2022. Convert 1D Array Into 2D Array - 01/09/24 - (Easy)

2022. Convert 1D Array Into 2D Array

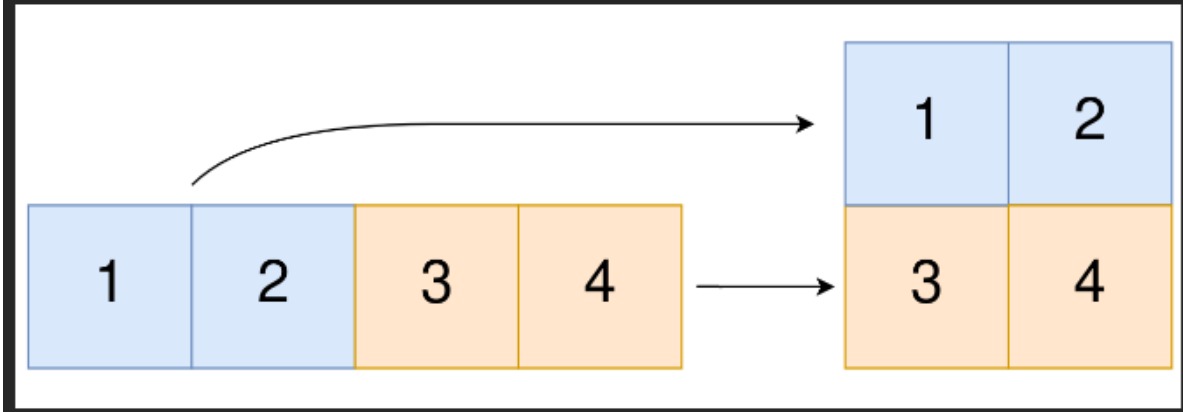
Easy | Topics | Companies | Hint

You are given a **0-indexed** 1-dimensional (1D) integer array `original`, and two integers, `m` and `n`. You are tasked with creating a 2-dimensional (2D) array with `m` rows and `n` columns using **all** the elements from `original`.

The elements from indices `0` to `n - 1` (**inclusive**) of `original` should form the first row of the constructed 2D array, the elements from indices `n` to `2 * n - 1` (**inclusive**) should form the second row of the constructed 2D array, and so on.

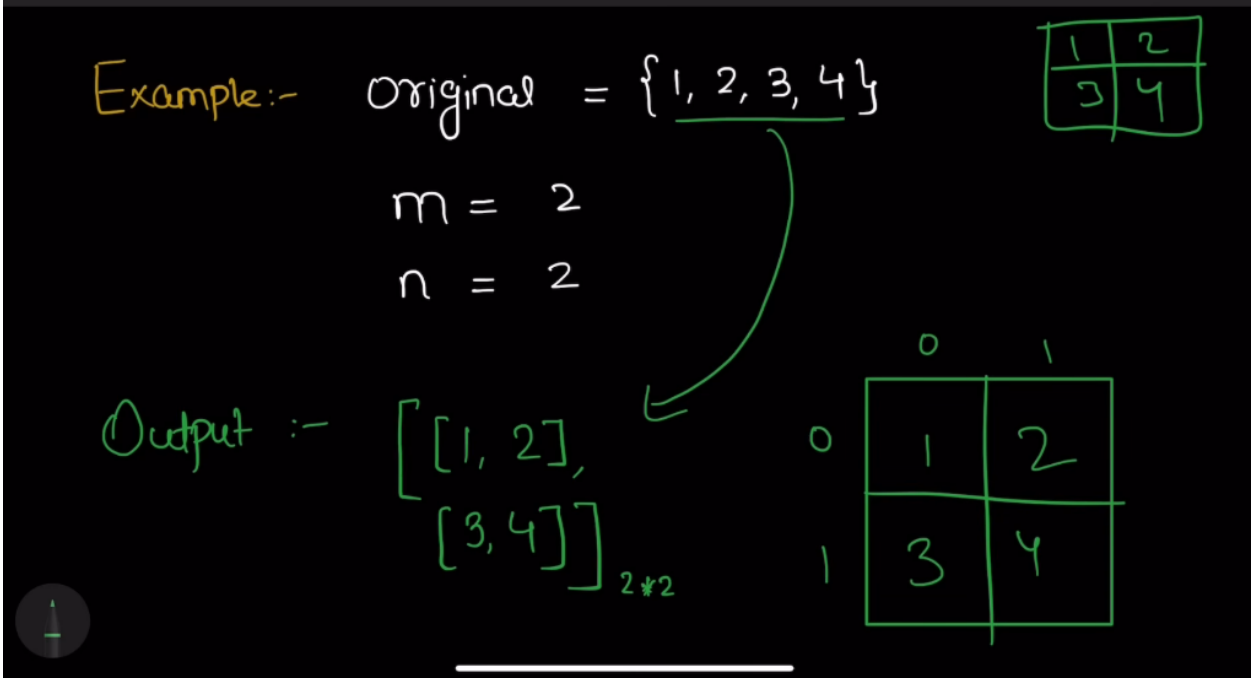
Return *an* `m x n` *2D array constructed according to the above procedure, or an empty 2D array if it is impossible.*

