Module 4: Critical Thinking

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Model 4: Critical Thinking

In this critical thinking assignment, I used the A* algorithm with the Manhattan distance heuristic to solve the 8-puzzle problem (Fisanotti, J. P., 2021, September 2). I chose to use the A* algorithm because it guarantees to find an optimal solution to the problem. It is more efficient than algorithms such as breadth-first search since that algorithm explores every possible state.

My search algorithm is complete and admissible. Assuming there is enough time and memory it will find a solution. While this algorithm find the correct solution, it is not very space efficient. This is more pronounced in larger puzzles and if there is more steps to solve the puzzle.

As previously mentioned, an advantage of the A* algorithm is the it gauntness the optimal solution as long as that solution exists. However, this algorithm can consume a lot of memory due to the need to explore all possible outcomes, making it slow for larger puzzles.

References

Fisanotti, J. P., (2021, September 2) *simpleai 0.8.3.* PyPI.

https://pypi.org/project/simpleai/