Ice Cream Queue 2

1 second, 32 MB, no STL containers

An ice cream shop provides ice cream in 20 flavors. It has a single queue. There are two types of events happening in order.

- A number of customers arrive at the shop. They will be in the queue. Each customer is a member and has a unique integer ID. Each customer also specifies the flavor to order (as a number from 1 to 20).
- The first customer in the queue is served. This type of events only happens when there is at least one customer in the queue.

Write a program that simulate the ice cream queue.

Input

The first line of the input contains an integer *M* (1<=*M*<=1,000) denoting the number of events. The next *M* lines specify the event information in the following format.

Each event line starts with an integer *T* specifying the event type.

If *T*=1, customers arrive. On the same line, an integer *N* (1<=*N*<=100), the number of arriving customers, follows. The next *N* pairs of integers specify the customer ID's of each customer and the flavor to order. More specifically, each pair consists of the customer ID (from 1 to 1,000,000) and the flavor number (from 1 to 20). They also enter the queue one-by-one in this order.

If *T*=2, the first customer in the queue is served.

Output

For each line where *T*=2, your program should output the customer ID of the customer. Also, at the end the program should print the number of customers remaining in the queue.

You have to output the statistics of the flavors. On the next line, the program should output the number of customers served for each flavor of the ice cream as 20 integers.

Example

Input	Output
7 1 2 4 1 3 2 2 1 3 8 5 6 2 2 7 2 2 2 1 6 10 1 20 1 30 1 40 1 50 1 60 1	4 3 8 6 7 1 2 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Comments

The remaining customers are customers 2, 10, 20, 30, 40, 50, 60. Thus, program output 6 in the last line.

Notes: This is a practice task for implementing data structures. Therefore, you are not allowed to use any STL container classes. However, other supporting classes for STL are OK. E.g., you can use `pair`.