Problem 12	60 Points

Program Name: haiku.java **Input File: haiku.in**

A generalized Fibonacci haiku is a poem with a syllable count by line that follows a generalized Fibonacci sequence. Given two integers, **a** and **b**, a generalized Fibonacci sequence can be defined mathematically as:

$$F_n := F(n) := \begin{cases} \mathbf{a} & \text{if } n = 0; \\ \mathbf{b} & \text{if } n = 1; \\ F(n-1) + F(n-2) & \text{if } n > 1. \end{cases}$$

For example, the poem

Gym bag.
Old worn socks.
Must wash them right now.

would fit the syllable count by line for a value of 2 for **a** and 3 for **b**, since it has a syllable count by line of 2/3/5 (the first three integers in the generalized Fibonacci sequence for these values). Given a poem, determine if the poem's syllable count by line matches a generalized Fibonacci sequence.

Input

The first line of input will contain a single integer *n* indicating the number of data sets to process. The remainder of the input consists of those *n* data sets.

Each data set will consist of:

1. A line containing a single integer, *m*, indicating the number of lines in the poem ($2 \leq m \leq 10$).
2. The next *m* lines will consist of the poem.

Output

For each data set in the input display the following:

1. If the poem's syllable count by line follows a generalized Fibonacci sequence, a single line in the format "a b" where a and b are the values as described in the formula above.
2. Otherwise, a single line "NOT A GENERALIZED FIBONACCI HAIKU".

Note: For the purposes of the problem, determine the number of syllables in a line by counting the number of occurrences of the letters a, e, i, o, u, and y without regard for case.

Example Input File

```
3
3
Gym bag.
Old worn socks.
Must wash them right now.
4
Just two.
Now we have nine syllables.
Not really, but hard to estimate.
This line is really long but we need to have twenty syllables.
7
One.
Two.
Oh, wait.
That is not right.
My math may be off now.
First line had two and the next had one.
Now I need eighteen but this line is too short.
```

Example Output To Screen

```
2 3
2 9
NOT A GENERALIZED FIBONACCI HAIKU
```