

# Bookshelf management

You have  $N$  books in your storage. There is a bookshelf, which can store at most  $K$  books. Initially, the bookshelf is empty.

You will process the input given as  $Q$  queries in order. Each  $i$ -th query has  $t_i$  that can be **1** or **2** and  $v_i$  as the book number to process.

- When  $t_i = 1$ : If the  $v_i$ -th book is contained in the bookshelf, you do nothing. Otherwise, you take the leftmost book in the bookshelf and return it to your storage if the number of books in the bookshelf is exactly  $K$ . Then, you put the  $v_i$ -th book from your storage on the rightmost of the bookshelf.
- When  $t_i = 2$ : You need to answer if the  $v_i$ -th book is contained in the current bookshelf. If it's contained in the bookshelf, you should output "Yes", otherwise "No".

Your goal is to answer all queries where  $t_i = 2$ .

## Input Format

Standard Input is in the following format:

$N\ K\ Q$   
 $t_1\ v_1$   
 $\vdots$   
 $t_Q\ v_Q$

## Constraints

- $1 \leq N, K, Q \leq 200000$
- $1 \leq t_i \leq 2\ (1 \leq i \leq N)$
- $1 \leq v_i \leq N\ (1 \leq i \leq N)$
- All values in input are integers.

## Output Format

For each query with  $t_i = 2$ , print either "Yes" or "No", an answer of the query.

## Sample Input 0

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

## Sample Output 0

```
Yes
No
```

### Sample Input 1

```
10 4 10
1 2
1 3
1 6
2 1
2 2
1 7
1 3
1 1
2 1
2 2
```

### Sample Output 1

```
No
Yes
Yes
No
```

### Explanation 1

Initially, you have **10** books in your storage and your bookshelf which can store at most **4** books. Then, you will perform given **10** queries in order.

- In the 1st query, you add the 2nd book to the bookshelf.
- In the 2nd query, you add the 3rd book to the bookshelf.
- In the 3rd query, you add the 6th book to the bookshelf.
- In the 4th query, you should output **No** since the 1st book is not stored in the bookshelf.
- In the 5th query, you should output **Yes** since the 2nd book is stored in the bookshelf.
- In the 6th query, you add the 7th book to the bookshelf.
- In the 7th query, you do nothing since the 3rd book is stored in the bookshelf.
- In the 8th query, you must return the 2nd book to the storage and add the 1st book to the bookshelf.
- In the 9th query, you should output **Yes** since the 1st book is stored in the bookshelf.
- In the 10th query, you should output **No** since the 2nd book is not stored in the bookshelf.