## Artificial Intelligence Course

## Project 1: Search in Pacman

|  |  |  |
| --- | --- | --- |
| First name | Last name | Student number |
| Atte | Jauhiainen | 2433947 |
|  |  |  |
|  |  |  |

### Comments about the assignment (if you have)

|  |
| --- |
|  |

### Question 1: Finding a Fixed Food Dot using Depth First Search (3 points)

### Explain the data structure that you used and also the way you keep the trace from the starting state to the end state …

### When implementing DFS the obvious choice would be to use a recursive call of DFS to the children nodes of the start node. However, in this implementation we were supposed to use a stack structure when the last node in gets taken out first. The path information from the start state to finish is wrapped in the object that contains both the location of a single point and the instructions how to get to that point from the start.

### Question 2: Breadth First Search (3 points)

### Explain the data structure that you used and also the way you keep the trace from the starting state to the end state …

### Implementation of DFS and BFS are essentially the same. The biggest difference here is that instead of a stack we used a queue as a fringe. The way we kept information about the path was identical as in DFS implementation.

### Question 3: Varying the Cost Function (3 points)

### Explain the data structure that you used and also the way you keep the trace from the starting state to the end state …

### Question 4: A\* search (3 points)

### Explain the data structure that you used and also the way you keep the trace from the starting state to the end state …

### Question 5: Finding All the Corners (3 points)

### Explain the new state representation….

### Question 6: Corners Problem: Heuristic (3 points)

### Explain your Heuristic function …

### Question 7: Eating All The Dots (4 points)

### Explain your new state representation and the heuristic function…

### Question 8: Suboptimal Search (3 points)

### Explain how did you do the suboptimal search …