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Dr. Wooster

Programming Exam #2

1. Description of what your program does:

General Purpose

The purpose of this exam was to read a list of words and determine how many vowels each word had. The vowels being counted for this assignment were A, E, I, O, and U. After reading through each word and counting their vowels, I added that word to its proper array that holds other words with a similar vowel count.

This program also displayed buttons to the user which corresponded to the number of vowels in a given word. Once the user selected a button, a scrollable list appeared that contained all the words that contained that many vowels. For example if the user clicked the button labeled 3, all the words that contained 3 vowels would appear in a scrollable list. This list was sorted, using ksort(), to display the list from shortest word to longest word. Under the scrollable list, it would also display the word count for how many words contained that vowel count.

Finally, this program offered the user the ability to drag-and-drop any word they wanted into a drop area. This area would store the word that the user dropped and keep a running total of how many words the user dropped in this area.

Working Functionalities:

- Connect this program into your nav bar. Call it Exam #2
- Program fetches the word.txt file and reads / stores words in an array
- Goes through each of the words and counts the vowels
- Adds the word to the correct vowel count array
- Sorts the words from shortest to longest word
- Display Buttons to the user that corresponds to a vowel count
- Once a user presses a button, a scrollable list containing the words appear
- User is able to drag-and-drop words into a drop area
- Program displays running count of the words the user puts in the drop area

Program Files

This exam contains 5 files which are index.html, exam02.php, exam02.js, and exam02.css. The index.html file welcomes the user, displays the common navbar, gives exam description, and gives a place on the page to display the results for the different functionalities. The exam02.php file is responsible for reading the list of words in the words.txt file and storing them in an array. It's also responsible for counting the vowels in each word and storing them in an array based on vowel count. Finally, it sorts the arrays and returns the output as a JSON. The exam02.js fetches the vowel data from exam02.php and adds functionality to the front end of the program. Some of the functionalities are word counts and drag-and-drop. The exam02.css is for basic styling of the program.

For more of an in depth description of code functionality, I've provided a link to my repo for this assignment so you can check the .pdf for each file.

Link to GitHub Repo:
https://github.com/CPSC-3750-Coursework/Kblinn/tree/main/ProgrammingExam02

2. Description of any problems:

Problems Faced

The main problem I faced was how to complete this exam only in the php file. I know there's a way I can condense most of the functionality of this assignment into just the php file however I'm just so used to splitting up the files that I decided on going that route.

Another problem I faced was the implementation of the drag-and-drop feature. I know you gave us a reference to an example of this functionality but I had some trouble implementing it in my own way. Most of the code from the example was reused and to fit into my program but I did quote it with the link you gave us.

3. Listing of PHP code:

personal-website > programming-exam > exam02 > exam02.php

```php
<?php
// Read the file and store the words in an array
$words = file('words.txt', FILE_IGNORE_NEW_LINES | FILE_SKIP_EMPTY_LINES);

// Initialize the array to store the words by the number of vowels
$vowelCounts = [];

// Define the vowels that will be used to check the words
$vowels = ['a', 'e', 'i', 'o', 'u'];

// Go over each word and count the vowels
foreach ($words as $word) {

    // Initialize the count of vowels for the current word
    $count = 0;

    // Convert the word to lowercase
    $currentWord = strtolower($word);

    // Go over each character in the word and check if it is a vowel
    foreach (str_split($currentWord) as $char) {

        // If the character is a vowel, increment the count
        if (in_array($char, $vowels)) {
            $count++;
        }
    }

    // Store the word in the array based on the number of vowels
    $vowelCounts[$count][] = $word;
}

// Sort the array by the number of vowels (Found on w3schools)
ksort($vowelCounts);

// Output the array as JSON
header('Content-Type: application/json');
echo json_encode($vowelCounts);
?>
```

4. Clickable link to your program hosted on your website with a random number:

https://kjblinn.com/PE02/index.html?random=45673