D. R2D2 and Droid Army

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

An army of n droids is lined up in one row. Each droid is described by m integers $a_1, a_2, ..., a_m$, where a_i is the number of details of the i-th type in this droid's mechanism. R2-D2 wants to destroy the sequence of consecutive droids of maximum length. He has m weapons, the i-th weapon can affect all the droids in the army by destroying one detail of the i-th type (if the droid doesn't have details of this type, nothing happens to it).

A droid is considered to be destroyed when all of its details are destroyed. R2-D2 can make at most k shots. How many shots from the weapon of what type should R2-D2 make to destroy the sequence of consecutive droids of maximum length?

Input

The first line contains three integers n, m, k ($1 \le n \le 10^5$, $1 \le m \le 5$, $0 \le k \le 10^9$) — the number of droids, the number of detail types and the number of available shots, respectively.

Next n lines follow describing the droids. Each line contains m integers $a_1, a_2, ..., a_m$ ($0 \le a_i \le 10^8$), where a_i is the number of details of the i-th type for the respective robot.

Output

Print m space-separated integers, where the i-th number is the number of shots from the weapon of the i-th type that the robot should make to destroy the subsequence of consecutive droids of the maximum length.

If there are multiple optimal solutions, print any of them.

It is not necessary to make exactly k shots, the number of shots can be less.

Examples

input
5 2 4 4 0 1 2 2 1 0 2 1 3

output
2 2

input
3 2 4 1 2 1 3 2 2

output
1 3

Note

Codeforces Round #291 (Div. 2)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Submit?

Language: GNU G++11 5.1.0

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ Last submissions

Submission	Time	Verdict
21105720	Oct/02/2016 08:08	Memory limit exceeded on test 1
21104050	Oct/02/2016 05:24	Wrong answer on test 10
21103899	Oct/02/2016 05:11	Wrong answer on test 10
21103865	Oct/02/2016 05:08	Wrong answer on test 6
21103862	Oct/02/2016 05:07	Wrong answer on test 4

In the first test the second, third and fourth droids will be destroyed.

In the second test the first and second droids will be destroyed.

21103820	Oct/02/2016 05:04	Wrong answer on test 6
21103800	Oct/02/2016 05:02	Wrong answer on test 4

→ Problem tags

binary search data structures two pointers

No tag edit access

→ Contest materials

- Announcement
- Tutorial