Problem E. CCPC String

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

To prepare a task for the CCPC Final, Little Cyan Fish is studying basic string theory. Today, Little Cyan Fish has learned the concept of the CCPC string. A string s is called a CCPC string if and only if there exists a positive integer $t \geq 1$, such that $s = \mathtt{c}^{2t}\mathtt{p}\mathtt{c}^{t}$.

Here, $\mathtt{c}^k$ represents the string consisting of the character `c` repeated k times, and uv denotes the string obtained by concatenating strings u and v. For example, `ccpc`, `ccccpcc`, and `ccccccpccc` are CCPC strings, but `p`, `cpc`, `ccpcc`, `ccppc`, and `cccpc` are not.

Now, Little Cyan Fish has a string S consisting of `c`, `p`, and question marks (`?`). He wants to calculate the number of pairs of integers (l, r) that satisfy the following conditions:

- $1 \leq l \leq r \leq |S|$
- for the string $T = S[l \cdots r]$, it is possible to replace the question marks (`?`) to `c` or `p`, so that the string is an CCPC string.

Input

There are multiple test cases. The first line contains one integer T $(1 \leq T \leq 10^5)$, representing the number of test cases.

For each test case, the first line contains a single string S. The string S consists only of the English letters `c`, `p`, and the question mark (?).

It is guaranteed that the sum of $|S|$ over all test cases does not exceed 10^6.

Output

For each test case, output a single line consists a single integer, indicating the answer.

Example

standard input	standard output
5 ?cpc ccp?? ???c??? ?c???cp?? ?c?????cccp????	1 1 4 5 14

Note

In the first example, all valid pairs of (l, r) are as follows.

$l =$	$r =$	$S[l \cdots r]$	**Replaced String**
1	4	?cpc	ccpc

In the second example, all valid pairs of (l, r) are as follows.

$l =$	$r =$	$S[l \cdots r]$	**Replaced String**
1	4	ccp?	ccpc

In the third example, all valid pairs of (l, r) are as follows.

$l =$	$r =$	$S[l \cdots r]$	**Replaced String**
1	4	???c	ccpc
3	6	?c??	ccpc
4	7	c???	ccpc
1	7	???c???	ccccpcc

In the fourth example, all valid pairs of (l, r) are as follows.

$l =$	$r =$	$S[l \cdots r]$	**Replaced String**
1	4	?c??	ccpc
2	5	c???	ccpc
3	6	???c	ccpc
5	8	?cp?	ccpc
3	9	???cp??	ccccpcc

In the fifth example, all valid pairs of (l, r) are as follows.

$l =$	$r =$	$S[l \cdots r]$	**Replaced String**
1	4	?c??	ccpc
2	5	c???	ccpc
3	6	????	ccpc
4	7	????	ccpc
5	8	???c	ccpc
9	12	ccp?	ccpc
12	15	????	ccpc
1	7	?c?????	ccccpcc
2	8	c?????c	ccccpcc
3	9	?????cc	ccccpcc
7	13	?cccp??	ccccpcc
1	10	?c?????ccc	ccccccpccc
5	14	???cccp???	ccccccpccc
3	15	?????cccp????	ccccccccpcccc