

## 3735 - My Longest Palindrome

### Description

Given a string  $S$  of uppercase letters, you may perform any number of these operations on it (and in any order you wish):

- Delete a character at any position
- Swap any two characters in adjacent positions

What is the longest palindrome you can get? A palindrome is a sequence of characters that reads the same backward or forward.

### Input specification

The first line of input consists of a single integer  $T$  ( $1 \leq T \leq 100$ ) denoting the number of test cases to process.

Each test case consists of two lines:

1. Line 1 contains a single integer  $N$  ( $1 \leq N \leq 1000$ ), the length of the string  $S$ .
2. Line 2 consists of string  $S$  having exactly  $N$  uppercase letters.

### Output specification

For each test case, in the order given in the input, output the longest palindrome you can get after applying any number of the described operations. If there are many solutions, output the lexicographically smallest of them. A string  $S$  is lexicographically smaller than string  $T$  if the character at position  $i$  in  $S$  is smaller than the character in the same position  $i$  in  $T$  where  $i$  is the first position that the two strings differ.

### Sample input

```
4
4
NOON
5
MADAM
3
ABC
```

8

XXXXZZYY

## Sample output

NOON

AMDMA

A

XYZXZYX

## Hint(s)

Source	Carlos Joa Fong
Added by	<b>cjoa</b>
Addition date	2016-09-10
Time limit (ms)	0
<b>Test limit (ms)</b>	0
Memory limit (kb)	0
Output limit (mb)	64
Size limit (bytes)	0
Enabled languages	Bash C C# C++ C++11 Java JavaScript-NodeJS Pascal Perl PHP Prolog Python Ruby Text