**European Junior Olympiad in Informatics**
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Innopolis, Russia
**day1_2**

`ab-strings`
Country: api - ISC

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# Task B. AB-Strings

There are two strings $s$ and $t$, consisting only of letters a and b. You can make the following operation several times: choose a prefix of $s$, a prefix of $t$ and swap them. Prefixes *can be empty*, also a prefix can coincide with a whole string.

Your task is to find a sequence of operations after which one of the strings consists only of letters a and the other consists only of letters b. The number of operations should be minimized, but solutions that find non-optimal sequences will still get some points. Read the scoring section for more detailed information.

## Input

The first line contains a string $s$ ($1 \leq |s| \leq 2 \cdot 10^5$).
The second line contains a string $t$ ($1 \leq |t| \leq 2 \cdot 10^5$).

Here $|s|$ and $|t|$ denote the lengths of $s$ and $t$, respectively. It is guaranteed that at least one of the strings contains at least one letter a and at least one of the strings contains at least one letter b.

## Output

The first line should contain a single integer $n$ ($0 \leq n \leq 5 \cdot 10^5$) — the number of operations.
Each of the next $n$ lines should contain two space-separated integers $a_i$, $b_i$ — the lengths of prefixes of $s$ and $t$ to swap, respectively.

If there are multiple possible solutions, you can print any of them.

## Scoring

Let $n$ be the length of your sequence, and $m$ be the length of some optimal sequence.
- If for all tests of the subtask and the previous subtasks $n = m$, you will get $100\%$ of the score of this subtask.
- If for all tests of the subtask and the previous subtasks $n \leq m + 2$, you will get $70\%$ of the score of this subtask.
- If for all tests of the subtask and the previous subtasks $n \leq 2m + 2$, you will get $50\%$ of the score of this subtask.
- If for all tests of the subtask and the previous subtasks $n \leq 5 \cdot 10^5$, you will get $30\%$ of the score of this subtask.
- If for at least one test of the subtask or any of the previous subtasks you output $n > 5 \cdot 10^5$, you will get WA and $0$ points for this subtask.

There are 5 subtasks:
1. (5 points) $|s|, |t| \leq 6$, $s$ and $t$ combined contain exactly one letter a
2. (10 points) $|s|, |t| \leq 6$
3. (20 points) $|s|, |t| \leq 50$
4. (20 points) $|s|, |t| \leq 250$
5. (20 points) $|s|, |t| \leq 2000$
6. (25 points) $|s|, |t| \leq 2 \cdot 10^5$

## Examples

### Example 1

Input:

```
bab
bb
```

Output:

```
2
1 0
1 3
```

In this example, you can solve the problem in two operations:
1. Swap the prefix of the first string with length $1$ and the prefix of the second string with length $0$. After this swap, you'll have strings ab and bbb.
2. Swap the prefix of the first string with length $1$ and the prefix of the second string with length $3$. After this swap, you'll have strings bbbb and a.

### Example 2

Input:

```
bbbb
aaa
```

Output:

```
0
```

In this example, the strings are already appropriate, so no operations are needed.