# Happy DNA

## 80 points

### Memory Limit : 1 MB

### Time Limit : 1 second

DNA is a molecule composed of sequences of nucleotides **A**denine, **T**hymine, **C**ytosine, and **G**uanine, and carries most of the genetic characteristics of living organisms

Dr. Tingtong, a molecular biologist, claims that there is an inherent level of happiness encoded into DNA of living organisms. According to him, a given string of the nucleotides is "happy" if the string reads the same both backward and forward, and the level of happiness inherent in a DNA molecule is equal to the size of longest "happy" substring found in the DNA.

For an example, consider the following DNA molecule shown below:

ATCGCATGCGTAG

There exist several "happy" substrings of different sizes in the above sequence of nucleotides. One instance of a happy substring of size 3 is the substring CGC starting at position 3. Another happy substring of size 3 is found as GCG at position 8. We can also find a happy substring of size 7 starting at position 6 as ATGCGTA. And there are no happy substrings of size 8 or more. So the level of the happiness of the above DNA molecule is 7.

Write a program to determine the level of happiness inherent in a given DNA molecule and the number of substrings having the size equal to the happiness level.

## INPUT

Input consists of a single line of a character string (composed of characters A, C, G, T only) representing the sequence of nucleotides for a DNA molecule. The length of the input string is between 1 and 1000 inclusive.

## OUTPUT

Output consists of 2 lines, where the $1^{st}$ line is the size of longest happy substrings in the input DNA (the level of happiness of the input DNA molecule) and the $2^{nd}$ line is the number of happy substrings whose size is equal to the largest size. Note that there always will be at least one happy substring because a molecule consisting of a single nucleotide is happy since it reads the same both forward and backward.

**Sample Inputs/Outputs**

| Input | Output |
| --- | --- |
| ATCGCATGCGTAG | 7<br>1 |
| ATCG | 1<br>4 |
| AAAA | 4<br>1 |
| CATAGGTGTA | 3<br>3 |