

COMP20003

ASSIGNMENT 2 – EXPERIMENTATION

In this assignment, an AI Solver for the 15-Puzzle was built. Testing was done against a lot of simple and complex test cases, and results for the given test cases are shown below.

ID	1	2	3	4	14	88
h(s₀)	41	43	41	42	41	43
Thresholds	43 45 47 49 51 53 55 57	45 47 49 51 53 55	43 45 47 49 51 53 55 57 59	44 46 48 50 52 54 56	43 45 47 49 51 53 55 57 59	45 47 49 51 53 55 57 59 61 63 65
Solution	57	55	59	56	59	65
Generated	499,911,606	18,983,862	455,125,298	82,631,583	937,956,626	6,195,467,140
Expanded	253,079,560	9,777,810	229,658,354	41,689,053	475,109,930	3,176,234,868
Expanded/ Second	4,516,858	2,039,903	4,172,041	4,425,119	2,841,532	3,355,158
Time (seconds)	56.03	4.67	55.05	9.45	167.20	946.67

Improvement: Algorithm was made faster by ensuring that the puzzle did not do unnecessary moves. That including preventing a move in an opposite direction to the immediate previous move.

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