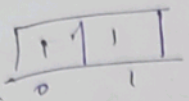
LAB-(2) : Vaccum Cleaner (1|10|24)

2 rooms (1x2 array)

0 → clean
1 → dirty



or

```
main ()
{
  randomly assign % the room is dirty or clean (arr[2])
  vac = 0
  print(arr)
  while (true) {
  check (arr)
  clean (arr, vac)
  if (!check (arr))
      break
  clean(arr, vac = 1
  }
  print (arr)
}

print (arr)
{
  for i ← 0 to n-1
      print (arr[i])
}

clean (arr, vac)
{
  if (arr[vac] == 1)
      arr[vac] = 0
  if (arr[vac] == 0)
      return
}

check (arr, vac)
{
  if (arr[0] == 0 && arr[1] == 0)
      return false
  else
      return true
}
```

Proceed

Code:

```
# for 2 rooms
def printArr(arr):
    n=len(arr)
    print(arr[0], arr[1])
def clean(arr,vac):
    if(arr[vac]==1):
        arr[vac]=0
    if(arr[vac]==0):
        return
def check(arr):
    if (arr[0]==0 and arr[1]==0):
            return False
    else
            return True

print("Enter the status of the room (0 for clean; 1 for dirty):")
arr1 = []
for i in range(0,2):
    a = int(input("status of the room %d :" %i))
    arr1.append(a)

vac=0
while(True):
    printArr(arr1)
    if(check(arr1)==False):
        break
    clean(arr1,vac)
    if(vac==0):
        vac=1
    else:
        vac=0
printArr(arr1)
print("Rooms are cleaned!")
```

output:

```
Enter the status of the room (0 for clean; 1 for dirty):
status of the room 0 : 1
status of the room 1 : 1
1 1
0 1
0 0
```

Rooms are cleaned!

```
# for 4 rooms
def printArr(arr):
    for row in arr:
        print(row)
def clean(arr, x, y):
    if arr[x][y] == 1:
        arr[x][y] = 0
def check(arr):
    for row in arr:
        if 1 in row:
            return True
    return False
directions = [(0, 1), (1, 0), (0, -1), (-1, 0)] #right, down, left, up
d_ind = 0
print("Enter the status of rooms (0 for clean; 1 for dirty):")
arr1 = []
for i in range(2):
    row = []
    for j in range(2):
        a = int(input("status of room(" + str(i) + "," + str(j) + "):"))
        row.append(a)
    arr1.append(row)
x, y = 0, 0

while (True):
    printArr(arr1)
    if not check(arr1):
        break
    clean(arr1, x, y)
```

```
dx, dy = directions[d_ind]
new_x, new_y = x+dx, y+dy

if 0<=new_x<2 and 0<=new_y<2:
    x, y = new_x, new_y

else:
    d_ind = (d_ind+1)%4
    dx, dy = directions[d_ind]
    x, y = x+dx, y+dy

print("All rooms are cleaned!")
```

Output:

```
Enter the status of the rooms (0 for clean ; 1 for dirty):
Status of rooms (0,0): 1
Status of room (0,1): 0
Status of room (1,0): 0
Status of room (1,1): 1
[1,0]
[0,1]

[0,0]
[0,1]

[0,0]
[0,1]

[0,0]
[0,0]
All rooms are cleaned!
```