Limak and palindromes 2

Limak likes palindromes and recently he came across a simple problem in which he was given a string and he had to report the total number of unique palindromes of length 3 which can be formed by using the characters of the string. Also, he was supposed to list out in lexicographical order all the palindromes of length 3 with each palindrome in a separate line.

Input Format

The first line of input contains the length of the string and it is followed by a string of the above mentioned length.

Constraints

1 <= length of string <= 100000
The string consists of lowercase alphabets

Output Format

The first line of input should be an integer which is the total number of unique palindromes of length 3 which can be formed by using the characters in the string. The following lines consist of all unique palindromes of length 3 which are arranged in lexicographical order and can be formed using the characters in the string.

Sample Input 0

```
4
aabc
```

Sample Output 0

```
2
aba
aca
```

Explanation 0

In this sample test case, we can form two palindromes of length 3 by using the characters in the string. When printed in lexicographical order, aba and aca is printed.