

Problem I

Tao

Time limit: 2 seconds

Tao is the path to truth. It is often symbolized as a *Tai Chi diagram* in the traditional Chinese culture, and it generates two modes: *Yin* and *Yang*. These two modes keep in flux, and they circulate into four forms: major Yin, minor Yin, major Yang and minor Yang, respectively. These four forms generate the *eight trigrams*. This idea can be used to explain the fundamental principles of reality.

One day, you invented a mysterious quantum machine that can grasp the *encoding* of Tao for anything. When you feed something into your awesome machine, it outputs a string that records the past, current and even the future of this entity. However, useful information is usually hidden; you need to do some *mining*. The first step you want to do is to identify *fundamental elements* in this string. Following the aforementioned philosophical thought of Tao, you realize that a fundamental element is a substring that is symmetric and contains all distinct letters in this string. A fundamental element is called a *tao* if it cannot be reduced by removing any characters in either end. That is, a tao cannot contain any other tao as a substring. For example, consider the string `aaabaabb`. It has several substrings that are symmetric, e.g. `aaa`, `aba`, `aabaa`, and `baab`. The first substring `aaa` is not a fundamental element because it has no `b`. The second `aba` and the fourth `baab` are taos. The third `aabaa` is a fundamental element but not a tao because it contains `aba`, a tao, as a substring. Please write a program to find all taos in a given string.

Input File Format

The first line gives you a positive integer n which is the total number of test cases, where $1 \leq n \leq 20$. Each test case has a single string that occupies one line with at most 10^5 characters. The characters in a string can only be lowercase English letters, but the set of distinct letters may be different in different strings. Notice that this implies that a substring may be a tao in one string but not a tao in another one because a tao only needs to contain all distinct letters in the resident string.

Output Format

For each test case, please find all of the occurrences of taos in the given string. Then, output the total number and total length of all of the occurrences in one line, where two integers are separated by a single space. The total length is calculated by adding the lengths of all substrings that are taos for this test case.

Sample Input

```
5
abaaba
aaabaabb
abcd
aaaaa
abcddcbaabcddcba
```

Output for the Sample Input

```
3 10
2 7
0 0
5 5
3 24
```