

Problem Formulation

➤ initial State:

A standard Sudoku board, with some of the boxes filled in as specified.

➤ Successor Function:

Fill an empty box with a number from 1 to 9 and each number can only occur once in each row , column , and box.

➤ Goal Test:

A filled in sudoku board where each cell contain a number from one to nine and each number can only occur once in each row , column and box.

➤ Path Cost:

Each move cost one.

Osama Ahmed (sec 2)

Rokia Hany (sec 3)

Shahenda Nagy (sec 3)

Search tree

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| 5 | 2 | 3 | 4 | 7 | 6 | 9 | 1 | 8 |
| 7 | 1 | 4 | 9 | 5 | 8 | 2 | 3 | 6 |
| 6 | 9 | 8 | 1 | 2 | 3 | | 7 | 5 |
| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
| 1 | | 2 | 7 | 9 | 5 | 3 | 8 | 4 |
| 8 | 4 | 5 | 3 | 6 | 1 | 7 | 2 | 9 |

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| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
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| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | 3 |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
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| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
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| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | |
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| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | 3 |
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| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
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| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
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| 6 | 9 | 8 | 1 | 2 | 3 | 4 | 7 | 5 |
| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | 3 |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
| 1 | 6 | 2 | 7 | 9 | 5 | 3 | 8 | 4 |
| 8 | 4 | 5 | 3 | 6 | 1 | 7 | 2 | 9 |

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| 6 | 9 | 8 | 1 | 2 | 3 | 4 | 7 | 5 |
| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | 3 |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
| 1 | | 2 | 7 | 9 | 5 | 3 | 8 | 4 |
| 8 | 4 | 5 | 3 | 6 | 1 | 7 | 2 | 9 |

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| 6 | 9 | 8 | 1 | 2 | 3 | 4 | 7 | 5 |
| 4 | 8 | 9 | 6 | 3 | 7 | 1 | 5 | 2 |
| 3 | 5 | 6 | 2 | 1 | 9 | 8 | 4 | 7 |
| 2 | 7 | 1 | 5 | 8 | 4 | 6 | 9 | 3 |
| 9 | 3 | 7 | 8 | 4 | 2 | 5 | 6 | 1 |
| 1 | | 2 | 7 | 9 | 5 | 3 | 8 | 4 |
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