1033 – Generating Palindromes

By definition palindrome is a string which is not changed when reversed. **"MADAM"** is a nice example of palindrome. It is an easy job to test whether a given string is a palindrome or not. But it may not be so easy to generate a palindrome.

Here we will make a palindrome generator which will take an input string and return a palindrome. You can easily verify that for a string of length **n**, no more than **(n – 1)** characters are required to make it a palindrome. Consider **"abcd"** and its palindrome **"abcdcba"** or **"abc"** and its palindrome **"abcba"**. But life is not so easy for programmers!! We always want optimal cost. And you have to find the minimum number of characters required to make a given string to a palindrome if you are only allowed to insert characters at any position of the string.

Input

Input starts with an integer **T (≤ 200)**, denoting the number of test cases.

Each case contains a string of lowercase letters denoting the string for which we want to generate a palindrome. You may safely assume that the length of the string will be positive and no more than **100**.

Output

For each case, print the case number and the minimum number of characters required to make string to a palindrome.

Sample Input	Output for Sample Input
6 abcd aaaa abc aab abababaababababa pqrsabcdpqrs	Case 1: 3 Case 2: 0 Case 3: 2 Case 4: 1 Case 5: 0 Case 6: 9