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Assignment 2 Report: Heuristic Search

**Results with Heuristics for the Eight Puzzle**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Puzzle | Heuristic | Solved(Y)? Aborted(N)? | # edges | Soln. cost | # expand | Max OPEN |
| Default starting position:  [[3, 1, 2]  [0, 5, 8]  [4, 6, 7]] | none | Y | 7 | 7.0 | 106 | 80 |
|  | *Hamming* | *Y* | *7* | *7.0* | *9* | *10* |
|  | *Manhattan* | *Y* | *7* | *7.0* | *8* | *8* |
| Puzzle\_Rotate\_2  [[6, 3, 0],  [7, 4, 1],  [8, 5, 2]] | none | Y | 14 | 14.0 | 2992 | 1933 |
|  | *Hamming* | *Y* | *14* | *14.0* | *136* | *91* |
|  | *Manhattan* | *Y* | *14* | *14.0* | *14* | *9* |
| Example A:  [[3,0,1],  [6,4,2],  [7,8,5]] | none | Y | 7 | 7.0 | 166 | 101 |
|  | *Hamming* | *Y* | *7* | *7.0* | *7* | *6* |
|  | *Manhattan* | *Y* | *7* | *7.0* | *7* | *6* |
| Example B:  [[3, 1, 2]  [6, 8, 7]  [5, 4, 0]] | none | Y | 12 | 12.0 | 1490 | 898 |
|  | *Hamming* | *Y* | *12* | *12.0* | *92* | *72* |
|  | *Manhattan* | *Y* | *12* | *12.0* | *33* | *25* |
| Example C:  [[4, 5, 0]  [1, 2, 8]  [3, 7, 6]] | **\*none** | Y | 14 | 14.0 | 4070 | 2290 |
|  | *Hamming* | *Y* | *14* | *14.0* | *189* | *127* |
|  | *Manhattan* | *Y* | *14* | *14.0* | *56* | *39* |
| Example D:  [[0,8,2],  [1,7,4],  [3,6,5]] | **\*none** | Y | 16 | 16.0 | 7982 | 4700 |
|  | *Hamming* | *Y* | *16* | *16.0* | *589* | *368* |
|  | *Manhattan* | *Y* | *16* | *16.0* | *148* | *96* |

**\* The indicated methods took >= 5 minutes on my computer, but still ran to completion**