

Problem A. Queue to courses

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

All of us know that after tough midterms, students started looking for courses preparing to PP1. The CodeMode was one of that courses. There were a lot of students who wanted to join the CodeMode. So, the establishers decided to make a queue with priorities from students. The main rule was like: student can join the course only if he/she took more points for midterm than the student who stands next in the queue. Otherwise the former student goes to the end of the queue. So the task is to find out, who will join the courses.

Input

Firstly, given the number of students who wish to join the courses. Then, given the list of students and their points for midterm. Finally, given the number of free places on the course.

Output

Give the list of students who have passed through this queue.

Examples

standard input	standard output
6 3 Darmen 0 Bauyrzhan 15.0 Nurkanat 12.5 Amina 14.9 Yerlan 15.1 Zhaksylyq 10.0	Bauyrzhan Yerlan Zhaksylyq
8 2 Temirlan 0 Adil 18.0 Arman 12.0 Kanat 25.0 Konstantin 34.0 Noob 10.0 Bagdat 12.0 Daulet 15.0	Adil Konstantin
10 5 Raiymbek 25.0 Daniyar 30.0 Zhandos 18.0 Asparukh 6.0 Alan 5.0 Gulnora 30.0 Adema 19.0 Sanzhar 14.0 Yerkanat 20.0 Alen 10.0	Daniyar Zhandos Asparukh Gulnora Adema

Problem B. Bracket sequence

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

Find is it correct sequence or not.

Input

Sequence of different parentheses

Output

print YES if it is correct, else print NO

Examples

standard input	standard output
<code>()()()</code>	Yes
<code>([{}])({})([])</code>	No
<code>{[[()]]}</code>	Yes

Problem C. Jumadildaev's bonus points

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

Askar agai is so smart person. Hence, he invented new bonus system. By his rules, previous points of student affects on next points.

Input

At the beginning, you start with zero points. You are given n - size of list, and then list of chars. i th char is one of the following:

- x - integer, earned bonus point
- $+$ - if student made his hw, Askar agai will add sum of two previous points as new bonus point. It is guaranteed there will always be two previous points.
- D - if student was active, Askar agai will add double of his previous bonus as new bonus point. It is guaranteed there will always be a previous score.
- C - student was absent. The last point will be deleted.

Output

After n -operations, find how much bonus points you have.

Examples

standard input	standard output
5 5 2 C D +	30
7 7 3 1 D + 2 C	16
10 1 2 D 4 + 7 + C C C	11

Problem D. Degree of person

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

Everyone knows that some people are better than the others. So try to figure out whos degree is higher. The degree of the person is the difference between M and N, where M is the sum of the ascii values of characters of the person's name; N - the same, but for the surname.

Input

You are given the number of person n.
Then you input n names and surnames of these people.

Output

Print name, surname, and the degree of this people sorting them by degree.
(if degrees are equal, sort by the first name, then the last name)

Examples

standard input	standard output
5 Adil Zhapar Zhaksylyk Ashim Bauyrzhan Balgaziev Nurasyl Turdalín Sanzhik Sanzhik	Zhaksylyk Ashim 472 Bauyrzhan Balgaziev 31 Sanzhik Sanzhik 0 Nurasyl Turdalín -85 Adil Zhapar -236
4 Albert Einstein Nazeek Basekeevich Sharafitdin Jangaliev Che Guevara	Sharafitdin Jangaliev 220 Albert Einstein -229 Che Guevara -443 Nazeek Basekeevich -508
3 Labada Gaganaev Ladaba Gaganaev Labada Ganagaev	Labada Gaganaev -229 Labada Ganagaev -229 Ladaba Gaganaev -229

Note

Adil pls don't beat me, it is a coincidence

Problem E. Jaqs and Cobalts

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

Another great business idea came to Dzhaqsylyq. He has bought n cars of the Chevrolet Cobalt model, and now he need to buy unique car number for each of them. In addition, Jaqs will give the car number containing digit 7 or letter “J” more priority to buy rather than other ones. He was given a list with m car numbers. Help Dzhaqsylyq to determine whether there are enough unique car numbers for his Cobalts.

Input

You are given number n and m which represents the number of cars Dzhaqsylyq own and the number of car numbers listed, respectively. In next m rows given the car numbers listed.

Output

If there is not enough unique car number print out “Jaqs is mad“. Otherwise print the message “Jaqs likes it“ and also print the list of car numbers Dzhaqsylyq bought by order of their priorities.

Add 1 priority level to car number for each digit '7' and letter 'J' in it.

Examples

standard input	standard output
5 7 007BBE 916AEK 196PDA 004TRD 824LDB 860MVA 002RAM	Jaqs likes it 007BBE 002RAM 004TRD 196PDA 824LDB
5 7 777AEK 123JJJ 678LKG 777AEK 123JJJ 678LKG 344FFF	Jaqs is mad
3 8 204AEK 843BBE 843RAM 322SAN 747NUR 228TLK 890KAL 111LOL	Jaqs likes it 747NUR 111LOL 204AEK

Problem F. Shara the bandit

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

Jangaliev Sharafitdin Zarifovich wants to buy some cars during his holidays in his pahan's dacha in Atyrau. But he is here just for 2 weeks, and he may not have enough time to do it.

Input

You are given two queues - available cars and Shara's desired order of buying a car.
If Shara don't want to buy the current car, that car stands to the end of queue of available cars.

Output

Print how much days needed to buy all cars from his queue.
Else print "Shara is crying((".

Examples

standard input	standard output
7 camry70 e39 gls63amg volchok vaz2106 rav4 lx600 4 volchok camry70 rav4 lx600	Shara is dovolen in: 13 days
3 camry malibu alula 3 camry alula malibu	Shara is dovolen in: 4 days
4 lx570 qx80 x7 cobalt 3 cobalt cobalt cobalt	Shara is crying((

Problem H. Simple work with multiple sets

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

You have to make a program that will make commands with multiple sets.

Input

You have n queries, in other words n sets. Then you take k commands.

Output

If command is insert or delete, take one value. Print "Deleted" after erasing element.

If there is no such element, then print "Doesn't exist". Last command to print all elements of sets.

Example

standard input	standard output
2	1 2 3
6	Deleted
Insert 1	1 3
Insert 2	
Insert 3	Doesn't exist
Print	Deleted
Delete 2	1
Print	
5	
Delete 3	
Insert 1	
Insert 2	
Delete 2	
Print	