Problem 3:
Making the title for this programming problem was a lot of work
13+8=21 Points

Problem ID: `haiku`
Rank: `2+3`

Introduction

Anya wants to write a haiku for her best friend Damian, but language arts was never her strong suit! Unable to think of what words to use, she uses her telepathic abilities to read the minds of everyone around her to build a word bank. However, after coming up with these words, she remembers that math wasn't her strong suit either! Help Anya construct a haiku by using the words she collected!

Problem Statement

Given a list of $\mathbf{N}$ words represented by the number of syllables in each word $\mathbf{S_1}, \mathbf{S_2}, \ldots, \mathbf{S_N}$ as well as the words themselves $\mathbf{W_1}, \mathbf{W_2}, \ldots, \mathbf{W_N}$, construct a haiku.

A haiku is a three line poem with words containing 5 syllables in total on line one, 7 on line two, and 5 again on line three.

All words are unique and can only be used once.

If it's impossible to construct a haiku using the words provided, output the following instead:

```
IMPOSSIBLE
IMPOSSIBLE
IMPOSSIBLE
```

Input Format

The first line of input contains a positive integer $\mathbf{T}$ denoting the number of test cases that follow. For each test case:

- The first line contains an integer $\mathbf{N}$ denoting the number of words
- The next $\mathbf{N}$ lines contain 2 space-separated integers each $\mathbf{S_i}$ $\mathbf{W_i}$.
  - $\mathbf{S_i}$ denotes the number of syllables in the ith word
  - $\mathbf{W_i}$ denotes the letters of the ith word itself

Output Format

For each test case, output 3 lines:

- The first line contains the words of the first line of the haiku
- The second line contains the words of the second line of the haiku
- The third line contains the words of the third line of the haiku

Constraints

$1 \le \mathbf{T} \le 100$

$1 \le \mathbf{S_i} \le 9$

$1 \le |\mathbf{W_i}| \le 20$

$\mathbf{W_i}$ contains only letters from the lowercase alphabet: `abcdefghijklmnopqrstuvwxyz`

$\mathbf{W_i}$ may not be a real word in any language.

Main Test Set

$1 \le \mathbf{N} \le 9$

Bonus Test Set

$1 \le \mathbf{N} \le 1000$

Sample Test Cases

Sample Input

```
4
9
2 written
1 this
4 algorithm
4 definitely
1 was
1 by
1 an
2 haiku
1 cool
9
3 kawaii
3 shukudai
1 o
3 mogami
1 ni
2 roka
2 gawa
4 wasurete
2 moe
3
3 pentagon
5 dodecahedron
8 hecatonicosachoron
4
5 aaaaa
5 ccccc
7 bbbbbbb
9 ddddddddddddddddddddd
```

Sample Output

Note that this is only one of many possible correct outputs. Your program only needs to satisfy the syllable count requirements.

```
this cool haiku was
definitely written by
an algorithm
shukudai o
wasurete roka ni
mogami gawa
IMPOSSIBLE
IMPOSSIBLE
IMPOSSIBLE
aaaaa
bbbbbbb
ccccc
```

Sample Explanations

For test case 1, we are given 9 words. The haiku we construct has 1 + 1 + 2 + 1 = 5 syllables on line 1, 4 + 2 + 1 = 7 syllables on line 2, and 1 + 4 = 5 syllables on line 5. Since this follows the 5-7-5 syllable requirement, this is a valid haiku.

For test case 3, it's impossible to construct a haiku using the words provided, no matter how we arrange the words or place each word on different lines.