Problem 1.

Cesar Secret
Autor: Efraín Esaú Martínez Macías

Cesar is a king of a very important city, he has been in power for many years, but as each king must leave his reign to a descendant, for that he asks his mathematicians, scientists and engineers to make him a type of encryption to be able to send the message to the neighboring city, since the king had no children, but to have a niece in another city thought it would be good that she was the heiress, only he does not want anyone to know that he is about to leave his reign , because this would make other kingdoms want to take over their city.

Your work will be to decipher the message that the king sends to his niece, to achieve this we will give you an alphabet with a displacement of three places and a normal alphabet, you must find the logic that the king used to hide the message.

Original	a	b	c	d	e	f	g	h	i	j	k	l	m
Cifrado	d	e	f	g	h	i	j	k	l	m	n	o	p

Original	n	o	p	q	r	s	t	u	v	w	x	y	z
Cifrado	q	r	s	t	u	v	w	x	y	z	a	b	c

Input:

The entry consists of the first line an integer N that indicates the number of messages to be entered, in the following N lines an encrypted M message, where there is the symbol # indicates a space, not greater than 500 characters.

Output:

The decrypted messages, separated by a line break between each one.

Problem 2.

Validate an input password

Given a password from the keyboard, validate it, taking into account the following rules:

1. Password must have 5 to 15 characters.
2. At least one numeric digit.
3. At least one capital letter.
4. Starting character must not be a number.

Sample Input	Sample Output
Satanas567	Valid password
4ElTemible	Invalid password
manossangrientas9	Invalid password

Problem 3.

Bridge

n people wish to cross a bridge at night. A group of at most two people may cross at any time, and each group must have a flashlight. Only one flashlight is available among the n people, so some sort of shuttle arrangement must be arranged in order to return the flashlight so that more people may cross.

Each person has a different crossing speed; the speed of a group is determined by the speed of the slower member. Your job is to determine a strategy that gets all *n* people across the bridge in the minimum time.

The first line of input contains *n*, followed by n lines giving the crossing times for each of the people. There are not more than 1000 people and nobody takes more than 100 seconds to cross the bridge.

The first line of output must contain the total number of seconds required for all n people to cross the bridge. The following lines give a strategy for achieving this time. Each line contains either one or two integers, indicating which person or people form the next group to cross. (Each person is indicated by the crossing time specified in the input. Although many people may have the same crossing time the ambiguity is of no consequence.) Note that the crossings alternate directions, as it is necessary to return the flashlight so that more may cross. If more than one strategy yields the minimal time, any one will do.

Sample Input
4
1
2
5
10
Possible Output for Sample Input
17
1 2
1
5 10
2
1 2

Problem 4.
Without Repetitions

In a given text, if there are two or more identical characters in sequence, delete the repetitions and leave only the first character ocurrency.

Input sample:
¡¡¡¡¡¡AlMmaas endiabBBbladas, serrrrres sin Ppieddad,,, ees la nochhhe de Ssatán!

Output sample:
¡Almas endiabladas, seres sin piedad, es la noche de satán!

Problem 5.

Baker Palindromes
Autor: Luis Arturo De La Garza Navel

Baker, the most famous cat of the ACM ICPC has been invited to the academic fair of CUValles, he has been told that among the events of the week there is a programming contest, so do not miss to send your challenge to the competitors.

Baker loves the palindromes, a palindrome is a word, number or expression that is the same if it is read from left to right than from right to left, so he has decided to create his own version, which I call Baker palindromes; A palindrome of Baker is one that meets the condition of palindrome before and after being rotated n times of letters to its right.

An example of Baker's palindrome is the word bear, which is a palindrome before being rotated; if we rotate it 2 positions it will still be palindrome, for which it fulfills the previous condition.

original: oso -> 1° rotation: oos -> 2° rotation: oso

Input:

As input we receive an integer T, with the number of cases that will be analyzed, the following T lines will have a string of lowercase letters B which is the word that will be checked if it is a Baker palindrome and an integer N that will be the positions to the right.

Output:
As output for each case, Baker Palindrome should be printed, if it is a palindrome from Baker, No Baker Palindrome, if it does not meet the condition of palindrome, Possible Baker Palindrome, if it is only palindrome after rotating it, and Palindrome if it is only palindrome before to rotate it.

Input	Output
4	
oso 2	Baker Palindrome
coco 3	No Baker Palindrome
aabccb 5	Possible Baker Palindrome
anitalavalatina 6	Palindrome

Problem 6.

Mateo Towers
Autor: Luis Arturo De La Garza Navel

Mateo is a small and naughty child who likes to play all day, his room is full of toys with which he imagines games to spend hours of fun. Mateo's favorite toy is the wooden cubes, those colorful cubes that have a letter on his face, he has so many of them that he can simply do so much.

Today Mateo wants to invite you to play a game he has just invented, which he has called "Mateo towers" which consists of building a large tower, as high as possible by following these rules:

- Each player plays with an amount N of cubes, which take at random from a box.
- The towers can only be armed with cubes of the same letter
- There are both cubes with uppercase and lowercase letters
- Capital letters allow you to build towers, however, lowercase letters will remove a block of your towers already built, so a block of a letter that you do not have will simply make you unable to build towers.

Now that you know the rules, Mateo asks you to help him keep track of the towers that have been built, can you do it?

Input:

The entry consists of a first line with an integer T consisting of the number of blocks you used during the game. The next line contains T letters, where the uppercase letters are the cubes that make up the towers, and the lowercase letters are the cubes that you have removed.Output:

The output consists of printing the towers formed at the end of the game in M lines, where M is the final number of towers, the format to print the towers consists of showing the letter of the color of the tower in uppercase, followed by the number of blocks that the way.

The order to show the towers formed should be the order of appearance. If no towers were formed, print 0.

Input	Output
10 AZZBBzaGGG	Z1 B2 G3

Input	Output
20 CCCcAAcBBcBBJbCAAajJ	A3 B4 C1 J1

Explanation for case 2: the towers formed by the letters C and J although they appear before, during the game the pieces are removed until the towers disappear, so you must consider their appearance when they are being formed again.