

Problem F. Students' Life

Input file: `condoms.in`
Output file: `condoms.out`
Time limit: 2 seconds
Memory limit: 256 mebibytes

There is a party in a campus tonight! n male and n female students are going to take part in it. They are going to kiss each other, every boy is going to kiss every girl. But they care about safety, because they don't want to catch a cold. So they kiss only through a tissue to prevent exchange of microbes. A kiss is *safe* if every person kisses a side of tissue never kissed by anyone except him or her, and therefore, never take other person's microbes.

Students are rather tricky, so they can kiss through several tissues. In this case, sides of neighbouring tissues which are connected in such kiss take microbes from each other. For example, if male X kissed the right side of tissue A in one of previous kisses, he puts his microbes on this side, so if the right side of tissue A is connected now to the left side of tissue B , left side of tissue B take microbes of person X and becomes unsafe for kissing by anyone else.

Unfortunately they have only $\lfloor \frac{3n}{2} \rfloor$ tissues numerated from 1 to $\lfloor \frac{3n}{2} \rfloor$. You should output a sequence of $n \cdot n$ safe kisses between each pair of male and female students.

Input

The only line of input contains a positive integer n ($n \leq 1000$).

Output

Output a sequence of $n \cdot n$ lines with description of safe kisses. Each description is a line containing integers separated by single spaces. A description starts with a pair of integers a and b ($1 \leq a, b \leq n$) — indices of kissing male and female. Next goes the number k of tissues used in the kiss, followed by k pairs of integers c_i and d_i ($1 \leq c_i \leq \lfloor \frac{3n}{2} \rfloor$, $0 \leq d_i \leq 1$) — index of i -th tissue and side of i -th tissue which is closer to male. Tissues are listed in direction from male to female. All tissues within one kiss must be different.

You should output no more than $5 \cdot 10^7$ integers. It is guaranteed that such an answer exists given the constraints.

Example

| <code>condoms.in</code> | <code>condoms.out</code> |
|-------------------------|--|
| 2 | 1 1 2 1 0 2 0 1 2 1 1 0 2 1 1 2 0 2 2 2 2 0 1 0 |