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25/10/24

LAB - 03

01 A* Algorithm for 8puzzle problem

function A* search(problem) returns a solution or failure
    node ← a node n with n.state: problem.initial state, n.g = 0
    frontier ← a priority queue ordered by ascending g^{th} only element n.
    loop do
        if empty?(frontier) then return failure
        n ← pop(frontier)
        if problem.goalTest(n.state) then return solution(n)
        for each action a in problem.actions(n.state) do
            n' ← childNode(problem, n, a)
            insert(n', g(n') + h(n'), frontier).

Misplaced tiles

$f(n) = g(n) + h(n)$

$g(n) \longrightarrow$ depth

$h(n) \longrightarrow$ no. of misplaced tiles

Manhattan distance

$f(n)$ = Sum of distance of each tile from current position to goal position.

State space tree