TASK - 1

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COLAB LINK :

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CODE :

```
import random as rt

def simpleReflexAgent(vacuum_location,score=-1):
 # check if vacuum default position in room A
 if vacuum_location == 1:
   print(f"Vacuum 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("Vacuum 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("Vacuum 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("Vacuum 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 vacuum position in a room randomly in the
beginning, # 1 means room A and 2 means room B
vacuum_location = rt.randint(1,2)

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

print("\t\tVaccum Cleaner\n")
print("Initializing Rooms environment randomly...")
print(f"Room A = {environment[room_a]} \t Room B = {environment[room_b]}
\n {'-'*30} \n")
total_score = simpleReflexAgent(vacuum_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 demonstrated only 2 cases to show random states of this program.