Shashank and the Palindromic Strings



Shashank loves strings, but he loves palindromic strings the most. He has a list of n strings, $A = [a_0, a_1, \ldots, a_{n-1}]$, where each string, a_i , consists of lowercase English alphabetic letters. Shashank wants to count the number of ways of choosing non-empty subsequences $s_0, s_1, s_2, \ldots, s_{n-1}$ such that the following conditions are satisfied:

- 1. s_0 is a subsequence of string a_0 , s_1 is a subsequence of string a_1 , s_2 is a subsequence of string a_2 , ..., and s_{n-1} is a subsequence of string a_{n-1} .
- 2. $s_0 + s_1 + s_2 + \ldots + s_{n-1}$ is a palindromic string, where + denotes the string concatenation operator.

You are given q queries where each query consists of some list, A. For each query, find and print the number of ways Shashank can choose n non-empty subsequences satisfying the criteria above, modulo $10^9 + 7$, on a new line.

Note: Two subsequences consisting of the same characters are considered to be different if their characters came from different indices in the original string.

Input Format

The first line contains a single integer, q, denoting the number of queries. The subsequent lines describe each query in the following format:

- The first line contains an integer, *n*, denoting the size of the list.
- Each line i of the n subsequent lines contains a non-empty string describing a_i .

Constraints

- $1 \le q \le 50$
- $1 \le n \le 50$
- $ullet \sum_{i=0}^{n-1} |a_i| \leq 1000$ over a test case.

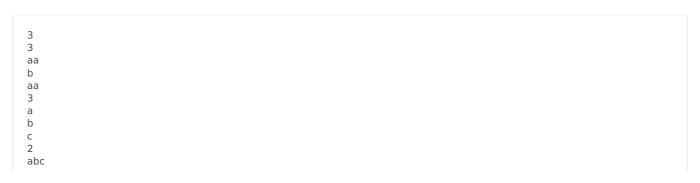
For 40% of the maximum score:

- 1 < n < 5
- $\sum_{i=0}^{n-1} |a_i| \leq 250$ over a test case.

Output Format

For each query, print the number of ways of choosing non-empty subsequences, modulo $10^9 + 7$, on a new line.

Sample Input 0



Sample Output 0

5		
0 9		

Explanation 0

The first two queries are explained below:

- 1. We can choose the following five subsequences:
 - 1. $s_0 =$ "a", $s_1 =$ "b", $s_2 =$ "a", where s_0 is the first character of a_0 and s_2 is the first character of a_2 .
 - 2. $s_0 =$ "a", $s_1 =$ "b", $s_2 =$ "a", where s_0 is the second character of a_0 and s_2 is the second character of a_2 .
 - 3. $s_0 = "a"$, $s_1 = "b"$, $s_2 = "a"$, where s_0 is the first character of a_0 and s_2 is the second character of a_2 .
 - 4. $s_0 = \text{"a"}$, $s_1 = \text{"b"}$, $s_2 = \text{"a"}$, where s_0 is the second character of a_0 and s_2 is the first character of a_2 .
 - 5. $s_0 = \text{"aa"}, s_1 = \text{"b"}, s_2 = \text{"aa"}$

Thus, we print the result of $5 \mod (10^9 + 7) = 5$ on a new line.

2. There is no way to choose non-empty subsequences such that their concatenation results in a palindrome, as each string contains unique characters. Thus, we print $\mathbf{0}$ on a new line.