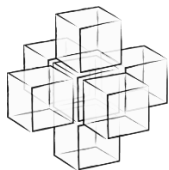


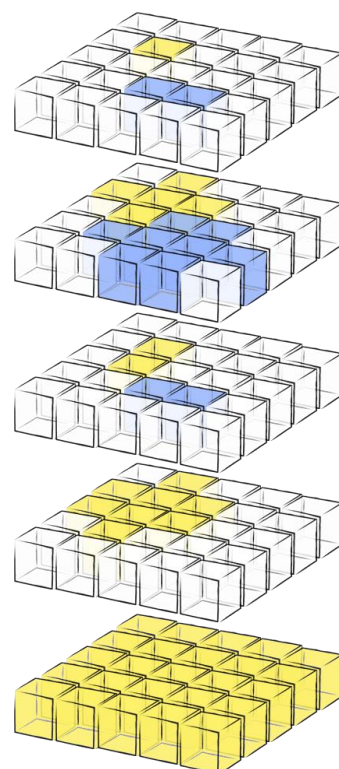
## Problem 4 – Stars in the Cube

We are given a **cube of Latin letters** of size  $n * n * n$  given as  $n$  layers (square matrices) of size  $n * n$ . A **cube**, split into **layers**, is shown on the **right** (each letter is shown as different color).



Write a program to calculate how many **3D stars of 7 cells** (center, up, down, left, right, front, back) holding **equal letters** exist in the cube.

The form of the **3D star** is shown at the figure on the **left**. The same letter can be shared between several stars (stars can overlaps inside the cube).



### Input

- The input is read from the console.
- The first line holds an integer  $n$  – the size of the cube.
- At the next  $n$  lines the layers of the cube are given as sequence of  $n$  matrices separated by '|'.
- The cells in each matrix row are separated by space (see the examples below).

### Output

- At the **first line** at the console print the **total number of 3D stars** of equal letters in the cube.
- At the next few lines, for **each letter** in alphabetical order print the **number of its stars** found in the cube in format "**letter** -> **count**". Skip the letters that don't have any stars in the cube.

### Constraints

- The size of the cube  $n$  is integer in the range [1...75].
- All cube **cells** hold lowercase **Latin letters** in the range ['a'...'z'].
- Time limit: **200 ms**. Allowed memory: **32 MB**.

### Sample Input and Output

Input	Output
<pre> 5 a a a a a   a p a a a   a a a a a   a p a a a   p p p p p a p a a a   p p p a a   a p a a a   p p p a a   p p p p p a a a a a   a p x x a   a p a a a   p p p z a   p p p p p a a x x a   a x x x x   a a x x a   a p z z z   p p p z p a a a a a   a a x x a   a a a a a   a a a z a   p p p p p </pre>	<pre> 6 a -&gt; 1 p -&gt; 3 x -&gt; 2 </pre>
<pre> 3 x x x   x a x   x x x x a x   a a a   x a x x x x   x a x   x x x </pre>	<pre> 1 a -&gt; 1 </pre>
<pre> 2 a a   a a a a   a a </pre>	<pre> 0 </pre>