Assignment No : 01
Assignment name : 8 Puzzle problem

CSE-0408 Summer 2021

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Abstract—**In practice, an incomplete heuristic search nearly always finds better solutions if it is allowed to search deeper, i.e. expand and heuristically evaluate more nodes in the search tree and determine the best path to take next. The heuristic function is a way to inform the search about the direction to a goal. It provides an informed way to guess which neighbor of a node will lead to a goal. There is nothing magical about a heuristic function. It must use only information that can be readily obtained about a node.**

Index Terms—**heuristic, puzzle**

I. INTRODUCTION

Many problems, such as game-playing and path-finding, can be solved by search algorithms. To do so, the problems are represented by a search graph or tree in which the nodes correspond to the states of the problem. In this assignment we are going to implement a algorithms to solve 8 puzzle problem

II. LITERATURE REVIEW

Sadikov and Bratko (2006) studied the suitability of pessimistic and optimistic heuristic functions for a real-time search in the 8-puzzle. They discovered that pessimistic functions are more suitable. They also observed the pathology, which was stronger with the pessimistic heuristic function. However, they did not study the influence of other factors on the pathology or provide any analysis of the gain of a deeper search.

III. PROPOSED METHODOLOGY

The 8-puzzle problem is a puzzle invented and popularized by Noyes Palmer Chapman in the 1870s. It is played on a 3-by-3 grid with 8 square blocks labeled 1 through 8 and a blank square. Your goal is to rearrange the blocks so that they are in order.

IV. CONCLUSION

We tested our code to see how many states it would take to get from the current state to the goal state, and we came up with seven.

REFERENCES

[1] [1] Piltaver, R., Lustrek, M., and Gams, M. (2012). The pathology of heuristic ˘ search in the 8-puzzle. Journal of Experimental and Theoretical Artificial Intelligence, 24(1), 65-94