Eryk Hanson
CS256
Lab Assignment # 6
Due 11/12/2023

Phantom Tollbooth Lab #6 Design Document

Introduction
To count the words in the story Phantom Tollbooth, we will write a program to deconstruct the text in the story to count word occurrences throughout. We will simply name the program "word_count_tollbooth". We will use the text file for phantom tollbooth as input to the program and the program will have functions to handle the text as strings and deconstruct certain parts of the text before counting the words. The final output should show the top 50 occurring words in the story and the number of times the word showed up in the story.

Functional Requirements
- Convert text to lowercase letters
- Remove special characters (! $. , ; numbers, etc..)
- Remove unwanted words (such as prepositions, articles, pronouns)
- Count words by adding to dictionary new words and update as they come up
- Reorganize from highest count to lowest count
- Print only top 50 words of highest occurrence

Design Requirements
Ideally, separate functions will be coded to accomplish each task before main function.
Things the program will use:
- Loops
- Dictionaries
- Lists
- Functions

Testing Predictions Results

I will use slice notation to only test a small part of the larger text, that way the code doesn't run through the entire book for each test cycle.
Print functions will be used to test to see if the text converted as expected. Ensuring that the expected output is working the way as intended before moving on to next step.

Results: There was a lot of errors that came up that were unexpected. Things that have to do with syntax and object types that required troubleshooting. Some functions were not working as expected/intended. As a result, I had to hard code some things in the main function instead of a separate function.

Reflection and Questions

Reflect about your experience designing this program. Be sure to answer all the following questions:

1. *How did you first try to decompose the program (by input->processing->output? By sequence? Randomly?)*
    a. **Randomly, honestly. It's the wild west out here**.
2. *What was the first thing you figured out?*
    a. **The loop to take out special characters from the text. It was tricky trying to get " and ' in the string of characters to delete from the text.**
3. *What questions did you uncover during your design process?*
    a. **How to get certain loops within functions to work properly in the main function. Some things just got crossed weird.**
4. *Were you able to answer all your questions? Do you have any questions you don't have the answers to yet? If so, what are they?*
    a. **The deeper I go into "nesting" stuff the easier it is to get lost. Some of the conditional loops and iterations are still kind of a mystery to me, but maybe breaking these things down into smaller pieces and practicing more with that will illuminate my confusion.**
5. *Did you make a 2nd attempt to decompose the problem? What changes did you make to your strategy from the 1st strategy?*
    a. **Been running around in circles doing this and that and testing out different loops/functions. It's very difficult to keep track of stuff. I'm not sure where to begin, but being organized is a skill I need to work on. Just been trying stuff and seeing if it works, really.**
6. *How complete of a design do you think you achieved (25%? 50%? 100%).*
    a. **Maybe 80? It does what I wanted, essentially. But I wish I would have had more time to format the results and be more thorough about deleting certain parts of the words or taking into account words like "can't" turning into "cant" after taking out special characters and other conjunctions like that. Maybe there's a better process?**
7. *What part do you think you understand the most? What part do you understand the least?*
    a. **I think I understand that incrementally programming this kind of thing is the most important part of writing a program like this. It seems I know what steps I should take, but the order of the steps is unclear of which is the most efficient. How to iterate over dictionaries, lists, and which loops to use and how is a little shaky for me still.**