CIS*1500: ASSIGNMENT 4

Weighing: 20%
Due: Friday, November 21, 2014, 11:55 PM

Pangrams

The sentence “A quick brown fox jumps over the lazy dog” contains every single letter in the alphabet, ignoring differences between upper and lower case. Such sentences are called pangrams. Pangrams have been used to display typefaces, test equipment, and develop skills in handwriting, calligraphy, and keyboarding.

Other examples of pangrams include:

```
Fix problem quickly with galvanized jets.
When zombies arrive, quickly fax judge Pat.
The wizard quickly jinxed the gnomes before they vaporized.
```

This assignment is divided into a core task, and an extra task worth 80% and 20% of the grade respectively.

Task

Write a program, which takes a sentence, and (i) determines if it is a pangram, and if it is not (ii) returns all the letters that are missing from the sentence (which prevent it from being a pangram). The program should ignore the case of the letters in sentence, and the characters returned should be all lower case letters, in alphabetical order. The program should also ignore all non-alphabetic ASCII characters.

Your program should have at minimum two functions (apart from main): **check4pangram**, and **missingLetters**. The main part of the program should obtain the user input and call the function **check4pangram**, which performs the verification of the sentence. The function **missingLetters** is used to print the letters missing from the sentence if it is not a pangram.

Note: Your program should make use of strings, and functions.

Test Program Execution

The following is a sample of how the game could be played (user inputs are **bolded**):

```
Enter a sentence: The quick brown fox jumped over the lazy dog.
The sentence is: The quick brown fox jumped over the lazy dog.
The sentence:
 The quick brown fox jumped over the lazy dog.
 is not a panagram
The following 1 letter(s) are missing: s
```

Program expectations

- All files are inside your A4 folder.
- The assignment is called **a4.c**
- The .c file has the required header (see the policies document).
- Source code has the proper style (e.g. indentation).
- A plain text file called README is in the root folder. It contains information about running and using your program as well as any known limitations of the program. (See policies document)
- You may not use any global variables, or goto statements in this program!
- Your program should make use of strings and functions.

Extras

By completely the above task correctly, you have the potential to earn up to 80% of the grade for this assignment. By going beyond the material given and completely the extra section, you have the potential of earning another 20%.

- Extend the program by incorporating a function, **isTautogram**, called from the main program, which determines if a sentence is also a *tautogram* - a text in which all words start with the same letter.

  The function can be tested using:
  Brilliant, because bacon bites beat bruschetta.
  Truly tautograms triumph, trumpeting trills to trounce terrible travesties.

Deliverables:

Things you must hand in (via git):

1. Your A4 file with all required **.c** files and a README file
   1.1. Remember to **git add** every file
   1.2. Use **git commit** and **git push** frequently as you work on the assignment (see the GIT FAQ for help)
   1.3. Submitting your work is as simple as doing one last **git commit** and **git push**. We use the most recent version of your repository as your submission.
2. No submission is required on Bucky.

Musts: How to get more than ZERO

- Submit your assignment before the due date!
- Your code must compile on a Raspberry Pi that is running the CIS*1500 customized operating system.
- Your code must compile, with no errors or warnings, with gcc using the flags **-system=c99 -Wall -pedantic**.
- Your program must run without crashing or causing a "segmentation fault".
- Your program must play the game, and show the outcome.

Marks breakdown

Refer to the rubric for this assignment.