Problem H1201
Souvenir Vending Machine

At the end of ceremony, each of the guests have a chance to get a souvenir at the vending machine. There are k types of souvenir. The vending machines works as follow:

The souvenirs are aligned vertically from top to bottom. When a guest requests a souvenir, the machines will pick the souvenir at the top and drop it to the guest. When the staff refills the machine with a type of souvenir, it will be placed on the top. In the beginning, the machine is empty.

You have the schedule of n events in 2 types:

Type 1: the customer request for a souvenir.

Type 2: the staff refill the machines with souvenir type x.

You would like to know which type of souvenir will each guest receive.

Hint: You may use pop() function to pop out the last value of a list instead of other methods.

Input

The first line contains two integers $n, k (1 \leq n \leq 10^5, 1 \leq k \leq 10^5)$.

The following contains one of the following 2 types:

1 : a guest requests for a souvenir

2 x: the staff refills the machine with a souvenir of type $x (1 \leq x \leq k)$.

Output

Print the type of souvenir that each guest will receive following the order that the guest proceeds to the vending machine. In the case that the guest requests a souvenir when the machine is empty, print a question mark.

Sample Input

```
7 3
2 2
2 3
1
1
1
2 1
1
```

Sample Output

```
3
2
?
1
```