Coding Challenge

This challenge is to produce a word square. In a word square you are given a grid with letters arranged that spell valid English language words when you read from left to right or from top to bottom, with the requirement that the words you spell in each column and row of the same number are the same word. For example, the first row and the first column spell the same word, the second row and second column do, too, and so on. The challenge is that in arranging those letters that you spell valid words that meet those requirements.

One variant is where you're given an n*n grid and asked to place a set of letters inside to meet these rules, and that's our challenge: given the grid dimensions and a list of letters, can you produce a valid word square.

Input

You'll be given an integer telling you how many rows and columns (it's a square) to use and then n^2 letters to populate the grid with. Example:

```
4 eeeeddoonnnsssrv
```

Output

Your program should emit a valid word square with the letters placed to form valid English language words. Example:

```
rose
oven
send
Ends
```

Challenge

To write a program to solve the following word squares:

```
4 aaccdeeeemmnnnoo
5 aaaeeeefhhmoonssrrrrttttw
5 aabbeeeeeeeehmosrrrruttvv
7 aaaaaaaaabbeeeeeeeddddddggmmlloooonnssssrrrruvvyyy
```

Challenge Solutions (Example)

moan
once
acme
need

feast
earth
armor
stone
threw

heart
ember
above
revue
trees

bravado
renamed
analogy
valuers
amoebas
degrade
odyssey

To ensure valid words, we suggest you may wish to use the following English-language dictionary http://norvig.com/ngrams/enable1.txt

What we are looking for:

Using the Java API and other Java libraries or frameworks, we are looking for a program to solve these challenges based on the inputs and outputs defined. Your program should run from the command line and come with some form of documented instructions. As well as a working algorithm, we are also looking for an elegance of solution, an Object Oriented design approach, the development approach (TDD?) and use of the APIs and libraries. We also welcome proof

that it works and will ask more about the development approach at an interview. One big hint is that we find the use of two dimensional arrays as unreadable, as well as unmaintainable. If you think another technology is preferable, we don't mind if you can explain why you made your choice.

You have one week to complete the challenge. Enjoy!