

AI LAB

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Vacuum cleaner

Problem - To get the set of places cleaned
The floor is represented as a matrix with '1' and '0' as entries representing dirty and clean places. The goal is to get floor cleaned i.e. have all the values in the floor matrix as 0.

Algorithm

Input : A $M \times N$ grid Eg: floor = $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$
def clean(floor)

Output : same matrix after each stage of cleaning.

clean(floor)

row = len(floor) # row

col = len(floor[0]) # column

i = 0, j = 0

for i in range(row):

if (i % 2 == 0) # check where row is even or odd for purpose of traversing

while j < col:

if (floor[i][j] == 1)

dirty

floor[i][j] = 0

clean

j = j + 1

its traverse from right to left

$j = \text{col} - 1$

while $j > 0$

if $(\text{floor}[i][j] == 1)$: (if dirty)

$\text{floor}[i][j] = 0$ (then clean)

$j = j - 1$

if print(floor, row, col, count)

print floor