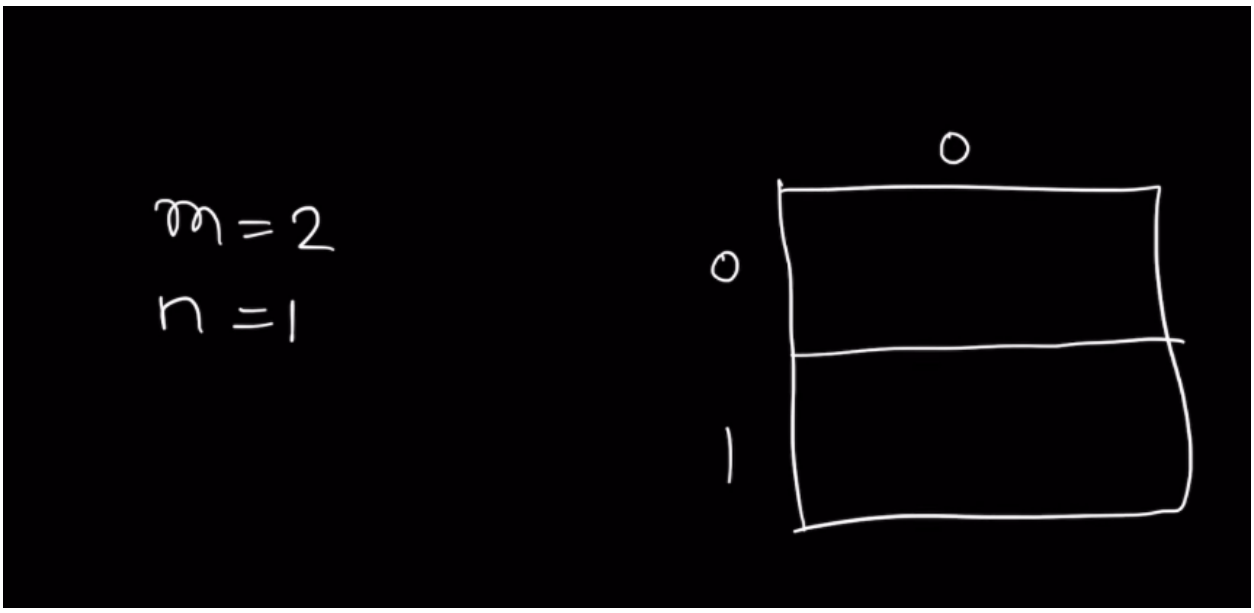
Example 1:

