

7059 Black And White

In mathematics, the four color theorem, or the four color map theorem, states that, given any separation of a plane into contiguous regions, producing a figure called a map, no more than four colors are required to color the regions of the map so that no two adjacent regions have the same color.

— Wikipedia, the free encyclopedia

In this problem, you have to solve the 4-color problem. Hey, I'm just joking.

You are asked to solve a similar problem:

Color an $N \times M$ chessboard with K colors numbered from 1 to K such that no two adjacent cells have the same color (two cells are adjacent if they share an edge). The i -th color should be used in exactly c_i cells.

Matt hopes you can tell him a possible coloring.

Input

The first line contains only one integer T ($1 \leq T \leq 5000$), which indicates the number of test cases.

For each test case, the first line contains three integers: N, M, K ($0 < N, M \leq 5, 0 < K \leq N * M$).

The second line contains K integers c_i ($c_i > 0$), denoting the number of cells where the i -th color should be used.

It's guaranteed that $c_1 + c_2 + \dots + c_K = N * M$.

Output

For each test case, the first line contains 'Case # x :', where x is the case number (starting from 1).

In the second line, output 'NO' if there is no coloring satisfying the requirements. Otherwise, output 'YES' in one line. Each of the following N lines contains M numbers separated by single whitespace, denoting the color of the cells.

If there are multiple solutions, output any of them.

Sample Input

```
4
1 5 2
4 1
3 3 4
1 2 2 4
2 3 3
2 2 2
3 2 3
2 2 2
```

Sample Output

```
Case #1:
NO
Case #2:
```

YES

4 3 4

2 1 2

4 3 4

Case #3:

YES

1 2 3

2 3 1

Case #4:

YES

1 2

2 3

3 1