Problem A. Find Numbers with Even Number of Digits

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

Elvina has some problems with counting elements of an integer array with an even number of digits. Help her to find the numbers with even number of digits. Print the number of elements that satisfies this condition.

Input

You are given an integer array.

Output

Print number of elements which have even number of digits.

Examples

standard input	standard output
12 345 2 6 7896	2
12 5 987 5555 90	3
3 45 7890 12 4 676	3

Note

In the first example, only 12 and 7896 has an even number of digits, so the answer is 2.

Problem B. Missing Ghosts

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

Given a sequence of integer numbers in ascending order, where each number is the ID of the person in the team. There are some missing IDs in the sequence. According to the rules, the sequence has to start with 1.

You have to find Nth missing person (ID) from the missing list.

Input

The first line of input contains an array of integer numbers in ascending order, $array[i]$ is the ID of the current person. In the second line given one integer number - N.

Output

Find Nth missing person

Example

standard input	standard output
2 3 4 7 11 5	9

Problem C. Number of good students

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

Students often have many deadlines. A student is good if he did his assignment at a given time. You are given two arrays `a` - start time, `b` - end time, and integer `t` - query time. The `i`th student started doing their homework at the time `a[i]` and finished it at time `b[i]`. You need to find the number of students who finished their assignment before the deadline(at time t) More formally, print the number of students where t lays in the interval [a[i], b[i]] inclusive.

Input

The first line of the input contains an integer array `a`. The second line of the input contains an integer array `b`. The third line contains integer `t`. a.size == b.size

Output

The output should contain an integer number of good students.

Examples

standard input	standard output
1 2 3 3 2 7 4	1
1 1 1 1 1 3 2 4 7	0

Note

Use built-in functions. Hint: zip, sum.

Problem D. Z

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

Scientists at a British university have deduced the formula for an ideal compliment: 1) a line should consist of an even number of words. 2) first word should be title word(only first letter is upper). 3) two `3` in the last word. 4) words with an even length in odd positions and an odd length in even positions.

Let's help young romantics write a program that helps determine if a compliment is perfect. Do not forget about the number of requests: there are never too many compliments)

Input

First line - number of lines Next lines, strings

Output

For each string output if perfect: `Wow! That is perfect`. Else: `Seriously`

Example

standard input	standard output
1 Hi	Seriously?

Note

Words begin with index 0. Use build-in-function to determine title word

Problem E. Chris and The Witcher 3

Input file:	standard input
Output file:	standard output
Time limit:	2 seconds
Memory limit:	256 megabytes

A cipher has been sent to you containing 3 words to open the safe. For decryption, the following pattern is used: the first word is the number of capital letters in the first line, the second is the number of vowels in the second, and the third is the number of digits in the third. Be careful: there are many safes in the world, which means that there may be several requests.

Input

First line number of strings Each line contains 3 words

Output

dictionary

Examples

standard input	standard output
3 HOUSton problem 555 HaRry Potterrr 2part DAn impostor bye	{'a': 8, 'b': 7, 'c': 4}
1 JaRvIS isss me22	{'a': 4, 'b': 1, 'c': 2}

Problem F. Beep boop. Boop beep?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Sanzhar wants to register in the Discord. Discord obviously requires to come up with a password and username for registration. Here are the Discord requirements for the password and username: Username: Minimum 3, maximum 32 any characters (letters, numbers or special characters), then the symbol #. and id tag (4 any numbers). Password: Minimum 8 characters, at least one upper case English letter, one lower case English letter, one number and one special character. Help Sanzhar to come up with the password and username!

Input

The input contains firstly username and then password.

Output

Print "Welcome to Discord"only if username AND password are correct. Otherwise print "Invalid password or username"without quotes.

Examples

standard input	standard output
bakadesu#1337 MTW9dUgOdk#2	Welcome to Discord
Rezaud#0667 8@s$3@pqTk&I	Welcome to Discord
__akuma__#1402 give_me_ganyu	Invalid password or username
nezuko#01010 qwerty	Invalid password or username

Note

Use regular expressions. Good Luck Have Fun!

Problem G. Hogwarts

Input file:	standard input
Output file:	standard output
Time limit:	2 seconds
Memory limit:	256 megabytes

As you know, freshmen began to attend practical classes within the walls of KBTU. However, some of them skip classes or even confuse classrooms. Write a code that helps to determine who was absent and who confused the class. The first line is the list of the group. The second is those who have arrived for practice. Also, do not forget about the number of requests at the very beginning of the input.

Input

First line - number of requests. Next two lines: 1. List of all students. 2. List who arrived to the practice.

Output

For each request absent and lost students, in sorted order. (Check output example)

Examples

standard input	standard output
2 Era Amir Daniil Ayat Nurda Donil Omir Nurbol Era Amir Daniil Ayat Nurda Era Amir Ayat	Absent: Amir Ayat Daniil Era Nurda Lost: Donil Nurbol Omir Absent: Daniil Nurda Lost:
1 Aslan Vanya Kyamran Ernur Kyamran Ernur Nurbek	Absent: Aslan Vanya Lost: Nurbek
3 Sanya Alen Dinara Ali Arman Bekzat Amina Alen Dinara Chris Dinara Ilyas Sanzhar Altair Chris Dinara Ali Dimash Edward Adilet Damira Chris Daniil Edward Adilet Vanya	Absent: Ali Sanya Lost: Amina Arman Bekzat Absent: Ilyas Sanzhar Lost: Ali Altair Absent: Chris Damira Dimash Lost: Daniil Vanya

Note

The lost student, the student who has come to the wrong class.

Problem H. Regex + Asman = Regman

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

Once Asman woke up at 10AM, opened Microsoft Teams and saw a notification... It turns out that he needs to make one more task for a midterm. Looking at the sender of this message, he realized that there were 2 professors. Asman did not understand who these 2 professors were, so he pointed the cursor at them and saw their mails. It became clear that these were Bobur agay and Beisenbek agay. And Asman had a great idea.
You need to find all e-mails from given string and display a user's nickname (consists of one or more numbers, letters and underscore), domain name (consists of one or more numbers and letters) and domain suffix (consists only of 2 to 4 letters) from these email addresses.

Input

The only line of input contains one string.

Output

First, output all nicknames (sorted alphabetically), then corresponding domain names and domain suffixes. Look in the examples for better understanding.

Examples

standard input	standard output
asman_5@mail.ru _kymbat@gmail.com	nicknames: _kymbat asman_5 domain name: gmail mail suffix: com ru
AsMaN__5@@@mail,ru n0t@4.m4il	nicknames: domain name: suffix:
12_@12w2.qw qwe@qwe.qwe,also@a.mail	nicknames: 12_ also qwe domain name: 12w2 a qwe suffix: qw mail qwe
mail@ma.il,sprtd@by.sym.also@mail.ru	nicknames: also mail sprtd domain name: mail ma by suffix: ru il sym

Problem I. Find ghosts

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

Given lists of students who attended the midterm exam on Tuesday and on Saturday. There might be students, who come for two days.

Input

You are given two lists of integers, every list[i] is ID of the student.

Output

Output list of integers (IDs) who attended two days.

Example

standard input	standard output
3 5 7 10 9 7 11 2 17 5	[5, 7]

Note

Use set

Problem J. The last GPA problem

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

We are dealing the last problem about the GPA. You are given the name of the student and his or her GPA for some semester. For one student, there may be several records of GPA (for different semesters). The overall GPA of a student is calculated as average of all his or her GPA-s across the semesters.
Your task is to calculate overall GPA for all students, and print this information sorted by overall GPA in descending order, if GPA is equal, sort by students' name in alphabetical order.

Input

The first line of input contains an integer n ($1 \leq n \leq 10000$) - number of records of students' GPA. Each of the next n lines contains a student's name and an integer - his GPA for some semester ($1 \leq GPA \leq 4$).

Output

Your should print name of student and his or her overall GPA in format "*name*: *overallGPA*" for each student on separate line. Records should be sorted by overall GPA in descending order, if GPA is equal, sort records by students' name in alphabetical order. You should print overall GPA with exactly 3 decimal places.

Examples

standard input	standard output
5 namsa 4 kymbat 3 kymbat 4 namsa 4 pes 2	namsa: 4.000 kymbat: 3.500 pes: 2.000
6 aaa 3 aaa 4 bbb 4 bbb 3 ccc 4 ddd 1	ccc: 4.000 aaa: 3.500 bbb: 3.500 ddd: 1.000

Note

To achieve desired precision you can use string formatting. For example the string `f'{value:.3f}'` will print *value* with exactly 3 decimal places.