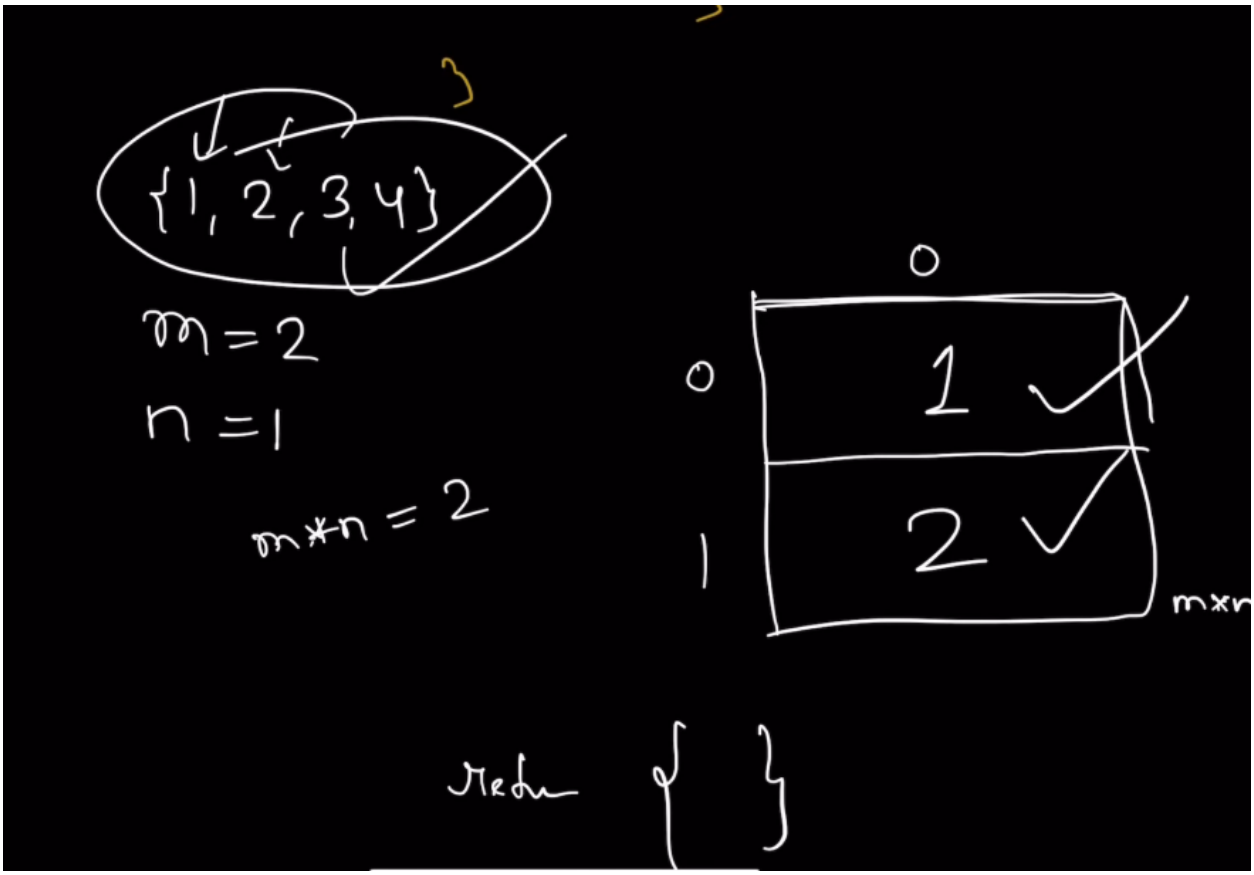


Input: original = [1,2,3,4], m = 2, n = 2
Output: [[1,2],[3,4]]
Explanation: The constructed 2D array should contain 2 rows and 2 columns.
The first group of n=2 elements in original, [1,2], becomes the first row in the constructed 2D array.
The second group of n=2 elements in original, [3,4], becomes the second row in the constructed 2D array.

Return *an* `m x n` *2D array constructed according to the above procedure, or an empty 2D array if it is impossible*.



