5027 Card Game

Jimmy invents an interesting card game. There are N cards, each of which contains a string S_i. Jimmy wants to stick them into several circles, and each card belongs to one circle exactly. When sticking two cards, Jimmy will get a score. The score of sticking two cards is the longest common prefix of the second card and the reverse of the first card. For example, if Jimmy sticks the card S_1 containing "`abcd`" in front of the card S_2 containing "`dcab`", the score is 2. And if Jimmy sticks S_2 in front of S_1, the score is 0. The card can also stick to itself to form a self-circle, whose score is 0.

For example, there are 3 cards, whose strings are S_1="`ab`", S_2="`bcc`", S_3="`ccb`". There are 6 possible sticking:

1. $S_1 \to S_2$, $S_2 \to S_3$, $S_3 \to S_1$, the score is 1+3+0 = 4
2. $S_1 \to S_2$, $S_2 \to S_1$, $S_3 \to S_3$, the score is 1+0+0 = 1
3. $S_1 \to S_3$, $S_3 \to S_1$, $S_2 \to S_2$, the score is 0+0+0 = 0
4. $S_1 \to S_3$, $S_3 \to S_2$, $S_2 \to S_1$, the score is 0+3+0 = 3
5. $S_1 \to S_1$, $S_2 \to S_2$, $S_3 \to S_3$, the score is 0+0+0 = 0
6. $S_1 \to S_1$, $S_2 \to S_3$, $S_3 \to S_2$, the score is 0+3+3 = 6

So the best score is 6.

Given the information of all the cards, please help Jimmy find the best possible score.

Input

There are several test cases. The first line of each test case contains an integer N ($1 \le N \le 200$). Each of the next N lines contains a string S_i. You can assume the strings contain alphabets ('`a`'-'`z`', '`A`'-'`Z`') only, and the length of every string is no more than 1000.

Output

Output one line for each test case, indicating the corresponding answer.

Sample Input

```
3
ab
bcc
ccb
1
abcd
```

Sample Output

```
6
0
```