Lab 01 Word Helper

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# Problem

In this lab, we must be given a text file filled with word. Using the driver provided, we must make a class that sorts the list into 3 different orders. The first order is to sort by the number of vowels, the second is to sort by number of consonants, and the last is by the length. All of these will sort from smallest to largest. Then it must print out these lists.

# Solution

For my solution, I first created an array copy of the words that take in the array created by the provided scanner. This just used a for loop to make a copy. Then, I have a bubble sort for vowels. In that sort I run a for loop that checks to see if the number of vowels is less than the one after it in array. This uses the numVow function which runs a for loop that counts the number of “AEIOUY” in the word by looking at the characters in the string. Then it compares the two vowels. I have the same function for numCon, except it is != instead of == to check for letters NOT equal to “AEIOUY”. I have a very similar function for sortByConsonants, where it makes a copy of the array, and then uses a bubble sort to switch positions in array by comparing the word to the one index higher than in and swapping if needed. Finally, for sortByLength, I make a copy of the array, and using that copy I run a bubble sort that checks each index and switches the values of the array if the length of the word is shorter. Those new arrays are all returned to the driver function.

# Implementation Problems Encountered

No problems were encountered in this lab.

# Lab Report Questions

1. Advantages of using arrays are that they can store and organize a collection of similar types of data and have indexes that can be adjusted easily.
2. Disadvantages of using arrays are that you cant change the size of the array, as well as requiring a large amount of memory.