H - Insertions

We are given three strings, s, t and p. We will denote the length of a string by vertical bars, thus $|s|$ is the length of s and so on. If we *insert* t into s at position k, where $0 \leq k \leq |s|$, the result is a new string consisting of the first k characters of s, followed by the entirety of t, and finally followed by the remaining $|s| - k$ characters of s. We would like to select k so that the resulting new string will contain the largest possible number of occurrences of p as a substring.

Thus, for example, inserting $t = \texttt{aba}$ into $s = \texttt{ab}$ at position $k = 0$ results in the string **abaab**; at $k = 1$, in the string **aabab**; and at $k = 2$, in the string **ababa**. If we are interested in occurrences of $p = \texttt{aba}$, then the best position to insert t into s is $k = 2$, where we get two occurrences: $ab\texttt{a}\texttt{ba}$ and $\texttt{ab}aba$ (as this example shows, occurrences of p are allowed to overlap). If, on the other hand, we were interested in occurrences of $p = \texttt{aa}$, then the best choices of k would be $k = 0$ and $k = 1$, which result in one occurrence of p, whereas $k = 2$ results in 0 occurrences of p.

Input data

The first line contains the string s, the second line the string t, and the third line the string p.

Input limits

- $1 \leq |s| \leq 10^5$
- $1 \leq |t| \leq 10^5$
- $1 \leq |p| \leq 10^5$
- All the strings consist only of lowercase letters of the English alphabet.

Output data

Output one line containing the following four integers, separated by spaces:

1. The maximum number of occurrences of p we can get after inserting t into s at position k, if we choose the position k wisely.
2. The number of different k's (from the range $0, 1, \ldots, |s|$) where this maximum number of occurrences of p is attained.
3. The minimum value of k where the maximum number of occurrences of p is attained.
4. The maximum value of k where the maximum number of occurrences of p is attained.

Examples

Input	Output
ab aba aba	2 1 2 2

Input	Output
abaab aba ababa	1 3 1 5

Input	Output
eeoeo eoe eeo	2 3 1 4

Comment

The first of these three examples is the one discussed earlier in the problem statement.