H12— Spell Checker

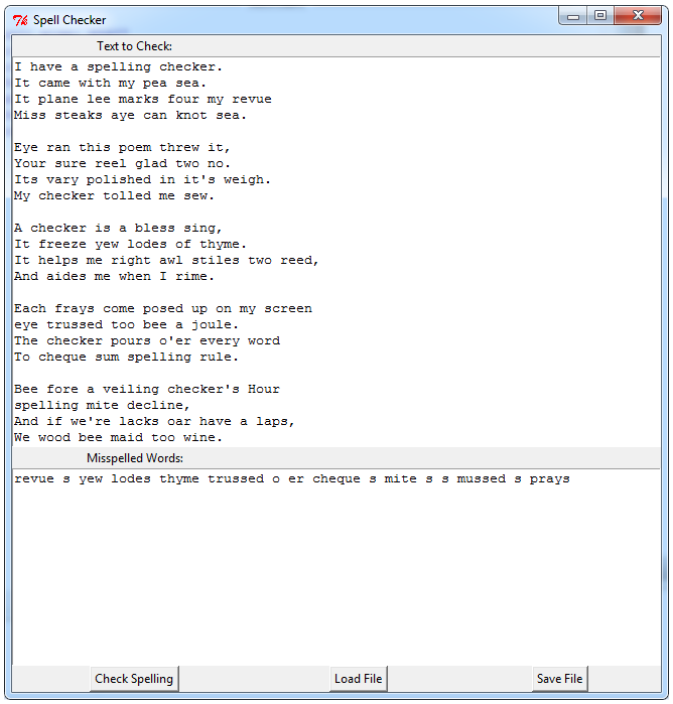
10 points

Assignment: Write a spelling checker as described below.

Due: Friday 12/6, 5PM

Turn In: Submit a copy of your sources to BBV. Do not submit the dictionary, unless you used a different one.

Your spelling checker GUI should look similar to the one shown on the right.



The upper Text area is for the document to be checked. The user can either type something in, or press the "Load File" button to read an existing file. That button should use a tkFileDialog to choose the file.

The lower Text area is for showing the misspelled words in response to the "Check Spelling" button.

The user may edit the upper Text area, and use the "Save File" button to save it to a file. Use the tkFileDialog to choose the file for this too.

On BBV is a file called "dictionary.txt". This dictionary has thousands of words (all lower case), one per line. If a word from the upper text area is in the dictionary, then it is spelled correctly. Otherwise it is considered misspelled.

Your main SpellingCheckerGUI.py file need not be a class, but do provide a "SpellingChecker" class in a separate file. The SpellingChecker class should:

- Have an __init__ function that opens the dictionary and reads the words into a list, one word per list item. (The user shouldn't have to pick the dictionary, hard code it to "dictionary.txt". The re.findall() function will help split the file content into the list. The dictionary.txt file contains words in no particular order, so sort it. You can use list.sort() for this, since our bubblesort and selectionsort techniques can't handle a list of words that is this big.
- Have a "isWordInDictionary(self, word)" function that searches to see if the word is in the dictionary, and return True or False. We will consider any word that's not in the dictionary to be misspelled. Searching the dictionary **MUST USE A RECURSIVE BINARY SEARCH**.

In your main spelling checker gui file, respond to the "Check Spelling" button by breaking the content of the upper Text area into a list of individual words, loop through the list, and place any words that aren't in the dictionary into the lower Text are.

Also, think about words with upper case letters—what should happen?