# Z-function

|  |  |
| --- | --- |
| Time limit | 2 seconds |
| Memory limit | 256Mb |
| Input | standard input or input.txt |
| Output | standard output or output.txt |

Write program which finds z-function for given string *s*.

## Input format

The first line of the input contains string *s*. The length of string is between 1 and *106*. It contains only latin letters and digits.

## Output format

Write required z-function corresponding to given string *s*.

## Sample

| **Input** | **Output** |
| --- | --- |
| abacaba | 0 0 1 0 3 0 1 |