Artificial Intelligence
Fall 2020
Lab-Assignment

The objective of this lab is to: Implement A* Search

Course & Lab Instructor: *Dr. Mian Mubashir*

Instructions

Don't share your code with anyone until evaluation.

Plagiarism will result in penalties.

Your code must run without errors.

Your code must produce a generalized solution which can solve problem of any size.

The evaluation will be based on viva. Failure to explain your own code will result in penalties.

You are required to submit a single zip file BCSF20M001.zip. Failed to follow naming format will result in no grade.

You are already familiar with N-Puzzle problem and how BFS is computationally intensive. You are now going to solve N-Puzzle problem using A*.

You will read from the text file. First line will contain a number **M**. After that **M** number of problems will be given. You are also required to generate goal state yourself (like last lab). The goal state will be a sequence of numbers from 1 to the highest number in the puzzle with 0 at the end. You are required to perform the following tasks.

Task-1

You have to find out if the given puzzle is solvable or not for that you can implement the algorithm from the following link

https://www.geeksforgeeks.org/check-instance-15-puzzle-solvable/

Task-2

If the given puzzle is solvable, you are required to produce a software artifact which can solve the N-Puzzle problem and output the **actions sequence** separated by → which solved the given puzzle.