Problem K – Kool Strings

Professor Kardashi is known for always being fashionable and for her passion for computer science. Her current obsessions are binary strings and efficiency. In particular, she says that a binary string is *kool* if it does not contain K or more consecutive identical characters.

To test your skills, Professor Kardashi gives you a binary string S and allows you to perform the following operation on it: choose an index i and flip the value of S_i (changing a "0" to "1" or a "1" to "0").

Your task is to transform S into a kool string using the minimum number of operations.

Input

The input consists of a single line that contains an integer K and a binary string S ($2 \leq K \leq |S| \leq 10^5$).

Output

Output a single line with an integer indicating the minimum number of operations needed to transform S into a kool string, followed by a kool string that can be obtained after applying that number of operations to S. If there are multiple solutions, output any of them.

Sample input 1	**Sample output 1**
2 00	1 01

Sample input 2	**Sample output 2**
2 10	0 10

Sample input 3	**Sample output 3**
3 1111100	1 1101100

Sample input 4	**Sample output 4**
3 00001111	2 01001101