Machine Learning

Final Project

Due: Wednesday, May 10th

Write a program to solve the *8-Puzzle* using A* search using the Manhattan distance as your heuristic.

Your program should prompt for and enter both the *start* state of your search and the *goal*. Both start and goal should be a series of digits 0-8, where 0 represents the blank's position. You are expected to error check that both start and end are "legal" boards containing all nine digits exactly once.

Your program MUST output the sequence of moves necessary to solve the problem.

NOTE: Not all board configurations will lead to a solution. You can easily snap out two of the plastic pieces from the board and switch their positions -- which may lead to an unsolvable puzzle!

You must author your own code using either the C++, Java or Python programming language and without the use of external software packages. Your project submission will be run through a source code verifier to check for plagiarism. Any evidence of cheating (code NOT written solely by you) will result in a failing grade for this course.

Your program should create an output file containing both the starting and goal board positions and the sequence of moves necessary to reach the goal. When submitting your assignment include:

- A sample output file for a non-trivial board solution (at least 10 moves).
- a copy or your source code.
- a README file containing any information required to run your program.