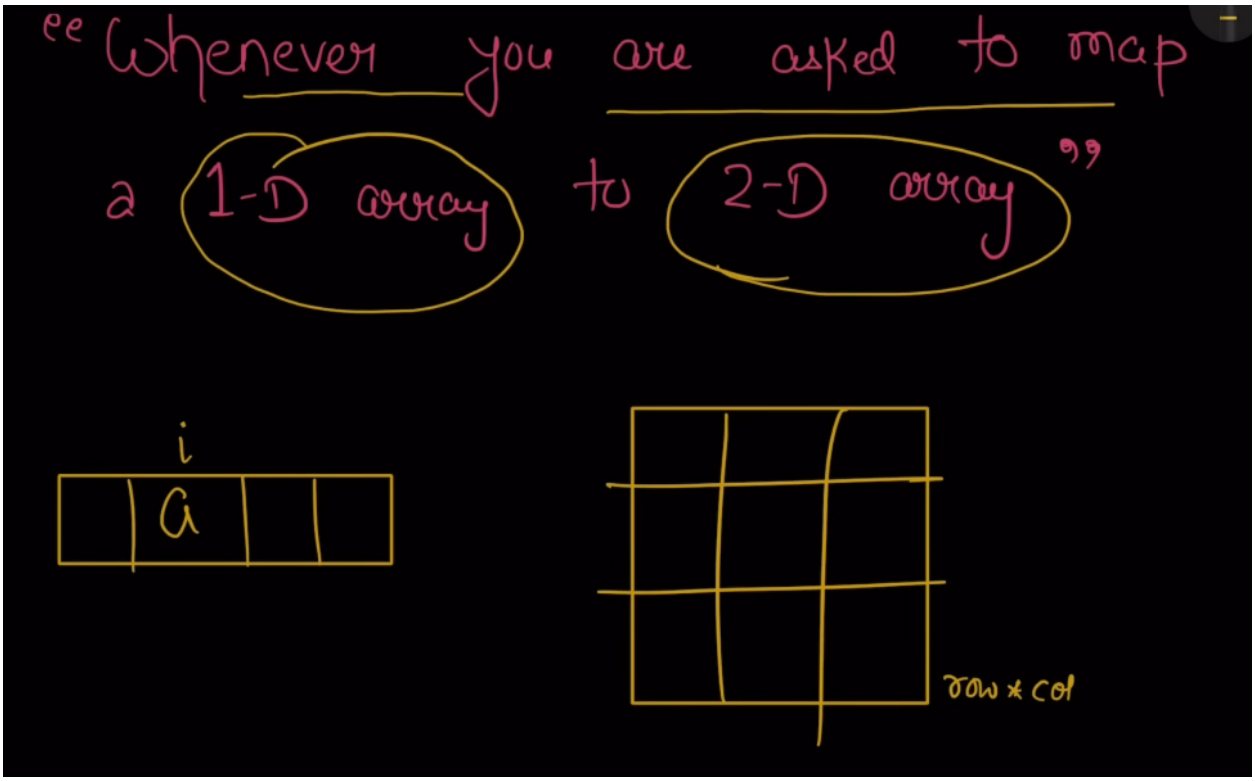


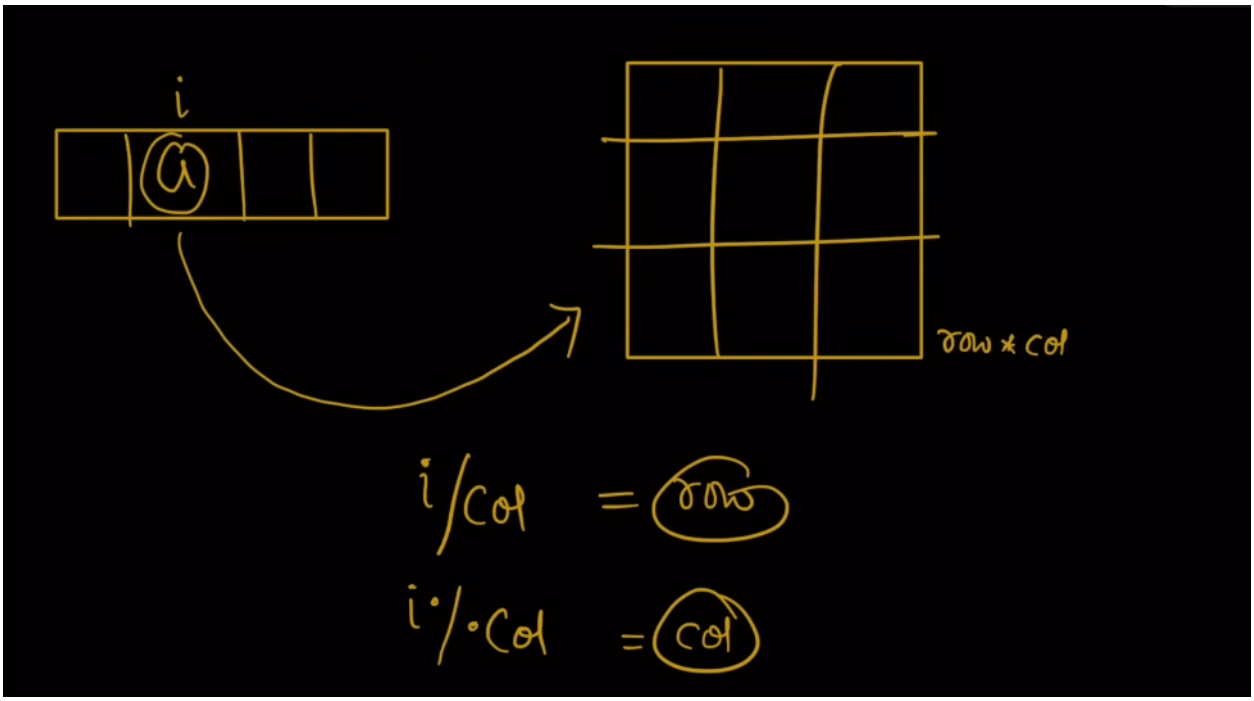


