Tony and his books

Tony has a collection of books gifted to him by his grandfather. Each book has a title and an author. There can be multiple copies of each book in the collection.

He just bought a new bookshelf with M horizontal shelves where each shelf can hold N books. So total the bookshelf can hold MxN books.

He is going to arrange the books in a particular order. He will first group books by author and count how many books each group has. He will arrange the groups from highest to lowest number of books. In case of clash of number of books in some groups, author names sorted alphabetically will be used for resolving clash.

Now with in each group by author, Tony will sub-group by title. Then count books in each sub group. Then arrange subgroups by highest to lowest number of books. In case of clash in number of books in some sub groups, titles sorted alphabetically will be used for resolving clash.

You are given two arrays of strings (first for Author names and another for Title names, a particular index represents the same book in both the arrays) and shelf's size in rows and columns.

The order of the arrangement of books won't be from left to right only. It would alternate with rows(left to right and right to left and so on in a zig zag way). Please refer to the sample output for better understanding.

Suppose we have a bookshelf of 4 columns and 5 rows. The order of arrangement will be as shown below

1	2	3	4	5
10	9	8	7	6
11	12	13	14	15
20	19	18	17	16

If a specific location is empty, print '-' (without inverted commas)

Important: To have a working solution, you can try solving the problem in two parts:

- In first iteration you can assume that there won't be any tie breakers required in input cases and shelf is of one row only (M = 1, N large enough to accommodate all books).
- In the second iteration, solve for all constraints.

Input Format

The first line contains an integer denoting the total number of books.

The second line contains the list of comma separated $Authors$.

The third line contains the list of comma separated $Titles$.

P.S.:- A particular index represents the same book in both the arrays.

The fourth line contains two space separated integers M, N.

Note: MXN will always be greater than or equals to number of books

Constraints

$1 \leq Authors \leq 1000$

$1 \leq Titles \leq 1000$

$1 \leq |M, N| \leq 50$

Output Format

Output contains M lines with each lines containing ($\leq N$) books in format:

$Author$-$Title$ separated by commas

If a specific location is empty, print -

The order of the arrangement of books won't be from left to right only. It would alternate with rows(left to right and right to left and so on in a zig zag way). Please refer to the sample output for better understanding.

Sample Input 0

```
5
Mike Mike Mike Mike Mike
Physics Maths Economics Maths Economics
1 5
```

Sample Output 0

```
Mike-Economics,Mike-Economics,Mike-Maths,Mike-Maths,Mike-Physics
```

Sample Input 1

```
5
Mike Mike Bill Mike Bill
Physics Maths Maths Maths Physics
1 7
```

Sample Output 1

```
Mike-Maths,Mike-Maths,Mike-Physics,Bill-Maths,Bill-Physics,-,-
```

Sample Input 2

```
10
Bill Paul John John Paul John Mike John Bill Bill
Computers Accounts Accounts Economics Business Physics Physics Chemistry Maths Business
2 8
```

Sample Output 2

```
John-Accounts,John-Chemistry,John-Economics,John-Physics,Bill-Business,Bill-Computers,Bill-Maths,Paul-
Accounts
-,-,-,-,-,-,Mike-Physics,Paul-Business
```