



SRM

INSTITUTE OF SCIENCE & TECHNOLOGY
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18CSC305J – ARTIFICIAL INTELLIGENCE LAB

Exp-2: Vacuum Cleaner Problem

Submitted by-

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Course :- Btech

Section :- F1

Branch:- Computer Science Engineering

Sem:- 6th Sem

AI LAB Ex – 2:- Vacuum Cleaner Problem

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- ✓ Ankit - 372
- ✓ Tanay - 377

Problem:

There are 4 rooms and we've to clean them by writing a code

Objective:

In the classical vacuum cleaner problem, we have two rooms and one vacuum cleaner. There is dirt in both the rooms and it is to be cleaned. In this problem, our vacuum cleaner is our agent whose goal is to clean up the whole area consisting of 4 rooms. So, our objective is that we have to choose rooms to clean using the code. In the code, 0 indicates a clean room and 1 indicates a dirty one

Code:

```
import random

def display(room):
    print(room)

room = [
    [1, 1, 1, 1],
    [1, 1, 1, 1],
    [1, 1, 1, 1],
    [1, 1, 1, 1],
]
print("All the rooom are dirty")
display(room)

x=0
y= 0

while x < 4:
    while y < 4:
        room[x][y] = random.choice([0,1])
        y+=1
    x+=1
    y=0

print("Before cleaning the room I detect all of these random dirts")
display(room)
x=0
y= 0
z=0
while x < 4:
    while y < 4:
        if room[x][y] == 1:
```

```

    print("Vaccum in this location now," ,x, y)
    room[x][y] = 0
    print("cleaned", x, y)
    z+=1
    y+=1
    x+=1
    y=0
pro= (100-((z/16)*100))
print("Room is clean now, Thanks for using : 3710933")
display(room)
print('performance=',pro,'%')

```

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+ Code + Text

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+ Code + Text

```

All the rooom are dirty
[[1, 1, 1, 1], [1, 1, 1, 1], [1, 1, 1, 1], [1, 1, 1, 1]]
Before cleaning the room I detect all of these random dirts
[[0, 0, 1, 1], [1, 1, 0, 0], [0, 1, 1, 0], [1, 0, 0, 0]]
Vaccum in this location now, 0 2
cleaned 0 2
Vaccum in this location now, 0 3
cleaned 0 3
Vaccum in this location now, 1 0
cleaned 1 0
Vaccum in this location now, 1 1
cleaned 1 1
Vaccum in this location now, 2 1
cleaned 2 1
Vaccum in this location now, 2 2
cleaned 2 2
Vaccum in this location now, 3 0
cleaned 3 0
Room is clean now, Thanks for using : 3710933
[[0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0]]
performance= 56.25 %

```