

CS 411 - Artificial Intelligence I

Fall 2024

Assignment 5

Department of Computer Science, University of Illinois at Chicago

Write a program which performs a-star search to find the solution to any given board position for 15 puzzle using two types of heuristics:

1. Number of misplaced tiles

2. Manhattan Distance

Input

The input should be given in form of sequence of numbered tiles for initial board configuration, '0' indicating the empty space (see example below)

Output

1. Moves
2. Number of Nodes expanded
3. Time Taken
4. Memory Used

Submission

Please submit a zip file with filename <netid>_astar.zip including following files:

- Source Code
- Readme.txt including instruction to run the code

Programming Language

You can choose from C++, Java, Python or Julia

Rubric

Implement a-star search with heuristic 'number of misplaced tile' => 6

Implement a-star search with heuristic 'manhattan distance' => 6

Print the moves to reach the solution => 3

Print number of nodes expanded => 2

Print total memory usage => 2

Print total time taken => 2

Coding style, comments, readme instruction => 4

NOTE: The due date of assignment is 10/07/2024 at 9:00am.