C. Education Reform

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Yet another education system reform has been carried out in Berland recently. The innovations are as follows:

An academic year now consists of n days. Each day pupils study exactly one of m subjects, besides, each subject is studied for no more than one day. After the lessons of the i-th subject pupils get the home task that contains no less than a_i and no more than b_i exercises. Besides, each subject has a special attribute, the complexity (c_i). A school can make its own timetable, considering the following conditions are satisfied:

- the timetable should contain the subjects in the order of the complexity's strict increasing;
- each day, except for the first one, the task should contain either k times more exercises, or more by k compared to the previous day (more formally: let's call the number of home task exercises in the i-th day as x_i, then for each i ($1 < i \le n$): either $x_i = k + x_{i-1}$ or $x_i = k \cdot x_{i-1}$ must be true);
- the total number of exercises in all home tasks should be maximal possible.

All limitations are separately set for each school.

It turned out that in many cases a_i and b_i reach 10^{16} (however, as the Berland Minister of Education is famous for his love to half-measures, the value of $b_i - a_i$ doesn't exceed 100). That also happened in the Berland School №256. Nevertheless, you as the school's principal still have to work out the timetable for the next academic year...

Input

The first line contains three integers n, m, k ($1 \le n \le m \le 50$, $1 \le k \le 100$) which represent the number of days in an academic year, the number of subjects and the k parameter correspondingly. Each of the following m lines contains the description of a subject as three integers a_i, b_i, c_i ($1 \le a_i \le b_i \le 10^{16}$, $b_i - a_i \le 100$, $1 \le c_i \le 100$) — two limitations to the number of exercises on the i-th subject and the complexity of the i-th subject, correspondingly. Distinct subjects can have the same complexity. The subjects are numbered with integers from 1 to m.

Please do not use the `%lld` specificator to read or write 64-bit numbers in C++. It is preferred to use the `cin` stream or the `%I64d` specificator.

Output

If no valid solution exists, print the single word "`NO`" (without the quotes). Otherwise, the first line should contain the word "`YES`" (without the quotes) and the next n lines should contain any timetable that satisfies all the conditions. The $i + 1$-th line should contain two positive integers: the number of the subject to study on the i-th day and the number of home task exercises given for this subject. The timetable should contain exactly n subjects.

Examples

input
4 5 2 1 10 1 1 10 2 1 10 3 1 20 4 1 100 5
output
YES 2 8 3 10 4 20 5 40

input

```
3 4 3
1 3 1
2 4 4
2 3 3
2 2 2
```

output

```
NO
```