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8-Puzzle problem using A* search Algorithm
Enter the Current State
2 8 1
3 4 6
7 5 0
Enter the Goal State
3 2 1
8 0 4
7 5 6
Enter the heuristic number that you want to proceed with
1. Manhattan
2. Misplaced Tiles
2
-----------------------------------------------------
Level 0 - [[2,8,1][3,4,6][7,5,0]]
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Node Chosen for Level 1 - [[2,8,1][3,4,6][7,5,0]]

Generated Nodes :
-----------------
[[2,8,1][3,4,0][7,5,6]] - f(n) =  1 + 4 = 5
[[2,8,1][3,4,6][7,0,5]] - f(n) =  1 + 6 = 7
-----------------------------------------------------
Node Chosen for Level 2 - [[2,8,1][3,4,0][7,5,6]]

Generated Nodes :
-----------------
[[2,8,0][3,4,1][7,5,6]] - f(n) =  2 + 5 = 7
[[2,8,1][3,0,4][7,5,6]] - f(n) =  2 + 3 = 5
[[2,8,1][3,4,6][7,5,0]] - Already visited Node!
-----------------------------------------------------
Node Chosen for Level 3 - [[2,8,1][3,0,4][7,5,6]]

Generated Nodes :
-----------------
[[2,0,1][3,8,4][7,5,6]] - f(n) =  3 + 3 = 6
[[2,8,1][3,4,0][7,5,6]] - Already visited Node!
[[2,8,1][0,3,4][7,5,6]] - f(n) =  3 + 3 = 6
[[2,8,1][3,5,4][7,0,6]] - f(n) =  3 + 4 = 7
-----------------------------------------------------
Node Chosen for Level 4 - [[2,0,1][3,8,4][7,5,6]]

Generated Nodes :
-----------------
[[2,1,0][3,8,4][7,5,6]] - f(n) =  4 + 4 = 8
[[0,2,1][3,8,4][7,5,6]] - f(n) =  4 + 2 = 6
[[2,8,1][3,0,4][7,5,6]] - Already visited Node!
-----------------------------------------------------
Node Chosen for Level 4 - [[2,8,1][0,3,4][7,5,6]]

Generated Nodes :
-----------------
[[0,8,1][2,3,4][7,5,6]] - f(n) =  4 + 3 = 7
[[2,8,1][3,0,4][7,5,6]] - Already visited Node!
[[2,8,1][7,3,4][0,5,6]] - f(n) =  4 + 4 = 8
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Node Chosen for Level 5 - [[0,2,1][3,8,4][7,5,6]]

Generated Nodes :
-----------------
[[2,0,1][3,8,4][7,5,6]] - Already visited Node!
[[3,2,1][0,8,4][7,5,6]] - f(n) =  5 + 1 = 6
-----------------------------------------------------
Node Chosen for Level 6 - [[3,2,1][0,8,4][7,5,6]]

Generated Nodes :
-----------------
[[0,2,1][3,8,4][7,5,6]] - Already visited Node!
[[3,2,1][8,0,4][7,5,6]] - f(n) =  6 + 0 = 6
[[3,2,1][7,8,4][0,5,6]] - f(n) =  6 + 2 = 8
-----------------------------------------------------
Node Chosen for Level 7 - [[3,2,1][8,0,4][7,5,6]]
The goal path found...
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[[2,8,1][3,4,6][7,5,0]]
[[2,8,1][3,4,0][7,5,6]]
[[2,8,1][3,0,4][7,5,6]]
[[2,0,1][3,8,4][7,5,6]]
[[2,8,1][0,3,4][7,5,6]]
[[0,2,1][3,8,4][7,5,6]]
[[3,2,1][0,8,4][7,5,6]]
[[3,2,1][8,0,4][7,5,6]]
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Time Taken : 21 milliseconds
The number of nodes that are generated are : 20
The number of nodes that are expanded are : 8
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