HOME   TOP   CONTESTS   GYM   PROBLEMSET   GROUPS   RATING   API   HELP   KOTLIN HEROES 🏆   DASHA 🏆   CALENDAR

PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   ROOM   STANDINGS   CUSTOM INVOCATION

E. Let Them Slide

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given n arrays that can have different sizes. You also have a table with w columns and n rows. The i-th array is placed horizontally in the i-th row. You can slide each array within its row as long as it occupies several consecutive cells and lies completely inside the table.

You need to find the maximum sum of the integers in the j-th column for each j from 1 to w independently.
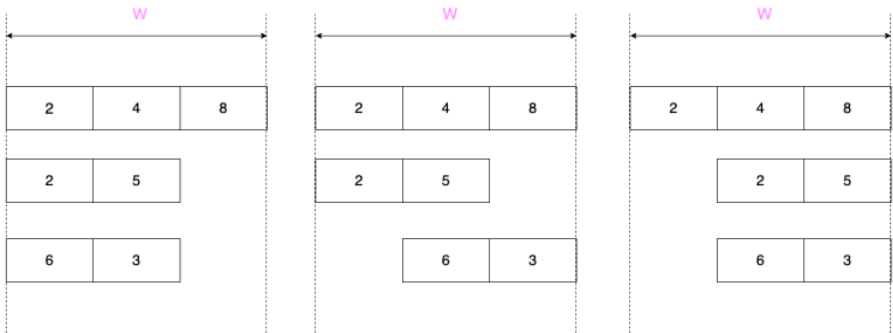
Optimal placements for columns 1, 2 and 3 are shown on the pictures from left to right.

Note that you can exclude any array out of a column provided it remains in the window. In this case its value is considered to be zero.

Input

The first line contains two integers n ($1 \leq n \leq 10^6$) and w ($1 \leq w \leq 10^6$) — the number of arrays and the width of the table.

Each of the next n lines consists of an integer l_i ($1 \leq l_i \leq w$), the length of the i-th array, followed by l_i integers $a_{i1}, a_{i2}, \ldots, a_{il_i}$ ($-10^9 \leq a_{ij} \leq 10^9$) — the elements of the array.

The total length of the arrays does no exceed 10^6.

Output

Print w integers, the i-th of them should be the maximum sum for column i.

Examples

input
```
3 3
3 2 4 8
2 2 5
2 6 3
```
Copy

output
```
10 15 16
```
Copy

input
```
2 2
2 7 8
1 -8
```
Copy

output
```
7 8
```
Copy

Note

Illustration for the first example is in the statement.

Manthan, Codefest 19 (open for everyone, rated, Div. 1 + 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 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.

→ **Clone Contest to Mashup**

You can clone this contest to a mashup.

Clone Contest

→ **Submit?**

Language: GNU G++11 5.1.0   ▼

Choose file: 选择文件 未选择任何文件

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

→ **Problem tags**

data structures   implementation   *2200

No tag edit access

→ **Contest materials**

- Announcement (en)   ✕
- Tutorial (en)   ✕

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