# H – Insertions

*Time limit: 1 s* *Memory limit: 256 MiB*

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: ***aba***`ba` and `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<br>aba<br>aba | 2 1 2 2 |

| Input | Output |
|---|---|
| abaab<br>aba<br>ababa | 1 3 1 5 |

| Input | Output |
|---|---|
| eeoeo<br>eoe<br>eeo | 2 3 1 4 |

### Comment

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