2D Array Problems -3

Assignment Questions

PW SKILLS

Q1 - Given a matrix arr[][] of integers, print the prefix sum matrix for it. (Easy)

Input1:

n = 3

m = 3

[[1,2,3],[4,5,6],[7,8,9]]

Output1:

[[1,3,6],[5,13,25],[12,33,67]]

Input2:

n = 2

m = 3

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

Output2:

[[1,1,2],[1,3, 5]]

Q2. A square matrix is said to be an perfect Matrix if both of the following conditions hold: (Medium)

a) All the elements in the diagonals of the matrix are non-zero integers.
b) All other elements except the diagonal elements are 0.
Given a 2D integer array grid of size n*n representing a square matrix, return true if grid is a perfect matrix. Otherwise, return false.

Input1:

n = 4

arr[] = [[1,0,0,1],[0,2,1,0],[0,1,2,0],[3,0,0,1]]

Output1:

true

Input2:

n = 3

arr[] = [[5,7,0],[0,3,1],[0,5,0]]

Output2:

false

Q3. Write a user defined function upper() which takes an integer square matrix as an input and its size N and prints the upper half of the matrix. (Medium)

Input1:

N=4

arr[][]=[[1,2,3,4],[5,6,7,8],[9,10,11,12],[13,14,15,16]]

Output1:

```
1 2 3 4
  6 7 8
    11 12
      16
```

Input2:

N=2

arr[][]=[[1,2],[5,6]]

Output2:

1 2

6