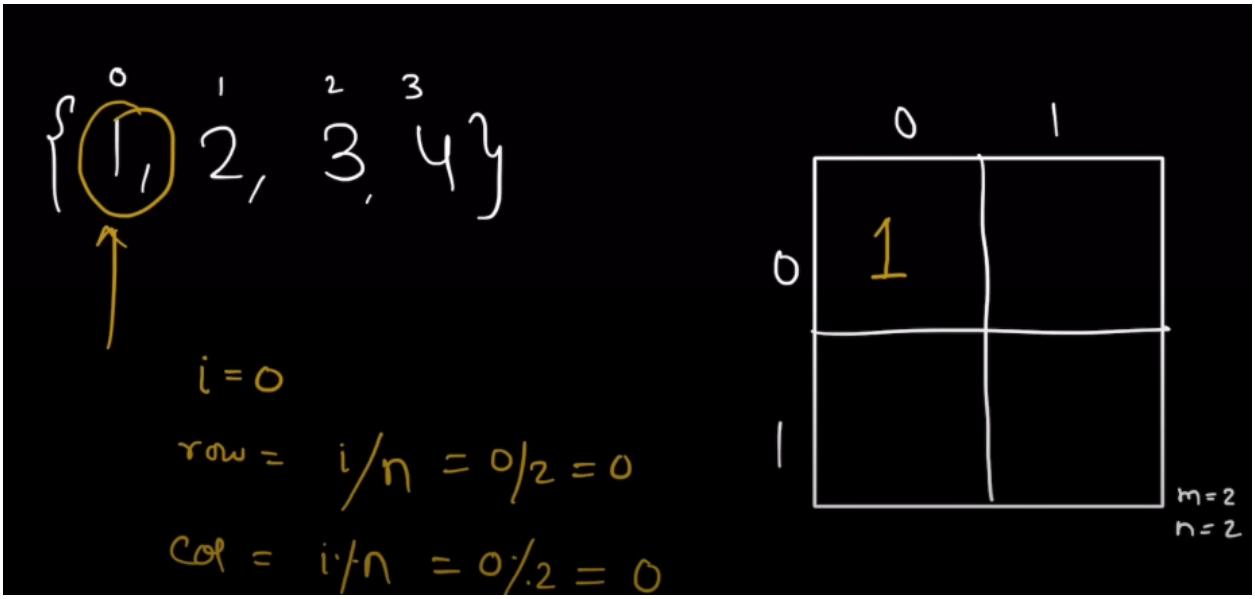
here we have 4 element and only 2 array to fill

