Problem F

Feeding The Judges

As you know, there is an important programming contest today where several brilliant teams are competing. In addition to the contestants, a contest needs judges, who, in this case, will have to work hard all day long. At this moment, they all are in some remote building where they have been provided of enough food and a lot of things to do.

Like any other human being, judges dislike some food. For this reason, before their food was bought, judges were asked to specify which dishes, and how many of them (at least), would like to have; they wrote down in a list the number of pieces of every dish followed by a space and the name of the dish, but they are so busy that they may wrote words mixing uppercase and lowercase letters. You can be sure every judge requested at least one dish, and that all dishes are available in the restaurant.

On the other hand, the restaurant has available K different dishes, and for each dish they have a maximum amount of plates they can serve within the contest timeframe.

Your task is to find in how many different ways it is possible to place an order for the restaurant to serve exactly N dishes making sure every judge will have what they requested, and the quantity of every dish bought does not exceed the amount of plates the restaurant can serve for that dish.

Input

The first line of input contains a single integer number N ($1 \leq N \leq 2 * 10^5$), representing the amount of plates that should be ordered; then, you will receive several sets of lines (at most 100, at least 1), each set representing what a judge requested: the first line on each judge request contains a string representing the name of the judge (up to 10 characters), followed by at least one line that describe the judge request, each of these lines will have an integer number ($1 \leq d_i \leq 10^4$), representing how many plates of this dish the judge wants followed by a space and a string representing the name of the dish the judge wants (up to 20 characters). You will know the list of judges ended when you find the line with word "Restaurant", followed by at most 15 lines, describing the dishes available in the restaurant, each of these lines contains an integer number b_i ($1 \leq b_i \leq 10^6$) representing the maximum amount of plates the restaurant can serve for this dish, a space and the name of the dish wrote correctly in lowercase letters.

Output

Print a single line with an integer number representing the number of different ways it is possible to buy the judges food satisfying all the mentioned restrictions. As the answer could be very big, print it modulo 188888881.

Input example 1	**Output example 1**
12 juan 1 sALAd 3 pASta 2 Fish carlos 2 salAD laura 1 salad 1 PaStA Restaurant 5 salad 5 pasta 4 fish	4

Input example 2	**Output example 2**
18 juan 1 saLad 3 pASta 2 fiSh 1 dEsSeRt carlos 1 chiCKen 3 salad laura 1 SalaD 1 pasta 3 DessERT Restaurant 2 salad 5 pasta 4 fish 5 dessert 2 chicken	0