Restaurant

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Oski decided to open his own restaurant in Berkeley. He knows that the future restaurant will have n dishes. The price of the i-th dish will be a_i. Oski wants to have exactly m tables in his restaurant. So he numerated them from 1 to m.

Since Oski is software engineer, he decided to create software which will help future waiters to serve. The software should be able to perform the following operations:

- `start` i — the clients came to the i-th table. If the i-th table is already occupied, the program should print message "`Table` i `is already occupied`" (replace i by the table number).
- `order` i $dishName$ — the clients on the i-th table ordered a dish with name $dishName$. If there is no such dish, the program should print a message "`No such dish`".
- `bill` i — count the current bill for the i-th table.
- `pay` i d — the clients on the i-th table paid d. If d is smaller than the expected bill, then the program should print a message "`Not enough`". Otherwise, it should print a message "`OK`", after which, people will leave.

For all the operations, program should assume that i is an integer and $1 \le i \le m$.

Since Oski he busy with hiring some waiters, he does not have time to create it. That is why he asked you to help him.

Input

The first line contains three integers n, m, and k ($1 \le n, m, k \le 10^5$) — the number of dished, the number of tables, and the number of operations that the software should perform.

Each of the next n lines contains an integer a_i ($1 \le a_i \le 10^9$) and a string — the price of the i-th dish, and the name of the i-th dish. A string consists only of English letters.

Each of the next k lines contains a valid operation.

Output

For each operation, print a message if it is needed.