USN : 1BM22CS259

LAB -2) Vacuum cleaner agent.

CODE:

```
room_status = {}

cost = 0

goal_state = {}


def print_status(room_count):
    if room_count == 2:
        print(f'Current Status: A: {room_status["A"]}, B: {room_status["B"]}')
    elif room_count == 4:
        print(f'Current Status: A: {room_status["A"]}, B: {room_status["B"]}, C: {room_status["C"]}, D: {room_status["D"]}')


def vacuum_cleaner(location, room_count):
    global cost

    if room_status == goal_state:
        print("All rooms cleaned")
        return

    if room_status[location] == 1:
        room_status[location] = 0
        cost += 1
        print(f'Room {location} cleaned')
        print_status(room_count)

    next_location = get_next_room(location, room_count)
    print(f'Moving to room {next_location}')

    return vacuum_cleaner(next_location, room_count)
```

```
def get_next_room(current, room_count):
    if room_count == 2:
        rooms = ['A', 'B']
    else:
        rooms = ['A', 'B', 'C', 'D']

    current_index = rooms.index(current)
    next_index = (current_index + 1) % len(rooms)
    return rooms[next_index]

room_count = int(input("Do you want to clean 2 rooms or 4 rooms? Enter 2 or 4: "))

if room_count == 2:
    goal_state = {'A': 0, 'B': 0}
    room_status['A'] = int(input("Enter status for Room A (1 for dirty, 0 for clean): "))
    room_status['B'] = int(input("Enter status for Room B (1 for dirty, 0 for clean): "))

    print("Initial Status:")
    print_status(room_count)

    vacuum_cleaner('A', room_count)

elif room_count == 4:
    goal_state = {'A': 0, 'B': 0, 'C': 0, 'D': 0}
    room_status['A'] = int(input("Enter status for Room A (1 for dirty, 0 for clean): "))
    room_status['B'] = int(input("Enter status for Room B (1 for dirty, 0 for clean): "))
    room_status['C'] = int(input("Enter status for Room C (1 for dirty, 0 for clean): "))
    room_status['D'] = int(input("Enter status for Room D (1 for dirty, 0 for clean): "))

    print("Initial Status:")
```

```
    print_status(room_count)

    vacuum_cleaner('A', room_count)

print('Total cost:', cost)
```

OUTPUT:

1)

```
Do you want to clean 2 rooms or 4 rooms? Enter 2 or 4: 2
Enter status for Room A (1 for dirty, 0 for clean): 1
Enter status for Room B (1 for dirty, 0 for clean): 1
Initial Status:
Current Status: A: 1, B: 1
Room A cleaned
Current Status: A: 0, B: 1
Moving to room B
Room B cleaned
Current Status: A: 0, B: 0
Moving to room A
All rooms cleaned
Total cost: 2
```

2)

```
Do you want to clean 2 rooms or 4 rooms? Enter 2 or 4: 4
Enter status for Room A (1 for dirty, 0 for clean): 1
Enter status for Room B (1 for dirty, 0 for clean): 1
Enter status for Room C (1 for dirty, 0 for clean): 0
Enter status for Room D (1 for dirty, 0 for clean): 1
Initial Status:
Current Status: A: 1, B: 1, C: 0, D: 1
Room A cleaned
Current Status: A: 0, B: 1, C: 0, D: 1
Moving to room B
Room B cleaned
Current Status: A: 0, B: 0, C: 0, D: 1
Moving to room C
Moving to room D
Room D cleaned
Current Status: A: 0, B: 0, C: 0, D: 0
Moving to room A
All rooms cleaned
Total cost: 3
```