J. Pasti Pas!

Time limit: 2s   Memory limit: 128 MB

Pertamina is an Indonesian government-owned oil and gas corporation based on Jakarta. It has by f the largest distribution network of petroleum products compared to other oil companies in Indonesi When several foreign oil companies like Shell (Dutch) and Petronas (Malaysia) expanded their busine to Indonesia, Pertamina was faced with a great challenge to improve their service quality and strengthe its consumer's trust, especially on their gas stations. At that time, Pertamina started a campai called "Pasti Pas!" to inform consumers that Pertamina will satisfy them by providing an accura measurement when they buy oil/gas at their gas stations. "Pasti Pas!" itself means "absolute accurate". Despite of what happened out there, we will focus our attention to the phrase "Pasti Pas in this problem.

"Pasti Pas!" is an interesting phrase. Most of you must already know what a palindrome i.e. a word or phrase which can be read the same way in either forward or backward direction, e. MADAM, AMOREROMA, etc. Of course "Pasti Pas!" is not a palindrome by this definition; howeve if we replace one or more substring into another symbol, we will get a palindrome! For convenienc let's remove all non alphabetical characters from the phrase. Let α = 'PAS' and β = 'TI', then t phrase 'PASTIPAS' will become '$\alpha\beta\alpha$' which is a palindrome.

Now we are interested in what the palindrome value of a string S is. Palindrome value of a stri S is defined as the length of the longest palindrome string S' where S' is derived from S by replaci one or more substring by some symbols. As for the previous example, PASTIPAS has a palindron value of 3. Note that when deriving string S, each unique substring can only be mapped into a uniq symbol.

Here is another example. Let S = 'ABCADDABCA'. There are several derivations of S, e.g.:

- Let α = 'ABCA', β = 'DD', then S' = '$\alpha\beta\alpha$' which has a length of 3.

- Let α = 'ABCA', β = 'D', then S' = '$\alpha\beta\beta\alpha$' which has a length of 4.

- Let α = 'A', β = 'BC', γ = 'D', then S' = '$\alpha\beta\alpha\gamma\gamma\alpha\beta\alpha$' which has a length of 8.

Among all possible derivations of S, the longest palindrome can be formed has the length of 8.

Input

The first line of input contains an integer T ($T \leq 100$) denoting the number of cases. Each case contai a string S ($1 \leq |S| \leq 50,000$; $S \in \{$'A' ... 'Z'$\}$) in a line.

Output

For each case, output 'Case #X: Y', where X is the case number starts from 1 and Y is the pali drome value of S for each case.

Sample Input

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4
PASTIPAS
ABCADDABCA
MADAMIAMADAM
ACMICPCJAKARTASITE
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Sample Output

Case #1: 3

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Case #1: 5
Case #2: 8
Case #3: 11
Case #4: 1
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