

# TYPESETTER

## Introduction

During the research carried out on their home planet, beetlejumpers discovered an interesting device – the stamper. In ancient times it was used for data reproduction. The device has the shape of a long pipe containing individual letter cubes. They can only be moved along the pipe (left or right). To relocate one of the central cubes, all other cubes located to its left or right had to be moved outside the pipe.

After more detailed archeological investigation, more devices were found as well as the manuscript composed of letter cubes. Fascinated by the device simplicity and its capabilities, beetlejumpers decided to examine the way their ancestors had created the manuscript.

Beetlejumpers found out that the artifacts were of great importance to their ancestors. To create texts they used all the letters from the pipe. However, there were only two ways to change the order of cubes, namely:

- ‘REVERT K’ – by removing  $K$  cubes from the left side of the pipe, rotating them by 180 degrees and then putting them back to the stamper (thus all the letters were in reverse order and upside down)
- ‘POPNPUSH’ – by pulling out a single cube from the left side of the pipe and putting it back from the other side, right side up.

## Problem

Basing on the set of letters from the stamper, describe how to obtain the content of the manuscript. To protect this precious artifacts, minimize the number of operations necessary to get a desired sequence of cubes.

Warning. Each letter in the cube looks different if put upside down.

## Input data

Testing sets are located in `tsetter*.in` files.

The first line of the set has a single integer  $N$  which denotes the number of stampers to be set.

Another  $2N$  lines contain  $N$  pairs of words. The first word in a pair is a set of characters which occurs in the stamper. The second word represents the desired sequence of letters. Every letter in every word is sequenced correctly (no letters are upside down). All words consist exclusively of small letters of the latin alphabet [a-z].

$$1 \leq N \leq 100$$

$$1 \leq L_i \leq 500$$

$L_i$  denotes the number of letters on the  $i$ -th stamper.

## Output data

The output file is required to have  $N$  entries.

For each pair of words, it is necessary to submit an entry consisting of an integer number  $K$  (in a single line) which represents the length of the solution, that is, the number of operations required to transform the first word from the pair into the second one. The second component is  $K$  lines describing operations according to the syntax, provided by the task.

Entries must be in the same sequence as the input word pairs.

## Example

For input data:

```
2
leporbeetwe
beetlepower
wbroofnx
brownfox
```

One of possible solutions would be as follows:

```
4
REVERT 4
REVERT 9
REVERT 5
POPNPUSH
7
POPNPUSH
REVERT 6
POPNPUSH
POPNPUSH
POPNPUSH
REVERT 4
POPNPUSH
```

## Score

If the output is formatted properly and the words obtained as a result of proposed operations give exactly the same sentences, the score is equal to the number of all the operations performed in a given set. Otherwise the score is 0.

Lower positive score gives a better ranking place.