

TASK - 1

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CODE :

```
import random as rt

def simpleReflexAgent(vaccum_location, score=-1):
    # check if vaccum default position in room A
    if vaccum_location == 1:
        print(f"Vaccum Position is randomly defined at room A \n checking room A...")
        if rooms['A']==0:
            print(f"start cleaning... Room A has been cleaned")
            score += 1
            rooms['A'] = 1
        else:
            print("Room A has already cleaned")

    print("Vaccum moved to room B \n checking room B...")
    if rooms['B']==0:
        print(f"start cleaning... Room B has been cleaned")
        score += 1
        rooms['B'] = 1
    else:
        print("Room B has already cleaned")

    else:
        print("Vaccum Position is randomly defined at room B \n checking room B...")
        if rooms['B']==0:
            print(f"start cleaning... Room B has been cleaned")
            score += 1
```

```

        rooms['B'] = 1
    else:
        print("Room B has already cleaned")

    print("Vaccum moved to room A \n checking room A...")
    if rooms['A']==0:
        print(f"start cleaning... Room A has been cleaned")
        score += 1
        rooms['A'] = 1
    else:
        print("Room A has already cleaned")

    print(f"Both rooms are cleaned = {rooms}")

    return score


# 0 means room is dirty , 1 means room is clean
# generating random value for room_a
room_a = rt.randint(0,1)
# generating random value for room_a
room_b = rt.randint(0,1)

# defining default vaccum position in a room randomly in the begining,
# 1 means room A and 2 means room B
vaccum_location = rt.randint(1,2)

rooms = {
    'A' : room_a,
    'B' : room_b
}
enviroment = ["dirty","clean"]

print("\t\tVaccum Cleaner\n")
print("Intializing Rooms envirmenet randomly...")
print(f"Room A = {enviroment[room_a]} \t Room B = {enviroment[room_b]} \n
{'-'*30} \n")
total_score = simpleReflexAgent(vaccum_location)
print(f"Totalscore = {total_score}")

```

OUTPUT :

- Case 1

```
Vaccum Cleaner

Intializing Rooms envirmonet randomly...
Room A = dirty   Room B = dirty
-----

Vaccum Position is randomly defined at room A
checking room A...
start cleaning...   Room A has been cleaned
Vaccum moved to room B
checking room B...
start cleaning...   Room B has been cleaned
Both rooms are cleaned = {'A': 1, 'B': 1}
Totalscore = 1
```

- Case 2

```
Vaccum Cleaner

Intializing Rooms envirmonet randomly...
Room A = clean   Room B = clean
-----

Vaccum Position is randomly defined at room B
checking room B...
Room B has already cleaned
Vaccum moved to room A
checking room A...
Room A has already cleaned
Both rooms are cleaned = {'A': 1, 'B': 1}
Totalscore = -1
```

Note : I will demonstrate only 2 cases to show random states of this program.