digits

SEASON 8 – SIXTH ROUND

For a natural number **X** with sum of digits **K** (in decimal numerical system), we will define **f(X)** as:

- **K, if 1 ≤ X ≤ 9**
- **f(K), if X > 9**

For example:

f(123) = **f**(6) = 6

f(444) = **f**(12) = **f**(3) = 3

You are given a number **N**, such that it **doesn't contain the digit 0 in its decimal notation**. Let's consider all **subsequences of consecutive digits of N** and apply the function **f( )** to each of them. It is obvious that the result will always be an integer from 1 to 9.

Write a program that for every integer from 1 to 9, counts the number of **subsequences of consecutive digits of N** that have it as a result of **f( )** applied to them**.**

Input

The input file `digits.in` contains one line with the number **N**.

Output

The output file `digits.out` must contain one line with 9 numbers – the number of subsequences of consecutive digits of **N** with result of of **f( )** applied to them being equal to 1, 2, 3, ... , 9 (in this order).

Constraints

$1 \le N < 10^{100\,000}$

Time limit: 1 sec
Memory limit: 256 MB

digits

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Example test:

Input (digits.in)	**Output (digits.out)**
34288	1 1 1 2 1 1 3 3 2

Explanation:

The sequences of consecutive digits of 34288 are:
3, 4, 2, 8, 8, 34, 42, 28, 88, 342, 428, 288, 3428, 4288 и 34288

f(28) = 1
f(2) = 2
f(3) = 3
f(4) = f(4288) = 4
f(428) = 5
f(42) = 6
f(88) = f(34288) = f(34) = 7
f(8) = f(8) = f(3428) = 8
f(288) = f(342) = 9