01/10/24 LAB - 2

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Vacuum cleaner algorithm.

step 1 : Start

step 2 : Take location and status of both the rooms (A and B)

s_A = input ("Enter status of A")

s_B = input ("Enter status of B")

step 3 : Declare agent table (Dictionary)

```
agent_table = {
    'clean, A' : Moveright
    'clean, B' : Moveleft
    'dirty, A' : Suck
    'dirty, B' : Suck
} // give starting room.
```

step 4 : check the status of both rooms whether they are dirty.

If dirty. Then clean room A and update status to clean and then moveright.

else move right.

continue untill both the rooms are clean.

step 5 : end.

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Python code:

```
agent_table = {
        ('C', 'A') : 'MoveRight',
        ('C', 'B') : 'Moveleft',
        ('D', 'A') : 'Suck',
        ('D', 'B') : 'Suck',
}

class Vacuum:
    def __init__(self, location = 'A', status = 'C'):
        self.location = location
        self.status = status

    def act(self, action):
        if action == 'MoveRight':
            self.location = 'B'
        elif action == 'Moveleft':
            self.location = 'A'
        elif action == 'Suck':
            self.Status = 'C'

s_A = input("Enter status of room A")
s_B = input("Enter status of room B")

v = Vacuum(loc = 'A', status = s_A)

while s_A == 'D' or s_B == 'D':
    action = agent_table.get((Vacuum.status,
                Vacuum.location))
    print(f"Percept: {vacuum.status},
            Action: {action}")
```

```
if action != 'NoOp':
    va: act(action)

if v.location == 'A':
    s_A = v.status
elif action == 'Suck':
    s_B = 'C'
elif status_B == 'Dirty':
    v.status = 'D'

print(f"Location: {v.location}, status A:
    {status_A}, status B : {s_B}")

print("Both rooms are clean!")
```

Output:

```
Enter status of room A: clean
Enter status of room B: dirty
Percept : clean, Action MoveRight
Location : B, status B : clean, status B : Dirty
Percept : Dirty . Action : Suck
Location : B, Status A : Clean, Status B : clean
Both rooms are clean.
```

output: // Four rooms.

Enter status of A : dirty
Enter status of B : clean
Enter status of C : clean
Enter status of D : clean
percept : dirty action : suck
location A : status A, B, C, D: clean, clean, clean
clean

percept : clean action : Moveright
location B: status A, B, C, D : clean, clean clean
clean

percept : clean action : Move down
location C: Status A, B, C, D : clean, clean,
clean, clean

percept : clean action : Move up
location D: status A, B, C, D : clean. clean,
clean. clean.

All the rooms are clean!

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