Problem D. Contest

Input file:	`contest.in`
Output file:	`contest.out`
Time limit:	1 second
Memory limit:	256 megabytes

According to rules of some programming competition, N contestants are randomly distributed into M groups so that there is equal number of people in each group. All groups solve same tasks. After end of the contest they can see results. The results table is a table which consists of N rows containing name and points of contestant. Table is sorted in descending order by points. The probability for two contestants to get same number of points is very low, so we think that it's impossible.

Also, rows of group winners are highlighted. Group winner is a contestant which got most points in his group. It's obvious that other contestants from this group will be located lower in results table. Number of selected rows is equal to groups number.

Find the number of ways one can distribute contestants to groups if he knows indices of highlighted rows of the table.

Input

First line of input file contains integer numbers N, M, P ($1 \le N, M \le 100$, M divides N, $2 \le P \le 10^9$). Next M lines contain one number each — highlited rows indices. Rows are numbered from 1 to N starting from the top.

Output

If there are no ways to distribute contestants, output -1. In other case, output one number — answer for the task modulo P.

Examples

contest.in	contest.out
4 2 1000 1 2	2
4 2 1000 1 4	-1