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1  # Initial state setup
2  current_state = ['A', 1, 'B', 1] # Initial state with both rooms dirty
3  goal_state = ['A', 0, 'B', 0]    # Goal state (both rooms clean)
4  total_cost = 0                    # Initialize total cost
5
6  def print_status():
7      print(f"Current state: {current_state}")
8      print(f"Vacuum is placed in Location {position}")
9      print(f"Total cleaning cost so far: {total_cost}")
10
11 def check_and_clean(start_room):
12     process_room(start_room, current_state[current_state.index(start_room) + 1])
13     other_room = 'B' if start_room == 'A' else 'A'
14     process_room(other_room, current_state[current_state.index(other_room) + 1])
15     check_goal_state()
16
17 def process_room(room, status):
18     if status == 1:
19         clean_room(room)
20     else:
21         print(f"Location {room} is already clean.")
22
23 def clean_room(room):
24     global total_cost
25     print(f"Location {room} is Dirty.")
26     current_state[current_state.index(room) + 1] = 0 # Set status to 0 (cleaned)
27     print(f"Location {room} has been Cleaned.")
28
29     # Increase total cost for cleaning
30     cost_of_cleaning = 1 # Define the cost for each cleaning operation
31     total_cost += cost_of_cleaning
32     print(f"COST for SUCK at Location {room}: {cost_of_cleaning}")
33
34     # Move the vacuum to the next room after cleaning
35     move_to_next_room(room)
36     print_status()
37
38 def move_to_next_room(room):
39     global position
40     if room == 'A':
41         position = 'B'
42         print(f"Moving right to Location B.")
43     elif room == 'B':
44         position = 'A'
45         print(f"Moving left to Location A.")
46
47 def check_goal_state():
48     if current_state == goal_state:
49         print("Final goal state reached:", goal_state)
50     else:
51         print("Goal state not yet reached.")
52
53 def get_room_status():
54     for room in ['A', 'B']:
55         status = input(f"Is location {room} dirty? (yes/no): ").strip().lower()
56         if status == 'yes':
57             current_state[current_state.index(room) + 1] = 1 # Set status to 1 (dirty)
58         elif status == 'no':
59             current_state[current_state.index(room) + 1] = 0 # Set status to 0 (clean)
60         else:
61             print("Invalid input. Assuming the room is clean.")
62             current_state[current_state.index(room) + 1] = 0 # Default to clean
63
64 if __name__ == "__main__":
65     position = input("Which room do you want to start cleaning? (A/B): ").strip().upper()
66
67     if position in ['A', 'B']:
68         get_room_status() # Ask user for the status of each room
69         print_status()
70         check_and_clean(position)

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71     else:
72         print("Invalid choice. Please restart and choose either A or B.")
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↵ Which room do you want to start cleaning? (A/B): a
Is location A dirty? (yes/no): yes
Is location B dirty? (yes/no): no
Current state: ['A', 1, 'B', 0]
Vacuum is placed in Location A
Total cleaning cost so far: 0
Location A is Dirty.
Location A has been Cleaned.
COST for SUCK at Location A: 1
Moving right to Location B.
Current state: ['A', 0, 'B', 0]
Vacuum is placed in Location B
Total cleaning cost so far: 1
Location B is already clean.
Final goal state reached: ['A', 0, 'B', 0]
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