Problem 3 – Words

You are given a string containing Latin letters. Write a program that finds **the number of all words with no two consecutive equal characters that can be generated by reordering the given letters**. The generated words should contain all given letters. If the given word meets the requirements it should also be considered in the count.

Input

- The input data should be read from the console.
- On the only input line there will be a single word containing all the letters that you should use for generating the words.
- The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- The output data should be printed on the console.
- On the only output line write the number of words found.

Constraints

- The number of the given letters will be between 1 and 10, inclusive.
- All given letters will be small Latin letters ('a' – 'z')
- Allowed working time for your program: 0.35 seconds. Allowed memory: 32 MB.

Examples

Input	Sample Output	Comments
xy	2	Two possible words: "xy" and "yx"
xxxy	0	It is impossible to construct a word with these letters.
aahhhaa	1	The only possible word is "ahahaha".
nopqrstuvw	3628800	There are 3628800 possible words.