

8-Puzzle problem using A* search Algorithm

Enter the Current State

1 2 3

0 4 6

7 5 8

Enter the Goal State

1 2 3

4 5 6

7 8 0

Enter the heuristic number that you want to proceed with

1. Manhattan

2. Misplaced Tiles

1

Level 0 - [[1,2,3][0,4,6][7,5,8]]

Node Chosen for Level 1 - [[1,2,3][0,4,6][7,5,8]]

Generated Nodes :

[[0,2,3][1,4,6][7,5,8]] - $f(n) = 1 + 4 = 5$

[[1,2,3][4,0,6][7,5,8]] - $f(n) = 1 + 2 = 3$

[[1,2,3][7,4,6][0,5,8]] - $f(n) = 1 + 4 = 5$

Node Chosen for Level 2 - [[1,2,3][4,0,6][7,5,8]]

Generated Nodes :

[[1,0,3][4,2,6][7,5,8]] - $f(n) = 2 + 3 = 5$

[[1,2,3][4,6,0][7,5,8]] - $f(n) = 2 + 3 = 5$

[[1,2,3][0,4,6][7,5,8]] - Already visited Node!

[[1,2,3][4,5,6][7,0,8]] - $f(n) = 2 + 1 = 3$

Node Chosen for Level 3 - [[1,2,3][4,5,6][7,0,8]]

Generated Nodes :

[[1,2,3][4,0,6][7,5,8]] - Already visited Node!

[[1,2,3][4,5,6][7,8,0]] - $f(n) = 3 + 0 = 3$

[[1,2,3][4,5,6][0,7,8]] - $f(n) = 3 + 2 = 5$

Node Chosen for Level 4 - [[1,2,3][4,5,6][7,8,0]]

The goal path found...

[[1,2,3][0,4,6][7,5,8]]

[[1,2,3][4,0,6][7,5,8]]

[[1,2,3][4,5,6][7,0,8]]

[[1,2,3][4,5,6][7,8,0]]

Time Taken : 9 milliseconds

The number of nodes that are generated are : 10

The number of nodes that are expanded are : 4