

Building a List



Chan has decided to make a list of all possible combinations of letters of a given string S . If there are two strings with the same set of characters, print the lexicographically smallest arrangement of the two strings.

```
abc acb cab bac bca
```

all the above strings' lexicographically smallest string is abc.

Each character in the string S is unique. Your task is to print the entire list of Chan's in lexicographic order.

for string abc , the list in lexicographic order is given below

```
a ab abc ac b bc c
```

Input Format

The first line contains the number of test cases T . T testcases follow.

Each testcase has 2 lines. The first line is an integer N (the length of the string).

The second line contains the string S .

Output Format

For each testcase, print the entire list of combinations of string S , with each combination of letters in a newline.

Constraints

$0 < T < 50$

$1 < N < 16$

string S contains only small alphabets(a-z)

Sample Input

```
2
2
ab
3
xyz
```

Sample Output

```
a
ab
b
x
xy
xyz
xz
y
yz
z
```

Explanation

In the first case we have ab, the possibilities are a, ab and b. Similarly, all combination of characters of xyz.