Problem 5—Slow Sorting

Fry is taking advantage of being trapped in the 30th. century by learning computer programming. He has just completed the unit on sorting, but, alas, the only sort he really understands is the Bubble Sort. If you don't know what the Bubble Sort is, that's OK; all you need to know that it will only swap adjacent items in an array. For example, to sort A B D C E, Fry can sort it by swapping C and D. However, to sort E B C D A, Fry would not be able to swap A and E directly. But he could perform the following swaps: (EB) (EC) (ED) (EA) (DA) (CA) (BA), seven in all. As hard as Fry tries, he can't come up with a way to sort that would sort E B C D A with fewer than seven swaps because Fry can't even imagine swapping non-adjacent elements and seven is the best you can do if you only swap adjacent ones.

Given a list of words, you need to figure out the minimum number of swaps it would take to sort the list, provided that you only swap adjacent words. You don't actually have to sort the list; you just have to figure out the number of swaps.

INPUT SPECIFICATION. Each input case will consist of an unsigned decimal integer between (inclusively) 1 and 1,000,000, followed by **<EOLN>**, representing the number of words in the list. Then follows the list of words, one at a time, each consisting of one or more capital letters and each followed by **<EOLN>**. "0**<EOLN>**" follows the last case and is not processed.

OUTPUT SPECIFICATION. The output cases appear in the same order as their corresponding input cases. Each output case is of the form "Case c: You would have to exchange at least p adjacent pairs." followed by **<EOLN>,** where c is the case number, and p is the answer. An extra **<EOLN>** follows each output case.

SAMPLE INPUT.

5**<EOLN>**
QUEEN**<EOLN>**
WEIRDO**<EOLN>**
ELEPHANT**<EOLN>**
RONALD**<EOLN>**
TARPAULIN**<EOLN>**
6**<EOLN>**
ZIPPER**<EOLN>**
YELLOW**<EOLN>**
XANADU**<EOLN>**
WHITE**<EOLN>**
VIOLIN**<EOLN>**
UKULELE**<EOLN>**
0**<EOLN>**
<EOF>

SAMPLE OUTPUT.

Case·1:·You·would·have·to·exchange·at·least·4·adjacent·pairs.**<EOLN>**
<EOLN>
Case·2:·You·would·have·to·exchange·at·least·15·adjacent·pairs.**<EOLN>**
<EOLN>
<EOF>