) **4**

[**7. References**](#_Toc418453475) **4**

1. Member

|  |  |
| --- | --- |
| MSSV | Full Name |
| 1753099 | Nguyễn Duy Tân |
| 1753113 | Nguyễn Trọng Triết |
| 1753128 | Lê Quốc Việt |
| 1753139 | Trương Trần Hải Yến |

1. Plan

|  |  |  |
| --- | --- | --- |
| Date | Task | Student |
| 10/06/2019 | Group meeting to analyze project | All |
| 12/06/2019 | Group meeting to analyze search algorithm | All |
| 16/06/2019 | Start UI, Next level UI | Yến, Tân |
| 17/06/2019 | Read, write File | Yến |
| 17/06/2019 | Search Algorithm | Việt, Triết |
| 20/06/2019 | Draw map in file .txt | Tân, Triết |
| 20/06/2019 | Pacman Move | Yến |
| 22/06/2019 | Level 1 | Yến, Triết |
| 22/06/2019 | Level 2 | Yến, Triết |
| 26/06/2019 | Len of path discovery, time comparison | Việt |
| 26/06/2019 | Score | Việt |
| 30/06/2019 | Group meeting to analyze level 3,4 | All |

1. Environment

- Python 3

- Pycharm

- Python Turtle

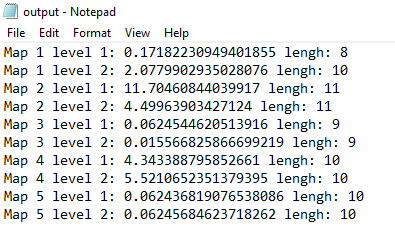
1. Search Algorithm

- We use BFS algorithm

The breadth first search algorithm is a very famous algorithm that is used to traverse a tree or graph data structure. It is guaranteed to find the shortest path from a start node to an end node if such path exists. This algorithm can be used for a variety of different tasks but for this case, we will use it to solve problem of level 1 and level 2.

* Level 1: At this level, we use Breadth First Search Algorithm with using Queue. Pacman will start anywhere on the map. It choose shortest path in the paths, others paths will take at queue. If they are unvisited, we would choose a path in queue. And, they will finish when pacman finishes eating.
* Level 2: As level 1, level 2 also works as level 1 although level 2 has more monsters but because they are still standing, we consider it as a wall.

1. Comparison

Time to finish and the length of the discovered paths

1. The degree of completion level

|  |  |
| --- | --- |
| Task | Finish |
| Level 1 | 100% |
| Level 2 | 100% |
| Level 3 | 0% |
| Level 4 | 0% |
| 5 maps for each level | 100% |
| Score | 100% |
| Comparison | 100% |

1. References

* <https://www.youtube.com/watch?v=-0q_miviUDs&t=319s>
* <https://docs.python.org/2/library/turtle.html>
* <https://docs.python.org/2/library/time.html>
* <https://techwithtim.net/tutorials/breadth-first-search/?fbclid=IwAR2v0RLQjZU9T4UlacgbU3HFsd6Lvz8cuD-kBTaa5MP769g-XxAO8b-oVTY>