HOME   TOP   CATALOG   CONTESTS   GYM   PROBLEMSET   GROUPS   RATING   EDU   API   CALENDAR   HELP

PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   STANDINGS   CUSTOM INVOCATION

A. Musical Puzzle

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vlad decided to compose a melody on his guitar. Let's represent the melody as a sequence of notes corresponding to the characters 'a', 'b', 'c', 'd', 'e', 'f', and 'g'.

However, Vlad is not very experienced in playing the guitar and can only record **exactly two** notes at a time. Vlad wants to obtain the melody s, and to do this, he can merge the recorded melodies together. In this case, the last sound of the first melody must match the first sound of the second melody.

For example, if Vlad recorded the melodies "ab" and "ba", he can merge them together and obtain the melody "aba", and then merge the result with "ab" to get "abab".

Help Vlad determine the **minimum** number of melodies consisting of two notes that he needs to record in order to obtain the melody s.

Input

The first line of input contains an integer t $(1 \le t \le 10^4)$ — the number of test cases.

Following that are the descriptions of the test cases.

The first line of each test case contains an integer n $(2 \le n \le 50)$ — the length of the melody s.

The second line of each test case contains a string s of length n, consisting of characters 'a', 'b', 'c', 'd', 'e', 'f', 'g'.
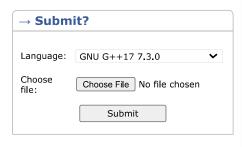
Output

Output t integers, each representing the answer for the corresponding test case. As the answer output **minimum** number of melodies consisting of two notes that Vlad needs to record.

Example

input
```
5
4
abab
7
abacaba
6
aaaaaa
7
abcdefg
5
babdd
```

output
```
2
4
1
6
4
```

Codeforces Round 874 (Div. 3)
Contest is running
00:37:37
Contestant

Note

In the first sample, you need to record the melodies `"ab"` and `"ba"`, as described in the problem statement.

In the second sample, you need to record the melodies `"ab"`, `"ba"`, `"ac"`, and `"ca"`.

In the third sample, the only necessary melody is `"aa"`.