Lab2(25.08.2025)

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Implement vaccum cleaner problem

```
def vacuum_cleaner()
    A = int(input("Enter state of A (0 for clean, 1 for dirty): "))
    B = int(input("Enter state of B (0 for clean, 1 for dirty): "))
    location = input("Enter location (A or B): ").upper()

    cost = 0
    state = {'A': A, 'B': B}

    if location == 'A':
        if state['A'] == 1:  # If A is dirty
            print("Cleaned A.")
            state['A'] = 0
            cost += 1
        else:
            print("A is clean")

        if state['B'] == 1:  # If B is dirty
            print("Moving vacuum right")
            print("Cleaned B.")
            state['B'] = 0
            cost += 1
            print("Is B clean now? (0 if clean, 1 if dirty):", state['B'])
            print("Is A dirty? (0 if clean, 1 if dirty):", state['A'])
            print("B is clean")
            print("Moving vacuum left")
```

```
        else:
            print("Turning vacuum off")

    elif location == 'B':
        if state['B'] == 1:  # If B is dirty
            print("Cleaned B.")
            state['B'] = 0
            cost += 1
        else:
            print("B is clean")

        if state['A'] == 1:  # If A is dirty
            print("Moving vacuum left")
            print("Cleaned A.")
            state['A'] = 0
            cost += 1
            print("Is A clean now? (0 if clean, 1 if dirty):", state['A'])
            print("Is B dirty? (0 if clean, 1 if dirty):", state['B'])
            print("A is clean")
            print("Moving vacuum right")
        else:
            print("Turning vacuum off")

    print("Cost:", cost)
    print(state)
    print("Sharada Koundinya, 1BM23CS310")

vacuum_cleaner()
```

OUTPUT CASE1:

```
Enter state of A (0 for clean, 1 for dirty): 1
Enter state of B (0 for clean, 1 for dirty): 1
Enter location (A or B): A
Cleaned A.
Moving vacuum right
Cleaned B.
Is B clean now? (0 if clean, 1 if dirty): 0
Is A dirty? (0 if clean, 1 if dirty): 0
B is clean
Moving vacuum left
Cost: 2
{'A': 0, 'B': 0}
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```

OUTPUT CASE2:

```
Enter state of A (0 for clean, 1 for dirty): 0
Enter state of B (0 for clean, 1 for dirty): 1
Enter location (A or B): A
A is clean
Moving vacuum right
Cleaned B.
Is B clean now? (0 if clean, 1 if dirty): 0
Is A dirty? (0 if clean, 1 if dirty): 0
B is clean
Moving vacuum left
Cost: 1
{'A': 0, 'B': 0}
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```

OUTPUT CASE3:

```
Enter state of A (0 for clean, 1 for dirty): 0
Enter state of B (0 for clean, 1 for dirty): 0
Enter location (A or B): A
A is clean
Turning vacuum off
Cost: 0
{'A': 0, 'B': 0}
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```

25/8/25

Vaccum Cleaner Problem.

Algorithm.

1. Check current location and its status
2. If current location is dirty, clean it
   Else move right or left
3. Repeat until both rooms are clean.

OUTPUT:

```
Enter state of A (0 for clean, 1 for dirty): 1
Enter state of B (0 for clean, 1 for dirty): 1
Enter location (A or B): A
Cleaned A
Moving vaccum right
Cleaned B
Is B clean now? : 0
Is A dirty? : 0
B is clean
Moving vaccum left
Cost : 2
{'A': 0, 'B': 0}
```

O/P verified