2D Arrays

Assignment Questions

PW SKILLS

Q1. Check if an element x exists in the given matrix or not. If it does not exist, return -1, else return its row and column index. (Easy)

Input1:
n = 3
m = 3
x = 12
arr[][] = {{3, 8, 0}, {6, 3, 2}, {12, 9, 10}}

Output1:
Row = 2
Column = 0

Input2:
n = 1
m = 2
x = 2
arr[][] = {{4, 5}}

Output2:
-1

Q2. Convert a 1D sorted array of length n*m to a 2D array of n rows and m columns. The matrix should also be sorted. (Easy)

Input1:
n = 2
m = 2
arr = [1,2,3,4]

Output1:
[[1,2],[3,4]]

Input2:
n = 1
m = 3
arr = [1,2,3]

Output2:
[[1,2,3]]

Q3. Given a 2D array of n rows and m columns, return the sum of elements along the range of row and column specified. (Easy)

Input1:
n = 3
m = 3
arr[][] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}}
range = [0, 1], [1, 2]

Output1:
16

Input2:
n = 2
m = 2
arr[][] = {{3, 6}, {2,5}}
range = [0, 0], [1, 1]

Output2:
6

Q4. Given a 2D array for n rows and m columns, reverse each row. (Medium)

Input1:
n = 3
m = 3
arr[][] = {{1, 2, 3}, {6, 7, 8}, {9, 10, 11}}

Output1:
{{3, 2, 1}, {8, 7, 6}, {11, 10, 9}}

Input2:
n = 3
m = 3
arr[][] = {{1, 2, 3}, {6, 7, 8}, {9, 10, 11}}

Output2:
{{3, 2, 1}, {8, 7, 6}, {11, 10, 9}}

Q5. Check if an element x exists in the given sorted matrix or not. Each row and column is sorted in itself. If it does not exist, return -1, else return its row and column index. (Medium)

Input1:
n = 3
m = 3
arr[][] = {{1,4,7}, {2,5,8}, {3,6,9}}
x = 6

Output1:
Row = 2
Column = 1

Input2:
n = 2
m = 2
arr[][] = {{4, 5}, {7, 8}}
x = 2

Output2:
-1