

Jason ABC

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

You are given a string S of length $3n$, consisting of the characters A, B and C. You are allowed to perform the following operation:

- Select some subsegment of this string and a character c (one of A, B and C). Then, replace all the characters on the subsegment with c .

Find the smallest number of times that you would have to apply the operation above to get a string which contains each of characters A, B and C exactly n times. It can be shown that it is always possible to get such a string.

In addition, find a sequence of operations of the smallest possible length. If there are many such sequences, you can output any of them.

Input

The first line of input contains a single integer n ($1 \leq n \leq 3 \cdot 10^5$).

The second line of the input contains a string S of length $3n$, consisting of the characters A, B and C.

Output

In the first line print the minimum number of operations k .

In the i -th of the next k lines print 2 integers l_i, r_i and a character c_i ($1 \leq l_i \leq r_i \leq 3n$, $c_i \in \{A, B, C\}$), denoting that in the i -th operation you will replace each of the characters $S_{l_i}, S_{l_i+1}, \dots, S_{r_i}$ with c_i .

If there is more than one solution with a minimum number of operations, you can print any one of them.

Examples

standard input	standard output
1 AAA	2 2 3 B 3 3 C
1 CAB	0
3 ABABCABAB	1 1 2 C

Note

In the first sample, the string will undergo the following transformations:

AAA \rightarrow ABB \rightarrow ABC.

In the second sample, the string already contains exactly one A, one B and one C.

In the third sample, the string will undergo the following transformation:

ABABCABAB \rightarrow CCABCABAB. Now, it contains each letter 3 times.