Problem P
Unread Messages
Time Limit: 1

There is a group of people in an internet email message group. Messages are sent to all members of the group, and no two messages are sent at the same time.

Immediately before a person sends a message, they read all their unread messages up to that point. Each sender also reads their own message the moment it is sent. Therefore, a person's unread messages are exactly the set of messages sent after that person's last message.

Each time a message is sent, compute the total number of unread messages over all group members.

Input

The first line of input contains two integers n ($1 \leq n \leq 10^9$) and m ($1 \leq m \leq 1{,}000$), where n is the number of people in the group, and m is the number of messages sent. The group members are identified by number, 1 through n.

Each of the next m lines contains a single integer s ($1 \leq s \leq n$), which is the sender of that message. These lines are in chronological order.

Output

Output m lines, each with a single integer, indicating the total number of unread messages over all group members, immediately after each message is sent.

Sample Input 1	Sample Output 1
2 4 1 2 1 2	1 1 1 1

Sample Input 2	Sample Output 2
3 9 1 2 3 2 1 3 3 2 1	2 3 3 4 3 3 5 4 3