
Problem A. Strange Function

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 256 megabytes

If a string s is composed of digits from 0 to 9, we call this string a “digit string”. It’s obvious that each substring of s , except those who start with 0, can be considered as a positive integer. Let \mathbb{S} be the set containing all these positive integers, define a function

$$f(s) = \min\{x | x \in \mathbb{Z}^+, x \notin \mathbb{S}\}$$

That is to say, $f(s)$ is the smallest positive integer which is not in \mathbb{S} . For example, $f(\text{“1241”}) = 3$, $f(\text{“542”}) = 1$, $f(\text{“11023456879”}) = 12$, and $f(\text{“00000”}) = 1$ (note that in this case, \mathbb{S} is an empty set).

Given a digit string s , let $\text{substr}(i, j)$ be the substring of s which starts from the i -th digit and ends at the j -th digit, your task is to calculate

$$\sum_{i=1}^{|s|} \sum_{j=i}^{|s|} f(\text{substr}(i, j))$$

Input

There are multiple test cases. The first line of the input contains an integer T , indicating the number of test cases. For each test case:

The first and only line contains a digit string s ($1 \leq |s| \leq 5 \times 10^5$).

It’s guaranteed that the sum of $|s|$ of all test cases will not exceed 5×10^6 .

Output

For each test case output one line containing one integer, indicating the answer.

Example

standard input	standard output
4	21
1241	6
542	162
11023456879	15
00000	

Note

We explain the first sample test case below.

Substring	Value	Substring	Value
1	2	24	1
2	1	41	2
4	1	124	3
1	2	241	3
12	3	1241	3

So the answer is $2 + 1 + 1 + 2 + 3 + 1 + 2 + 3 + 3 + 3 = 21$.

For the second sample test case, it’s obvious that the values of all the substrings are 1. So the answer is 6.