# PA #7: Word Counter

Data processing with files a common activity performed by a wide variety of disciplines. For example, a large portion of my dissertation work concerned itself with processing data generated as students completed their homework assignments. While file processing of that magnitude is beyond the scope of CS 111, this assignment hopes to reinforce practices common in "real" data processing. Namely, you will be exposed to the practices of looping through data, processing that data, and developing statistics based on data.

For this assignment, you will write a JavaScript program that processes text and generates basic statistics about the text (e.g. number of paragraphs, lines, and words). In addition, you will manipulate the text by adding line numbers to the beginning of teach line.

In completing this assignment, you will be reinforcing the following concepts:

* Basic logic (e.g. IF statements)
* Looping
* Using functions to decompose a problem into multiple smaller steps

## Program Requirements

In order to receive full credit on the assignment, you will need to implement the following functions:

### processText()

This function is already mostly completed for you. Notice how it's acting very similar to a C++ main in that it's calling all other functions. Beginning on line 65, you will need to modify the FOR loop to include line numbers.

### calculateParagraphs(text)

Determines the number of paragraphs in the supplied text. Note that a paragraph is counted as two returns (newlines, i.e. "\n") in a row. A single newline followed by additional text is not counted as a new paragraph. See my sample outputs for further clarification.

### calculateWordCount(text)

This returns the total number of words present in the given list. For simplicities sake, words are defined by spaces. For example, "quick thinking" is two words whereas "quick-thinking" is one.

### calculateCharsWithSpacesCount(text)

This returns the total number of characters (including spaces) present in the given list.

### calculateCharsNoSpacesCount(text);

This returns the total number of characters (not including spaces) present in the given list. Be sure to not count spaces ' '.

### calculateNumberOfLinesCount(text)

Calculates the number of lines in the supplied text.

### calculateOverflowingLinesCount(text)

An "overflowing line" refers to a line that is more than 80 characters (including spaces) in length. This is a reference to older printers and monitors that could only put 80 characters of text on a single line. Because there can be multiple overflowing lines, you will need to track the overflowing lines with an array. The overflows variable already defined within the function is an array that you will need to add content to (remember we use push() to add items to an array in JavaScript).

## Test Cases

You have been provided with a few test cases to check your input against. Please try to make your statistical output be as close as mine. Note I am allowing a tolerance of 10% from my results per statistic so your results don't have to be 100% spot-on.

## Deliverables

You must upload a file containing your solution to Canvas no later than midnight on Wednesday, December 12, 2018.

## Grading Criteria

Your assignment will be judged by the following criteria:

* [10 pts] Line numbers are correctly added to the output area.
* [20 pts] The program correctly calculates and displays the number of paragraphs A 10% variance is allowed.
* [10 pts] The program correctly calculates and displays the number of lines. A 10% variance is allowed.
* [20 pts] The program correctly calculates and displays the number of words in the document. A 10% variance is allowed.
* [10 pts] The program correctly calculates and displays the number of characters (**with spaces**) in the document. A 10% variance is allowed.
* [10 pts] The program correctly calculates and displays the number of characters (**without spaces**) in the document. A 10% variance is allowed.
* [20 pts] The program correctly identifies all overflowing lines (those that are greater than 80 characters in length)