

Misplaced tiles

function A STAR 8 puzzle (start\_state, goal\_state):

goal state

open\_list = priorityQueue()

closed\_list = set()

start\_node = Node(start\_state, g=0, h=MisplacedTiles(start\_state, goal\_state))

open\_list.push(start\_node)

while open\_list is not empty:

current\_node = open\_list.pop()

if current\_node.state == goal\_state:

return Reconstruct\_path(current\_node)

closed\_list.add(current\_node.state)

for neighbor in Get\_Neighbors(current\_node):

if neighbor.state in closed\_list:

continue

neighbor.g = current\_node.g + 1

neighbor.h = MisplacedTiles

neighbor.f = neighbor.g + neighbor.h

if neighbor.state not in open\_list or

neighbor.f < open\_list.get\_f\_value(neighbor):

open\_list.push(neighbor)

return "No solution found"

function Get\_Neighbors(node):

neighbors = []

(x, y) = FIND\_BLANK(node.state)

directions = ["up", "down", "left", "right"]

for each direction in directions:

if Valid\_move(direction, x, y):

new\_state = SwapTiles(node.state, blank\_position, new\_position)