CS14 – Homework 3

Description:

In this assignment, you will implement a simple translator program. The program will be able to translate single words from English into French, German, Italian, Latin, Spanish, and Portuguese. You will do this by creating a map using an AVL tree. The map will have english words as the key, and the foreign words as the value. To translate, you just look up the key.

Specifications:

You must fully implement every method in the Map class provided on ilearn, and use this class in your translating program. Make sure your Map class does not have memory leaks! You should thoroughly test your Map class before starting on the translator program.

Your final program will take a single command line argument, which is a dictionary file. You can find dictionary files at the Internet Dictionary Project website, http://www.june29.com/idp/IDPfiles.html. Load this file into you Map data structure. Then, for every word the user inputs, translate the word and print it to the screen. Every translation should be printed on a single line by itself.

These dictionary files are not very large, so it's okay if a word you try to translate cannot be found in the dictionary. If this is the case, output "error: not in dictionary" as your translation and continue on to the next word.

Many words have multiple translations. If this is the case, you only have to print out a single valid translation. You can get up to 2 points of extra credit on this assignment by printing out all valid translations.

Example Outputs:

```
> ./translate
usage: ./translate languagefile
> ./translate Spanish.txt
pen
la pluma
^D
```

For many command-line programs, we do not want to type input directly into the program. We can use the | operator (called the pipe), which is similar to input redirection. It takes stdout from the program on the left, and connects it to stdin of the program on the right. For example:

```
> echo "mother"
mother
> echo "mother" | ./translate Italian.txt
madre[Noun]
> echo "computer science" | ./translate Spanish.txt
computadora
la ciencia
```

Submission instructions: You should submit a single tarball containing a Makefile, Map.h, Map.cpp, and main.cpp. Map.h is provided; you must write the other three files. Your submission should contain nothing else.

File headers: Every file you submit must begin with the following information.

```
// Course: CS 14 Spring 2013
//
// First name: <<INSERT>>
// Last name: <<INSERT>>
// Course username: <<INSERT>>
// Email address: <<INSERT>>
//
// Lecture section: <<INSERT>>
// Lab section: <<INSERT>>
// TA: <<INSERT>>
//
// Assignment: <<INSERT>>
//
// I hereby certify that the code in this file
// is ENTIRELY my own original work.
//===============================================================
```