TITLE: Write the python program for Vacuum Cleaner problem

CODE:

```
class VacuumCleaner:
    def __init__(self, grid):
        self.grid = grid
        self.rows = len(grid)
        self.cols = len(grid[0])
        self.current_position = (0, 0)

    def clean(self):
        while True:
            row, col = self.current_position
            if self.grid[row][col] == 1:
                print(f"Cleaning dirt at position ({row}, {col})")
                self.grid[row][col] = 0  # Clean the dirt
            if self.has_more_dirt():
                self.move()
            else:
                print("All dirt cleaned!")
                break
```

```
    def has_more_dirt(self):
        for row in range(self.rows):
            for col in range(self.cols):
                if self.grid[row][col] == 1:
                    return True
        return False

    def move(self):
        row, col = self.current_position
        if col < self.cols - 1:
            col += 1
        elif row < self.rows - 1:
            row += 1
            col = 0
        else:
            print("Reached the end of the grid.")
            return
        self.current_position = (row, col)

# Example grid with dirt represented by 1 and clean areas by
0
grid = [
```

```
    [1, 0, 1],
    [0, 1, 0],
    [1, 1, 1]
]

vacuum = VacuumCleaner(grid)
vacuum.clean()
```

OUTPUT: