Problem 1

Winning Teams
(Author: Luis Arturo De La Garza Navel)

The programming competition has finished, and the Algorithmic Club will recognize the 3 best teams of the competition, the criteria to consider to grant the prizes are the following ones:
- The team with the most problems solved
- The team with the least amount of time to perform the exercises

When the Club is going to see the table of positions to see the name of the teams to be rewarded, they notice something, the teams are not sorted by the aforementioned criteria, it is urgent that they must obtain the 3 teams to be rewarded before the ceremony begins. Help the Club to obtain the teams that they look for.

Input:
As an entry you will receive an *n* number, indicating the number of participants in the programming contest, followed by *n* lines containing the team name, problems solved and cumulative time to solve the problems, separated by *blank spaces*.

Output:
As a start, you must display the name of the first 3 places in the competition in descending order (1st, 2nd and 3rd respectively).

Input	Output
10 TeamNavajas 5 250 LaTribu 6 195 TeamWarriors 6 230 LaCribaDeCerosYUnos 5 330 LaMafiaDelPoder 5 400 SomosLosYoyosXD 4 410 Pu++ 4 210 #include<uaz> 3 200 LaMaquinaDeArturing 3 100 Lambda 5 251	La Tribu TeamWarriors TeamNavajas

Problem 2

Yimail.com
(Autor: Francisco Jovany Ramos Cárdenas)

The company Yimail needs an artificial intelligence system that helps them to verify at the moment of creating an mail account if it is valid. Yimail is very special when it gives the names of their accounts, it is governed by the following rules:

- The system should *not differentiate* between upper and lower case. For example "EsteMen@ymail.com" is the same as "estemen@ymail.com".
- Ignore ' . '. For example "JelipeJimenez@yimail.com" is the same as "Jelipe.Jimenez@yimail.com".
- When there is a ' + ' ignores the following digits and characters up to ' @ '. For example "maquina+de.fuego666@yimail.com" is the same as "ma.quina@yimail.com".
- The account must end with @yimail.com. For example "este.si+@ymail.com" would be a valid email, but for example "EsteNo@Yimail.com" would not be a valid email.

Your task is to program this artificial intelligence to check that the mail you want to create complies with these rules and does not match another mail in the database.

Input:
The first line consists of the mail of the account to be created. The next line will be 'N' the number of koreos in the database, where 1<N<20. The following lines are the mails from the company database.

Output:
The program must print "Valid Mail" if the given mail complies with the rules and does not match the mail in the database, or otherwise "Invalid Mail".

Input	Output
Franco.100+correoNuevo@yImail.com 3 franco+100@yimail.com f.r.a.n.c.o.1.0.0@yimail.net fraco100@yimail.com	Invalid mail.
JelipeDeJesus@yimail.com 3 jelipe+de.Jesus@yimail.com jeliepe.de.jesus@yimail.com jelipe.de.jesus+CorreoBueno@Yimail.com	Valid Mail.

Problem 3

Baker's translator
(Author: Luis Arturo De La Garza Navel)

Baker, the ICPC's most famous cat has returned to CUValles as a guest of the Algorithmic Club to offer a talk about competitive programming to those interested in participating in competitions; although it seems strange that a cat is a lecturer, Baker manages to give his talks thanks to a curious translator he built himself, who converts the frequencies of his meows into a human voice. Interestingly, the algorithm that converts Baker's meows does not use Hertz to convert the frequencies of his meows into speech, but employs a unit of measurement invented by a friend of his, who christened them DLGz (by the initials of his first surname), which measures the frequency of the meows Baker uses to express a word. To convert a word to a meow frequency, the following formula is used:

$$frecuency(DLGz) = \frac{\sum_{i=0}^{n} m_i}{n}$$

Where m is the word, n is the length of m and i is the position of the character of the word. For this formula, it must be considered that each letter has a value, where a has a value of one, b has a value of 2, c has a value of 3, and so on with the letters of the English alphabet (Baker only speaks English). A clear example would be the following word:

$$\text{"hello"} = 10.40$$

$$\frac{(8) + (5) + (12) + (12) + (15)}{5} = \frac{52}{5} = 10.40$$

Upon hearing this algorithm, the Algorithm Club decided that it would be a good idea to challenge Baker's translator algorithm, so your task will be to convert phrases into frequencies in DLGz.

Input:
In the first line you will receive a number n indicating the number of words that will make up the sentence you will receive, followed by n words in lowercase letters in the next line.

Output:
As an output you must show the frequencies of each word separated by a space, the DLGz value of each word must be rounded to 2 decimal places.

Input	Output
2 hello world	10.40 14.40

Input	Output
6 are all welcome to the conference	8.00 8.33 10.86 17.50 11.00 8.80

Problem 4

Is that a capicua number?
(Author: Luis Arturo De La Garza Navel)

A capicua number is a number whose digits can be written equally from right to left and vice versa, a simple example of a capicua number is 1331, which is written equally to the right and vice versa. Your task in this occasion will be very simple, which will consist in determining if with a set of digits you can form a capicua number, do you accept the challenge?

Input:
You will receive a number n, indicating the number of cases you will receive. In the following lines you will receive a set of numbers, which you must determine if they can form or not a capicua number.

Output:
As an output, it should show n lines, indicating with a "*Yes*", if a capicua number can be formed, otherwise, you should show a "*No*".

Input	Output
6	Yes
23234	No
123456	Yes
6116	No
099076	Yes
8	No
29	

Problem 5

Range of primes
(Author: Gabriel Muñoz Marrón)

The discovery of new prime numbers is too important for the advancement of certain technologies such as the encryption of information traveling over the Internet.
In this exercise you will take on the role of one of the researchers and implement some method to generate prime numbers within a given range.

Input:
The entry consists of 2 integers, *N* and *M*. *N* would be the lower limit and *M* the upper limit.
N ≥ 0
M > N

Output:
The entire list of prime numbers within range N, M separated by a space.

Input	Output
1 10	2 3 5 7

Input	Output
17 100	17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97

A prime number is a number whose only divisors are 1 and the number itself.
2 is the only even prime number.