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CS256
Lab Assignment 6
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Lab Assignment 6 Design Document

Introduction *(1-5 sentences, starting with lab 2)*
The Phantom Tollbooth Common Word Calculator analyzes the story The Phantom Tollbooth and the program removes all basic words such as pronouns, articles and conjunctions, along with punctuation. The program then converts the string containing the story into a list. Which then calculates the number of times each word is inside that list and then outputs the 50 most used words to the terminal.

Functional Requirements *(starting with lab 3)*

- *This program requires the story The Phantom Tollbooth to be imported into it in order for the program to begin.*
- *This program does not require any library to be imported or for any inputs to be made.*
- *The program will run through loop statements to remove any unnecessary words*
- *The 50 most used words in the story are printed to the terminal*

Design Requirements *(starting with lab 4)*

1. *Data - List the information you will be getting, and information you program will need to keep track of. Assign potential data types or data structures to that information. For lists, describe what data type the list will be storing. For dictionaries, describe what the keys and values are.*

The program receives the import of string containing The Phantom Tollbooth text and stores it in a variable. The program then converts this string into a list, and it also has another list of words to be removed from that new list. The program will remove those words and create a new list without them and they will be counted and the 50 most common words are added to a dictionary. Finally the program will print that dictionary to the terminal

2. *Loops - what behavior you will be repeating. What type of loop can be used to repeat that behavior? How your loop will exit.*

This program uses for loop statements to remove words, calculate the number of times each word occurs and print values inside a list. Each loop ends when there are no more words in a list to run through the loop

3. *Conditions - In English, list and describe conditions your program will be checking. Describe the resulting behavior if those conditions are met.*

The first conditional statement in the program will check if the words that occur in the story also appear in the list of words that need to be removed. The last conditional statement in the program will add all the remaining words to a dictionary and then it will determine how many times a word occurs based on whether or not they have already been added to the dictionary.

Testing Predictions Results *(starting with Lab 6 and on)*
Detail your testing strategy to ensure your program runs correctly. Be sure to include the following:

1. *What variations of input did you decide to test?*

I ran a program with no imports, only coding, and I ran a program that used a library to do the same task, in order to see if the output was the same in order to check my work. I then compared the results to a common word counter's (tagcloud.com) results

2. *What did you predict would happen with your tests?*

I expected that after working through some errors I would probably make, the two programs would end up having the same values being printed to the terminal.

3. *What were the actual results?*

There were some errors in the first python program that I had to fix and the second program did not take long to complete and they both created the same output which told me that my program was working correctly

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?)*

I started with the importing of the Phantom Tollbooth text, then I focused on how to transform it and how to count the occurrence of the words then I worked on the output.

2. *What was the first thing you figured out?*

I figured out that some changes to a string requires a new variable to be assigned to it in order for that change to occur.

3. *What questions did you uncover during your design process?*

I did not understand what a library in python was and that was something that I was allowed to use in the second version of the program.

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?*

Yes, I was able to look it up and see some examples of a library in python and how to use them. I have no other questions.

5. *Did you make a 2nd attempt to decompose the problem? What changes did you make to your strategy from the 1st strategy?*

Yes, when I was trying to remove certain words from a list nothing was working except for specifically stating that a certain word was to be removed from the list. After making numerous lines of code to remove a few words at a time, I figured that there must be a more efficient way. So after referencing Zybook I tried removing the words in a different way and it finally worked. Therefore my change in strategy was simply looking back at what I had learned.

6. *How complete of a design do you think you achieved (25%? 50%? 100%).*

Not sure what this question means but I think 95% because every word that should be outputted is, the only difference between my results and tagcloud.com's results are a slight difference in the number of times a word is used

7. *What part do you think you understand the most? What part do you understand the least?*

I think I understand loops and how to change and organize a list the most. The part I think I understand the least is the you are supposed to correctly change something in a string