

## EXPERIMENT-15

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Course: CSA1789 Artificial Intelligence

Q) Write the python program for Vacuum Cleaner problem

PROGRAM

```
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,'%')

```

OUTPUT:



```

Python 3.10.5 (tags/v3.10.5:f377153, Jun  6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/College/AI/Vacuum cleaner.py =====
All the room 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, 1, 0, 0], [0, 1, 0, 1], [0, 1, 0, 0], [1, 1, 0, 1]]
Vaccum in this location now, 0 1
cleaned 0 1
Vaccum in this location now, 1 1
cleaned 1 1
Vaccum in this location now, 1 3
cleaned 1 3
Vaccum in this location now, 2 1
cleaned 2 1
Vaccum in this location now, 3 0
cleaned 3 0
Vaccum in this location now, 3 1
cleaned 3 1
Vaccum in this location now, 3 3
cleaned 3 3
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 %
>>>

```