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Regular

AI Lab Test-1

Program-1. 8 puzzle problem using A*

8	2	3
	4	6
7	5	1

1	2	3
4	5	6
7	8	

Pseudocode

Function 1:

```
def h (state, target)
    dest = 0
    for i in state:
        d1, d2 = state.index(i), target.index(i)
        x1, y1 = d1 // 3
        x2, y2 = d2 // 3
    dest = dest + abs(x1-x2) + abs(y1-y2)
    return dest
```

function 2:

```
def astar (src, target)
    states = [src]
    g = 0
    visited_states = set()
    while len(states):
        print(f"Level : {g}")
        moves = []
```

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```
for state in states:

visited_states.add(tuple(state))
print_grid(state)

if state == target:
    print("Success")
    return

costs = [g+h(move, target)
states = [moves[i] for i in range
                (len(moves)

if
costs[i] == min[costs)]
    print("No solution")
```