# PA #6

**Assigned Date:  Monday, March 11, 2013**
**Due Date:  12:30EST, Monday, March 18, 2013**

## Problem Statement

Let us create an application to count the occurrence of unique words in a file.  Your system must allow the user to enter the name of the input file and display all the unique words in the file along with their respective count.  When you are processing each word, make sure you have the following constraints incorporated into your system:

1.  All words must be in lower case
2.  All punctuations must be stripped from the word
3.  All words must be displayed in alphabetical order

The following shows some examples of transformation of word that your system must be able to handle

| Original Word | Transformed Word |
|---|---|
| "Hello" | hello |
| Sam's | sam |
| No! | no |

Your task is to coming out the best way to store all the unique words in the system and their respective count in the fastest possible way.  We are going to have a competition out of this assignment.  You can use any data structures we have been discussing in class (including combining some data structures together, if needed) for this project.  And, your system should display the amount of time needed to count all the unique words[1].  The top three applications (the applications that can provide a correct response in the shortest amount of time) will receive special bonus.  The first price is 50 points, second price is 30 points and the third price is 15 points.  In additional, if your system performs better than mine, you will receive a 10 points bonus.

## Report

You must submit a report for this project and within this report you must discuss in full detail on the data structure you have created for your system.  Also, you need to explain the reason why you use the selected data structure.  Your report also should discuss the advantages and disadvantages of using the structure you have created.

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[1] Please use the timer system given to you so that all of you are being evaluated using the same timer system.

**Additional Requirements**

1. Your program style must comply with the Programming Coding Standard.
2. Your program must be compliable and executable according to the specification.
3. You must include header information in your source code.
4. You must implement all the data structure(s) used in your system and you are not allowed to use any STL.
5. You must submit your program and report Angel.
6. You must hand-in a copy your program and report.

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