Problem 04: Make a Budget

Points: 10

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Problem Background

Adulting can be a difficult and grueling task. One of those complicated parts is managing what you can and should spend money on. You've got the basic expenses: gas for your car, a cell phone plan, meals, and rent. If you want anything extra like a new car, new computer, or an exotic vacation, you've got to save up money. The best way to manage all this is to create a budget!

Problem Description

For this problem, you'll be creating a program that can help you stick to your budget by telling you if you should or shouldn't go through with a purchase. Your budget will be organized into a series of categories, each of which will have a starting balance. You can think of these as separate bank accounts that can't be overdrawn.

As you spend (or plan to spend) money, you'll enter transactions against your budget. Expenses like going to a restaurant or paying the rent should subtract money from the relevant category. If that category doesn't have enough money left to handle the transaction, it shouldn't deduct anything but instead tell you not to make the purchase. Some transactions might increase the amount of money in a category, like getting a paycheck or an extra $100 from your grandparents for your birthday. These transactions can be added without validation.

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include:

- A line containing two positive integers separated by spaces, C and T, representing the number of categories in your budget and the total number of transactions you're planning for.
- C lines listing the categories in your budget. Each line will contain a string of upper and lowercase letters (representing the name of the category), a space, then a non-negative integer representing the initial balance of that category.
- T lines listing the transactions you are planning for your budget. Each line will contain the name of a category (from amongst those previously listed), a space, a plus or minus sign (indicating if the transaction is income or an expense), a space, and a positive integer (representing the amount of money to add or subtract from the category)

```
2
3 5
Restaurants 25
NewCellPhone 80
Groceries 100
Groceries + 20
NewCellPhone - 800
Groceries - 80
Restaurants - 20
Restaurants - 20
3 8
Restaurants 25
NewCellPhone 80
Groceries 100
NewCellPhone + 400
NewCellPhone - 800
Groceries - 80
NewCellPhone + 200
Restaurants - 25
NewCellPhone + 200
Restaurants - 50
NewCellPhone - 800
```

Sample Output

For each test case, your program must print one line for each transaction, containing the word "YES" if the transaction was accepted, or "NO" if it was rejected. Transactions should be rejected whenever there is an attempt to remove more money from a category than the category currently contains.

```
YES
NO
YES
YES
NO
YES
NO
YES
YES
YES
YES
NO
YES
```