Problem A. Analyzing Bit (Yet Special) Strings

Input file:	abyss.in
Output file:	abyss.out
Time limit:	2 seconds
Memory limit:	256 megabytes

Do you think that analyzing bit strings is easy? This is not the case when you are in a dream.

So you are in a dream. Unexpectedly, right? But... I am afraid it's not the dream you always wanted to be in. You have a string of bits in your dream, a long string of bits you are to deal with. And you clearly understand what you should do to leave this horrible dream right now: find the best *special* string.

Luckily, you know that you read a book about the theory of *special* strings yesterday. You only managed to remember the strangest definition of *special* strings, though, which sounded as follows.

Suppose you have a string of bits T of length n. Bits of T are referred to as T_1, T_2, ..., T_n. Let's denote $A(i, j)$ and $B(i, j)$ as the number of $0-$bits and $1-$bits among T_i, T_{i+1}, ..., T_j, correspondingly. String T is called *special* if for every i between 1 and n, inclusive, both of the following conditions hold: $A(1, i) \geq B(1, i)$ and $A(i, n) \leq B(i, n)$.

But you can't be satisfied with just any *special* string. You need the best *special* string. The dream was very strange and thus the rules to determine which of two strings was better were strange as well. Let L_1 and L_2 be the lengths of two strings, and P_1 and P_2 be their numbers of occurrences in the given string S as a substring, respectively. Then you know that first string is better than the second one if $L_1 \cdot P_1 > L_2 \cdot P_2$.

So your task is simple... or not? Find the best *special* string — a *special* string such that no other *special* string is better.

Input

The only line of the input file contains S ($2 \leq |S| \leq 2 \cdot 10^5$) — the string consisting of zeroes and ones.

Output

The first line of the output file should contain the value of $L \cdot P$, where L is the length of the best *special* string and P is the number of its occurrences in S as a substring. The second line of the output file should contain the best *special* string itself. If there are several best *special* strings, you can choose any of them.

It is guaranteed that at least one *special* string is a substring of S.

Examples

abyss.in	abyss.out
00111001110101	8 0011
00011001110101	14 00011001110101
0101010101	18 010101