6423 Student IDs

The brand-new University of Fourecks has accepted its first batch of students, and now needs to assign student IDs to them. The student IDs are of the form $SSSSFFNNN$, where $SSSS$ are the first four consonants of the student's surname, FF are the first two vowels of the student's first name, and NNN is a three-digit sequence number used to distinguish between students who would otherwise have the same student ID (vowels are the letters `A`, `E`, `I`, `O` and `U`, and consonants are the other 21 letters of the English alphabet). If there are not enough consonants in the surname or vowels in the first name, fill the remaining spaces with `Z`.

Your task is to take the list of student names and determine the corresponding student IDs. When assigning the sequence number part of the student ID, use the smallest number (starting from `000`) that will make the student ID different from those of all previous students.

Example

Suppose the students, in the order they registered, are named `JOHN SMITH`, `MICHAEL LEE`, `BJORN SMITHERS`, `JANE SMITH` and `JOHN SMITH`. The corresponding student IDs would be `SMTHOZ000`, `LZZZIA000`, `SMTHOZ001`, `SMTHAE000` and `SMTHOZ002`. Bjorn Smithers has a sequence number of `001`, because `SMTHOZ000` has already been assigned to the first John Smith. That leaves the second John Smith with `SMTHOZ002`.

Input

The input contains the names of the students, one per line. Each line contains a first name and a surname, separated by a space. Names consist only of uppercase English letters, with no punctuation. The end of input is marked by a line containing only the string '`-1`'.

The input contains at most 1000 students and the first name and surname of each student is at most 20 letters long.

Output

For each student in the input, output the corresponding student ID on a separate line. The letters must be in uppercase.

Sample Input

```
JOHN SMITH
MICHAEL LEE
BJORN SMITHERS
JANE SMITH
JOHN SMITH
-1
```

Sample Output

```
SMTHOZ000
LZZZIA000
SMTHOZ001
SMTHAE000
SMTHOZ002
```