CSE 232 Spring 2014

Programming Project #5

Assignment Overview
In this assignment you will practice using vectors and functions together with file input and output to solve a problem.

This assignment is worth 40 points (4.0% of the course grade) and must be completed and turned in before 11:59PM on Monday, February 24th .

Background
You've probably all played the Mad Libs (http://en.wikipedia.org/wiki/Mad_Libs) game, but here is a refresher. You create a story where some story words, typically called templates, are to be replaced to create a story. These templates, typically a noun template or a verb template, are replaced from a list of random words of the appropriate type, creating a new story. This often creates humorous and unexpected results. In this project you will be writing a program that takes in a template story and replace the noun or verb templates from a list of the appropriate type.

Details
Different from previous projects, ***we*** provide you with the `main.cpp` file and you are required to write a `madlib.h` and `madlib.cpp` which declares/defines the following functions:

- `vector<string> load_word_file(string filename)` reads white space delimited words from the specified file and returns a vector of words.
- `string random_word(vector<string>&, default_random_engine&)` returns a random word from the passed in vector.
- `void split(string, vector<string>&)` Takes in a string, fills the vector with its white space delimited pieces.
- `void process_document(string noun_file, string verb_file, string in_file, string out_file, int seed)` Processes `in_file`, replacing a noun template `<noun>` with a random word from the `noun_file` and a verb template `<verb>` with a random word from the `verb_file`. Writes the result to `out_file`. The seed argument should have a default value of 98765

The input file will be a story text file (multiple lines, space delimited words) where some of the words are templates (`<noun>` or `<verb>`). The noun file will be a list of nouns, one word per line and the verb file will be a list of verbs, also one word per line.

Using your functions, the main program will then create a madlib story. Your output needs to preserve the same line structure as the input. Note that it is okay to merge multiple successive spaces (IE "this string" can be output as "this string").

Requirements
As mentioned, we have provided a `main.cpp` which will test each of your functions. Your code must compile and produce correct output using our main **without modification.** We have provided `nouns.txt` and `verbs.txt` (http://en.wikipedia.org/wiki/Most_common_words_in_English) as well as a sample input file `story.txt` and a sample output file `final.txt`. The main file tests each of the functions individually so you can use the `simple_test.txt` to see the results of those tests.

Deliverables

`madlib.h` and `madlib.cpp` -- your source code solution (remember to include your section, the date, project number and comments). Remember, you ***do not provide*** `main.cpp`

1. Please be sure to use the specified file names
2. Save a copy of your file in your CSE account disk space (H drive on CSE computers).
3. You will electronically submit a copy of the file using the "handin" program: http://www.cse.msu.edu/handin/webclient

Assignment Notes

- You will work on a split function in lab this week. Use your lab work in this program.