Problem E. Best Student

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

An ordinary teacher in an ordinary school has invented an ordinary scoring system for his M ordinary students.

During the half-year period, the teacher organizes N tests. Each student can obtain a grade from 1 to 10 for each test. Let us consider grades of a student as a grade vector $A = (a_1, \ldots, a_N)$ of integers from 1 to 10.

The scoring system was so boringly ordinary that the teacher decided to introduce a complicated rating system.

The rating system comprises several scoring rules.

Each scoring rule $S = (k, B)$ consists of an integer k ($-10 \le k \le 10$) and an integer valued vector $B = (b_1, \ldots, b_N)$ ($1 \le b_i \le 10$).

A student with a grade vector A is said to comply to the scoring rule S if $a_1 \le b_1, a_2 \le b_2, \ldots, a_N \le b_N$. If a student complies to the scoring rule S, she gets k rating points.

The total rating of a student is the sum of the rating points of the scoring rules she complies to.

The teacher has his favorite student, of course. So he wants to choose several scoring rules in such a way that his favorite student has a rating of exactly 10 points and each of the other students has a rating of complete zero.

Your task is to help the teacher to develop such rating system.

Input

The first line of the input contains integers N ($1 \le N \le 8$) and M ($1 \le M \le 10^4$) — number of tests and number of students respectively.

Each of the next M lines contains N space-separated integers — the grade vector for the corresponding student. The grade vector of the teacher's favorite student always goes the first.

Output

If it is possible to develop a scoring system that meets teacher's requirements and that comprises not more than 400 scoring rules, write the description of such system.

The description must start with an integer D ($D \le 400$) in the first line — the number of scoring rules in the system. On the next D lines, write scoring rules, one per line. A single scoring rule is described by $(N + 1)$ space-separated integers — k and $b_1, \ldots, b_N$ in exactly this order.

If it is impossible to create such a system, output -1.

Example

standard input	standard output
1 8 3 7 7 4 2 10 7 9	2 10 3 -10 2