Problem 1 – Group Permutations

You will be given a series of capital Latin letters (as a string). **Generate all their permutations**, so that **the same letters stay together**. For example, if you're given the string ABA, the two A's should stay together, so the permutations you can generate are: AAB and BAA.

The letters will be given as a string on a single line. Print each permutation on a new line on the console. **The line order is not important.**

Input

- The input data should be read from the console.
- It will consist of exactly one line – the string containing the letters to permute.
- The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- The output should be printed on the console.
- Print each permutation on a separate line. The line order is not important.

Constraints

- The input string will contain only capital Latin letters [A … Z].
- The input string will contain between 1 and 20 letters.
- Allowed working time for your program: 0.15 seconds. Allowed memory: 16 MB.

Examples

Input	Output
ABC	ABC ACB BAC BCA CBA CAB
BCABACB	BBBCCAA BBBAACC CCBBBAA CCAABBB AACCBBB AABBBCC
SSDVLKG	SSDVLKG SSDVLGK SSDVKLG SSDVKGL … GSSDVLK