Problem J. Finding Periods

Time limit   1000 ms
Mem limit   524288 kB

A *period* of a string is a prefix that can be used to generate the whole string by repeating the prefix. The last repetition may be partial. For example, the periods of `abcabca` are `abc`, `abcabc` and `abcabca`.

Your task is to find all period lengths of a string.

Input

The only input line has a string of length n consisting of characters a−z.

Output

Print all period lengths in increasing order.

Constraints

- $1 \le n \le 10^6$

Sample

Input	Output
abcabca	3 6 7