AI LAB TEST - 1

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13/11/20

```
class Node:
    def __init__(self, state, level):
        self.grid = state
        self.level = level
        self.cost = 0

    def G(state):
        return state.level

    def H(state, target):
        grid = state.grid
        dist = 0
        for i in grid
        d1, d2 = grid.index(i), target.index(i)
        x1, y1 = d1 % 3
        x2, y2 = d2 % 3
        dist += abs(x1-x2)+abs(y1-y2)
        return dist

    def F(state, target):
        return G(state) + H(state, target)

    def printGrid(state):
        state = state.grid.copy()
        state[state.index(-1)] = ' '
        print(state[0], state[1], state[2])
        print(state[3], state[4], state[5])
        print(state[6], state[7], state[8])
        print()
```

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```
def inFrontier(frontier, neighbour)
    return len([state for state in frontier if
                state.grid == neighbour.grid]) > 0

def astar(state, target):
    frontier = [Node(state[1])]

    print("Fail")

def possible_moves(state):
    b = state.grid.index(-1)
    d = []

    pos_moves = []
    pos_moves.append(gen, state, move, b)
    return

def gen(state, move, blank):
    temp = state.grid.copy()
    return temp

astar(src, target)
```