Bob's pizza restaurant offers a number of pizzas on its menu, but also allows customers to modify their pizzas. Each topping has a value. A customer starts by selecting a pizza from the menu, and then makes a sequence of zero or more of the following modifications:

- A topping may be added to the pizza. The price of the pizza increases by the value of the topping.
- A topping may be exchanged for another topping of the same or lower value. The price of the pizza is unchanged.
- A topping may be removed. The price of the pizza is unchanged.

Toppings may appear more than once on a pizza to obtain a larger quantity of that topping.

There are many ways in which one could build a particular pizza, and Bob's miserly customers want to find the cheapest. Given the menu, the values of toppings, and a desired pizza, determine the minimum possible price for that pizza.

Input

Input consists of an arbitrary number of records, but no more than 10. The first line of each record contains two integers n ($1 \le n \le 100$), the number of possible toppings, and m ($1 \le m \le 100$), the number of predefined pizzas on the menu.

The next n lines describe the possible toppings. Each line contains an integer v ($1 \le v \le 1\ 000$), the value of the topping in cents, and a string of up to 20 lower-case English letters, the name of the topping. No two toppings in a record have the same name.

The next m lines describe the menu, one pizza per line. The line starts with two integers p ($1 \le p \le 10\ 000$) and t ($0 \le t \le 100$), which are the price of the pizza in cents and the number of toppings. This is followed by the names of the t toppings.

The final line of the record contains an integer u ($0 \le u \le 100$), the number of toppings on the customer's desired pizza, and u names of toppings.

The toppings on every pizza in the record are guaranteed to appear amongst the n possible toppings.

The end of input is indicated by a line containing only the value '-1'.

Output

For each input record, output a line containing the minimum possible cost in cents for the customer's desired pizza.

Sample Input

```
4 2
40 garlic
40 peppers
80 pepperoni
80 mince
600 2 garlic peppers
620 1 pepperoni
2 mince garlic
3 1
45 cheese
70 sausage
60 spam
500 4 spam sausage cheese spam
5 sausage spam spam sausage spam
-1
```

Sample Output

```
660
630
```