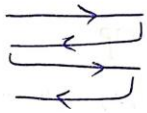
22-12-23

Vacuum cleaner Agent:

Code: (One room).

```
def clean(floor):
    i, j, row, col = 0, 0, len(floor), len(floor[0])
    for i in range(row):
        if(i%2==0):
            for j in range(col):
                if(floor[i][j]==1):
                    print_F(floor, i, j)
                    floor[i][j]=0
                print_F(floor, i, j)
        else:
            for j in range(col-1, -1, -1):
                if(floor[i][j]==1):
                    print_F(floor, i, j)
                    floor[i][j]=0
                print_F(floor, i, j)
```

// The vacuum cleaner cannot move diagonally or jump to positions directly. So for all even rows, the vacuum cleaner moves from left to right and for all odd rows, it moves from right to left, as shown below.



If a grid in a room is dirty (i.e floor[i][j] then print the grid and clean it by setting it to 0.

```
def print_F(floor, row, col):
    print("The floor matrix is as below:")
    for r in range(len(floor)):
        for c in range(len(floor[r])):
            if r==row and c==col:
                print(f">{floor[r][c]}<", end="")
            else:
                print(f" {floor[r][c]} ", end="")
        print(end='\n')
    print(end='\n')

def main():
    floor=[]
    m = int(input("Enter the no. of rows:"))
    n = int(input("Enter the no. of columns:"))
    print("Enter the chon statics of each cell (1-dirty, 0-clean)")
    for i in range(m):
        f = list(map(int, input().split(" ")))
        floor.append(f)
    print()
    clean(floor).
```

Two rooms:

Logic:

In the main function, take input for 2 rooms.

~~If room1~~

Initially, start from room 1 and inspect every grid.

If room 1 is clean i.e

[room1] = 0, move to room 2 and clean it.

Room 1

0	1	1
0	0	1
1	0	0

Room 2

0	1	0
0	0	0
0	0	1

Room 1 → dirty → so clean it.

Check if room 1 is completely clean (i.e all grids are 0)

if clean, check if room 2 is already clean, else move to room 2.

If room 2 → dirty

Clean it by calling 'clean' function

If completely clean, return True and ~~move to room 1~~

~~and move to~~ check if room 1 is clean, else move to room 1, else if room 1 also is completely clean, return true and exit.

Room 1
status: clean → move to → Room 2.

(Instead of grid, ~~take~~ implement this as just one grid in a room)

2 Code for 2 rooms:

```
def clean_room(room_name, is_dirty):
    if is_dirty:
        print(f"Cleaning {room_name} (Room was dirty).")
        print(f"{room_name} is now clean.")
        return 0
    else:
        print(f"{room_name} is already clean.")
        return 0

def main():
    rooms = ["Room 1", "Room 2"]
    room_statuses = []

    for room in rooms:
        status = int(input(f"Enter the clean status for {room} (1 for dirty, 0 for clean): "))
        room_statuses.append((room, status))

    for i, (room, status) in enumerate(room_statuses):
        room_statuses[i] = clean_room(room, status)

    print(f"Returning to {Room[0]} to check if it has become dirty again.")
    room_statuses[0] = clean_room(rooms[0], room_statuses[0][1])

    print(f"{rooms[0]} is {'dirty' if room_statuses[0][1] else 'clean'} after checking.")

if __name__ == "__main__":
    main()
```

Output:

```
Enter clean status for room 1 : 1
Enter clean status for room 2 : 0
[('Room 1', 1), ('Room 2', 0)]
Cleaning Room 1 (Room was dirty)
Room 1 is now clean.
Room 2 is already clean.
Returning to room 1 to check if it has become dirty again:
Room 1 is already clean.
Room 1 is clean after checking.
```

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