N-Palindromes

locked

by *IEEEXtreme*

Alice thinks that contest problem authors' obsession with palindromes is misplaced. She is much fonder of *n*-palindromes, which are words that are palindromes when the characters at exactly *n* positions are changed.

For example, Alice knows that her name (in lowercase) is a 2-palindrome, because she can create any of the following palindromes from her name by changing 2 characters: `alila`, `acica`, `elile`, `ecice`.

She also knows that her name is a 3-palindrome, because she can create palindromes by changing characters at 3 positions, e.g. `ecace` and `zlilz`. However, this is only a partial list, and she wants your help in determining the total number of such palindromes.

Note that the characters of an *n*-palindrome, including the *n* replacement characters, must all be lowercase English letters.

Input Format

The input starts with an integer *t*, on a line by itself, which gives the number of test cases.

Each test case is made up of an integer *n* followed by a lowercase string.

Constraints

$1 \le t \le 20$

$1 \le n \le$ [length of string] ≤ 500

Output Format

For each test case, you should output, on a line by itself, the total number of palindromes that can be created by changing exactly *n* characters of the given string. Since this number may be very large, you should output the number modulo $(10^9 + 7)$.

Sample Input

```
3
2 alice
1 racecar
3 alice
```

Sample Output

```
4
25
196
```

Explanation

The problem statement lists the four palindromes that can be made from the string `alice`, by changing 2 characters.

Since you can only change one character in `racecar`, you are constrained to changing the middle letter. This character can be changed to any of the 25 letters other than `e`.

For the last testcase, Alice has found that there are 196 palindromes that can be made from her name, by changing 3 characters.

Max Score: 74pts dynamic

Submissions: 333

Max Score: 74

Difficulty: Hard

More

Current Buffer (saved locally, editable)

BASH

```
1
```

Upload Code as File

Test against custom input

Run Code

Submit Code