Flesch Reading Ease Formula Project

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Project Overview

In this project, you will implement the Flesch Reading Ease formula, a well-known method used to assess the readability of a text. This formula will help you understand how various elements of writing (such as sentence length and word complexity) impact how easy or difficult a text is to read.

By the end of this project, you will have a Python program that can take a piece of text as input and compute its readability score using the Flesch Reading Ease formula. You will also learn how to categorize the text based on its readability score.

Step 1: Breaking Down the Formula

The Flesch Reading Ease formula is given by:

$$\text{Reading Ease Score} = 206.835 - 1.015 \times \left(\frac{\text{Total Words}}{\text{Total Sentences}}\right) - 84.6 \times \left(\frac{\text{Total Syllables}}{\text{Total Words}}\right)$$

- **Total Words**: The number of words in the text.
- **Total Sentences**: The number of sentences in the text.
- **Total Syllables**: The number of syllables in the text.

Your task will be to break down this formula into smaller, manageable components and implement them as functions in Python.

Step 2: Counting Words and Sentences

First, create functions to count the number of words and sentences in the text.

Hints:

- You can use the `split()` method to break the text into words.
- Sentences can be identified by looking for sentence-ending punctuation marks such as '.', '?', '!', etc.

Step 3: Counting Syllables

Next, write a function to count the number of syllables in each word. This step is crucial because the number of syllables directly impacts the readability score.

Hints:

- A vowel (a, e, i, o, u) typically represents a syllable.
- Be mindful of silent vowels and consider special cases, like words ending in 'e'.
- Don't forget to handle words with a 'y' that functions as a vowel.

Step 4: Computing the Readability Score

Once you have the total number of words, sentences, and syllables, use the Flesch Reading Ease formula to calculate the readability score.

Step 5: Categorizing the Reading Level

Based on the computed score, categorize the text into a reading level. Use the following guide:

- 90-100: 5th Grade: Very easy to read. Easily understood by an average 11-year-old student.
- 80-89: 6th Grade: Easy to read. Conversational English for consumers.
- 70-79: 7th Grade: Fairly easy to read.
- 60-69: 8-9th Grade: Plain English. Easily understood by 13- to 15-year-olds.
- 50-59: 10-12th Grade: Fairly difficult to read.
- 30-49: College Student: Difficult to read.
- 0-29: College Graduate: Very difficult to read. Best understood by university graduates.

Step 6: Putting It All Together

Finally, combine all the components into a single program. Your program should:

- Accept a block of text as input.
- Count the number of words, sentences, and syllables in the text.
- Compute the readability score using the Flesch Reading Ease formula.
- Output the score and the corresponding reading level.

Guidelines for Implementation

- Break down the problem into small, manageable functions.
- Test each function individually to ensure it works as expected.
- Use loops and conditionals to iterate through text and check conditions.
- Use variables to store intermediate results like the number of words, sentences, and syllables.
- Keep your code clean and well-commented to help you understand the logic.

Optional Challenge

As a challenge, try to extend your program to handle a variety of text inputs, including texts with abbreviations, acronyms, and special characters.