BlindSearches.pdf

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Assignment 2 Report – Blind Searches

CSE 415: Introduction to Artificial Intelligence

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|  |  |  |  |
| --- | --- | --- | --- |
| BFS | Path found from start to goal | Length of path | Number of nodes expanded |
| Missionaries and Cannibals | see appendix [1] | 8 | 10 |
| Farmer, Fox, Chicken, and Grain | [['Farmer', 'Grain', 'Chicken', 'Fox'] ,[]]  [['Fox', 'Grain'] ,['Chicken', 'Farmer']]  [['Farmer', 'Fox', 'Grain'] ,['Chicken']]  [['Grain'] ,['Chicken', 'Farmer', 'Fox']]  [['Chicken', 'Farmer', 'Grain'] ,['Fox']]  [['Chicken'] ,['Farmer', 'Fox', 'Grain']]  [['Chicken', 'Farmer'] ,['Fox', 'Grain']]  [[] ,['Chicken', 'Farmer', 'Fox', 'Grain']] | 7 | 11 |
| 4-Disk Towers of Hanoi | see appendix [2] | 18 | 74 |

|  |  |  |  |
| --- | --- | --- | --- |
| DFS | Path found from start to goal | Length of path | Number of nodes expanded |
| Missionaries and Cannibals | see appendix [3] | 9 | 10 |
| Farmer, Fox, Chicken, and Grain | [['Farmer', 'Grain', 'Chicken', 'Fox'] ,[]]  [['Fox', 'Grain'] ,['Chicken', 'Farmer']]  [['Farmer', 'Fox', 'Grain'] ,['Chicken']]  [['Grain'] ,['Chicken', 'Farmer', 'Fox']]  [['Chicken', 'Farmer', 'Grain'] ,['Fox']]  [['Chicken'] ,['Farmer', 'Fox', 'Grain']]  [['Chicken', 'Farmer'] ,['Fox', 'Grain']]  [[] ,['Chicken', 'Farmer', 'Fox', 'Grain']] | 9 | 9 |
| 4-Disk Towers of Hanoi | see appendix [4] | 40 | 40 |

Solution Path Appendix

[1] M on left:3

C on left:3

M on right:0

C on right:0

boat is on the left.

M on left:2

C on left:2

M on right:1

C on right:1

boat is on the right.

M on left:3

C on left:2

M on right:0

C on right:1

boat is on the left.

M on left:1

C on left:1

M on right:2

C on right:2

boat is on the right.

M on left:3

C on left:1

M on right:0

C on right:2

boat is on the left.

M on left:0

C on left:1

M on right:3

C on right:2

boat is on the right.

M on left:1

C on left:1

M on right:2

C on right:2

boat is on the left.

M on left:0

C on left:0

M on right:3

C on right:3

boat is on the right.

[2] [[4, 3, 2, 1] ,[] ,[]]

[[4, 3, 2] ,[1] ,[]]

[[4, 3] ,[1] ,[2]]

[[4, 3, 1] ,[] ,[2]]

[[4, 3] ,[] ,[2, 1]]

[[4] ,[3] ,[2, 1]]

[[4, 1] ,[3] ,[2]]

[[4, 1] ,[3, 2] ,[]]

[[4] ,[3, 2, 1] ,[]]

[[] ,[3, 2, 1] ,[4]]

[[1] ,[3, 2] ,[4]]

[[] ,[3, 2] ,[4, 1]]

[[2] ,[3] ,[4, 1]]

[[2, 1] ,[3] ,[4]]

[[2, 1] ,[] ,[4, 3]]

[[2] ,[1] ,[4, 3]]

[[] ,[1] ,[4, 3, 2]]

[[1] ,[] ,[4, 3, 2]]

[[] ,[] ,[4, 3, 2, 1]]

[3] M on left:3

C on left:3

M on right:0

C on right:0

boat is on the left.

M on left:2

C on left:2

M on right:1

C on right:1

boat is on the right.

M on left:3

C on left:2

M on right:0

C on right:1

boat is on the left.

M on left:0

C on left:2

M on right:3

C on right:1

boat is on the right.

M on left:2

C on left:2

M on right:1

C on right:1

boat is on the left.

M on left:1

C on left:1

M on right:2

C on right:2

boat is on the right.

M on left:3

C on left:1

M on right:0

C on right:2

boat is on the left.

M on left:0

C on left:1

M on right:3

C on right:2

boat is on the right.

M on left:1

C on left:1

M on right:2

C on right:2

boat is on the left.

M on left:0

C on left:0

M on right:3

C on right:3

boat is on the right.

[4] [[4, 3, 2, 1] ,[] ,[]]

[[4, 3, 2] ,[1] ,[]]

[[4, 3] ,[1] ,[2]]

[[4, 3, 1] ,[] ,[2]]

[[4, 3] ,[] ,[2, 1]]

[[4] ,[3] ,[2, 1]]

[[4, 1] ,[3] ,[2]]

[[4] ,[3, 1] ,[2]]

[[4, 2] ,[3, 1] ,[]]

[[4, 2, 1] ,[3] ,[]]

[[4, 2] ,[3] ,[1]]

[[4] ,[3, 2] ,[1]]

[[4, 1] ,[3, 2] ,[]]

[[4] ,[3, 2, 1] ,[]]

[[] ,[3, 2, 1] ,[4]]

[[1] ,[3, 2] ,[4]]

[[] ,[3, 2] ,[4, 1]]

[[2] ,[3] ,[4, 1]]

[[2, 1] ,[3] ,[4]]

[[2] ,[3, 1] ,[4]]

[[] ,[3, 1] ,[4, 2]]

[[1] ,[3] ,[4, 2]]

[[] ,[3] ,[4, 2, 1]]

[[3] ,[] ,[4, 2, 1]]

[[3, 1] ,[] ,[4, 2]]

[[3] ,[1] ,[4, 2]]

[[3, 2] ,[1] ,[4]]

[[3, 2, 1] ,[] ,[4]]

[[3, 2] ,[] ,[4, 1]]

[[3] ,[2] ,[4, 1]]

[[3, 1] ,[2] ,[4]]

[[3] ,[2, 1] ,[4]]

[[] ,[2, 1] ,[4, 3]]

[[1] ,[2] ,[4, 3]]

[[] ,[2] ,[4, 3, 1]]

[[2] ,[] ,[4, 3, 1]]

[[2, 1] ,[] ,[4, 3]]

[[2] ,[1] ,[4, 3]]

[[] ,[1] ,[4, 3, 2]]

[[1] ,[] ,[4, 3, 2]]

[[] ,[] ,[4, 3, 2, 1]]