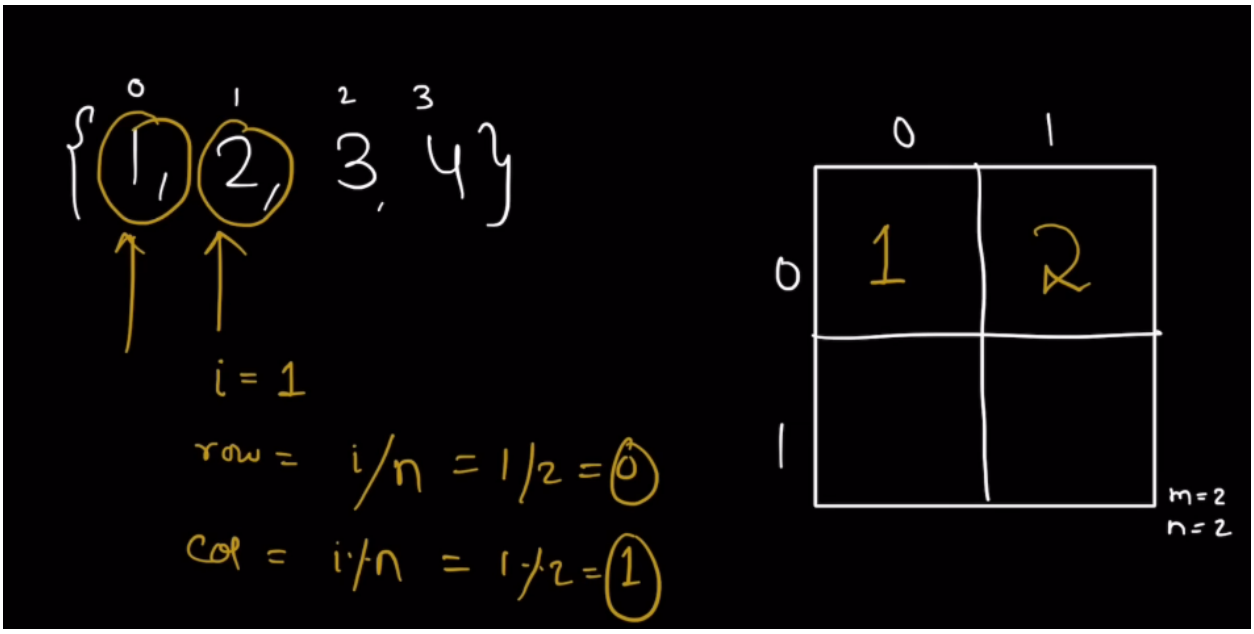
then just return {} empty array

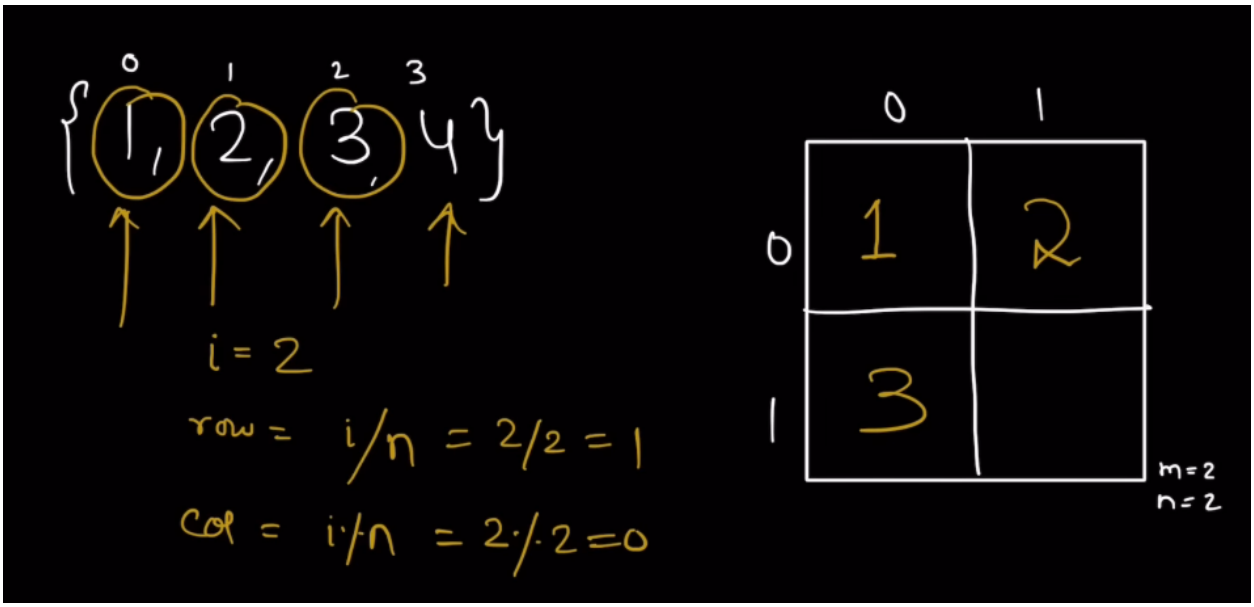
Approach 2

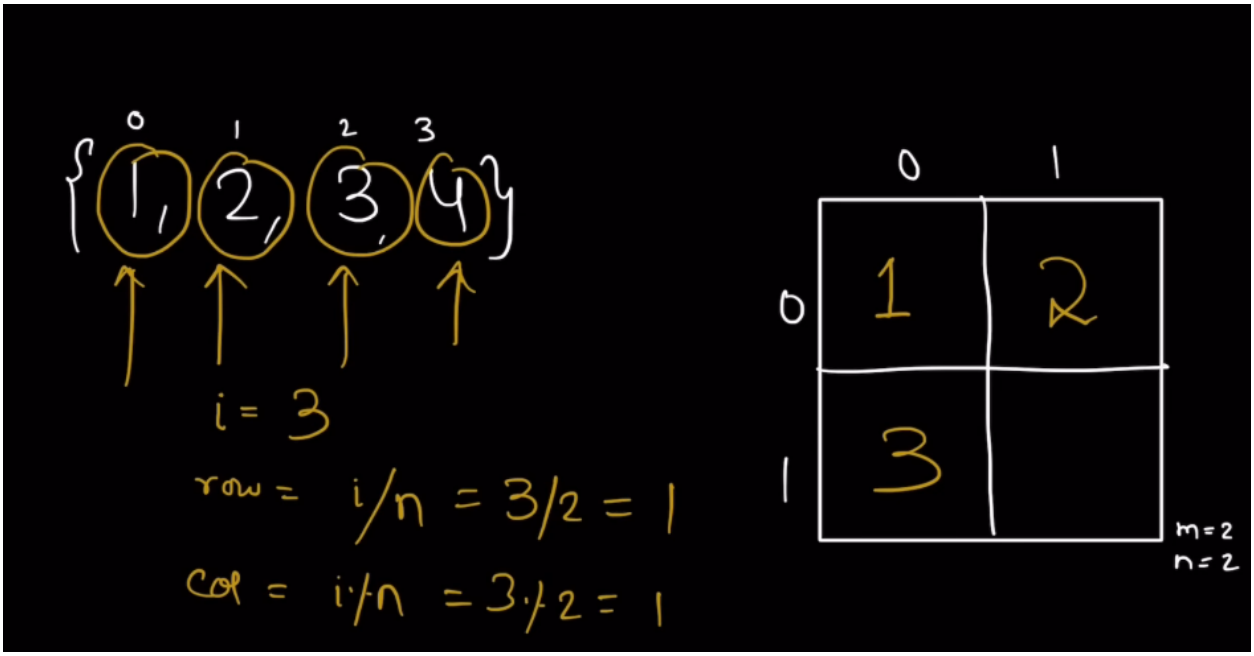

"Whenever you are asked to map
a 1-D array to 2-D array"
i
a
row * col

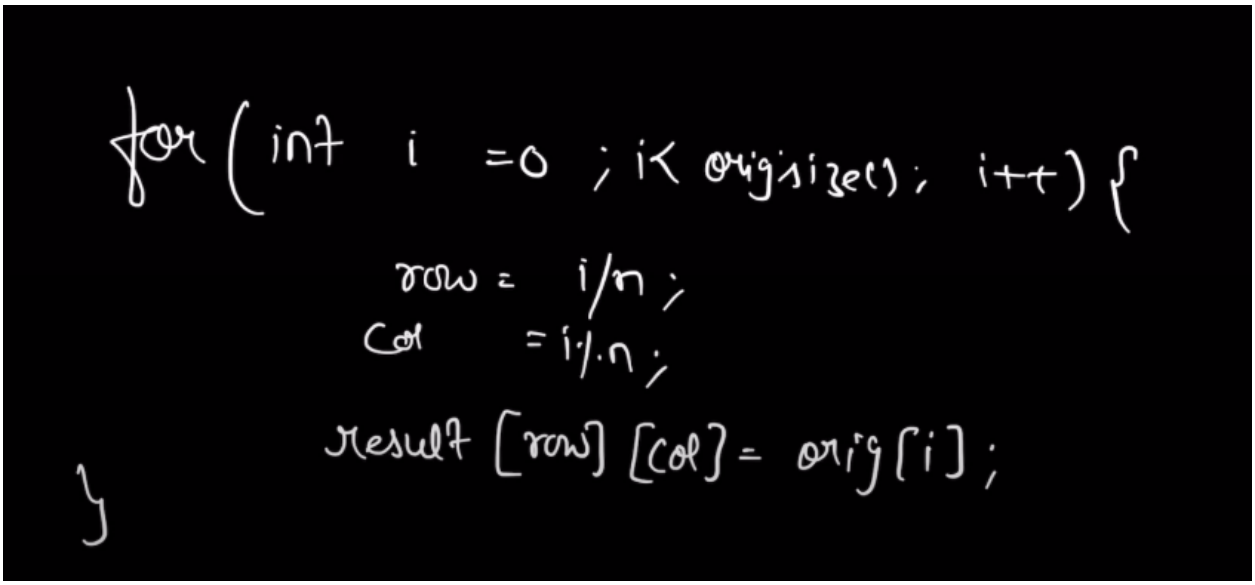

i
a
row * col
i/col = row
i%col = col


{1, 2, 3, 4}
0 1 2 3
i = 0
row = i/n = 0/2 = 0
col = i%n = 0%2 = 0
0 1
0
1
1
m = 2
n = 2


{1, 2, 3, 4}
0 1 2 3
i = 1
row = i/n = 1/2 = 0
col = i%n = 1%2 = 1
0 1
0
1
1
2
m = 2
n = 2


0 1 2 3
{1, 2, 3, 4}
i = 2
row = i/n = 2/2 = 1
col = i%n = 2%2 = 0
0 1
0 1 2
1 3
m = 2
n = 2


0 1 2 3
{1, 2, 3, 4}
i = 3
row = i/n = 3/2 = 1
col = i%n = 3%2 = 1
0 1
0 1 2
1 3
m = 2
n = 2



T.C → O(mxn)

```
    class Solution {
public:
    vector<vector<int>> construct2DArray(vector<int>& origina
l, int m, int n) {
        int idx =0;
        vector<vector<int>> arr(m,vector<int> (n));

        if(original.size() != (m*n)){
            return {};
        }
        for(int i=0;i<original.size();i++){
            int row = i/n;
            int col = i%n;
            arr[row][col] = original[i];
        }
        return arr;
    }
};
```