

Problem

A Palindromic Permutation

Time limit: 1 second

Given a string of characters, we can permute the individual characters to make new strings. We can then order these strings into alphabetical order.

For example the string 'abba' gives rise to the following 6 distinct permutations in alphabetical order.

```
aabb 1
abab 2
abba 3
baab 4
baba 5
bbaa 6
```

Of these 6 permutations, only 2 are palindromes (A string that reads the same when read backwards). These are 'abba' and 'baab'.

Given a string, you have to find out the **n**th palindrome in the sorted list of all permutations. For the above case 'abba' is the 1st and 'baab' is the 2nd palindrome.

Input

The first line of input gives the number of test cases. Each case contains a string, consisting of lowercase letters only, followed by a space separated positive integer **n** ($n < 2^{31}$). The length of the string will be at most **30**.

Output

For each case, output the case number followed by the **n**th palindrome, but if the total number of palindromes is less than **n** output 'XXX' without the quotes. Follow the sample for exact format.

Sample Input	Output for Sample Input
3	Case 1: abba
abba 1	Case 2: baab
abba 2	Case 3: XXX
abba 3	

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Alternate Solution: Jane Alam Jan

Next Generation Contest 2