Evil Straw Warts Live

Problem ID: evilstraw
CPU Time limit: 1 second
Memory limit: 1024 MB
Difficulty: 3.5

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A palindrome is a string of symbols that is equal to itself when reversed. Given an input string, not necessarily a palindrome, compute the number of swaps necessary to transform the string into a palindrome. By *swap* we mean reversing the order of two adjacent symbols. For example, the string "mamad" may be transformed into the palindrome "madam" with 3 swaps:

- swap "ad" to yield "mamda"
- swap "md" to yield "madma"
- swap "ma" to yield "madam"

Input

The first line of input gives $1 \le n \le 200$, the number of test cases. For each test case, one line of input follows, containing a string of up to 100 lowercase letters.

Output

Output consists of one line per test case. This line will contain the number of swaps, or "`Impossible`" if it is not possible to transform the input to a palindrome.

Sample Input 1

```
3
mamad
asflkj
aabb
```

Sample Output 1

```
3
Impossible
2
```