Design of Lab6– Jacob Bollinger

Problem:

Compute a readability index for a novel.

Plan:

I will start by defining constants. There will be a list named VOWELS which will contain the letters A, E, I O, U, Y, a, e, i, o, u, and y. There will be a second list named SENTENCE\_TERMINATORS which will contain the symbols ., :, ;, ?, and !.

Next I will define a function named countWords(). This function will take the input parameter of a list named words. It will set a variable named count to the amount of words in words. Finish the function with return count.

I next will create a function named countSyllables() with the parameter word. Start it by initializing count and index by setting them to zero. Next I will create a while loop that will run while index is less than the length of the word. In the while loop I create an if statement that will run if the letter it is on is in VOWELS and the letter before it is not in VOWELS. Inside of the if statement set index equal to itself plus one and count equal to itself plus one. Outside of the if statement write an else statement to set the index to itself plus one. Outside of the while loop create an if statement that will run if it is on the last letter, the last letter is a vowel, and the letter right before it is not a VOWEL. Inside the if statement set count equal to itself minus one. Outside of the if statement create another if statement that will run if the count is zero. It will assign the count to one. Finally return count.

Next I will define a function called countSentences(). It will take the input word. It starts by setting count to zero. Next there will be an if statement that tests if the last character of the word is in SENTENCE\_TERMINATORS. If so it will set count equal to count plus one. It finishes by returning count.

I will then define a function named processFile(). It will take the parameter file. It will start by setting total\_words, total\_syllables, and total\_sentences all equal to zero. It then will set a variable text equal to open(file). Next will be a for loop that will run for line in text. Inside of the for loop line is set to line.strip() and words is set to line.split(). Then total\_words is set to total\_words plus countWords(words). Next I will set the variable index to zero. Then I will create a while loop that will run while the variagle index is less than the amount of words in the variable words. Inside the while loop total\_syllables will be set to total\_syllables plus countSyllables(words[index]). Then total\_sentences will be set to total\_sentences plus countSentences(words[index]). I will finish the while loop off with setting index equal to itself plus one. Outside the will loop I will call the function readability() with the variables total\_words, total\_syllables, and total\_sentences. It will finish off by returning total\_words, total\_syllables, and total\_sentences.

The final function will be named readability() and will take the parameters words, syllables, and sentences. It starts with setting a variable named ease equal to 206.835 minus 84.6 times syllables divided by words minus 1.015 times words divided by sentences rounded the tenths place. It will finish by returning ease.

I will finish off the program by calling processFile() with the path of the file I choose. It will then use the outputs of the function to print the readability score and what it means along with the total words, total syllables, and the total sentences.