Department of Computer Science

COMP232/COMP242/2321 (First semester - Fall2017/2018)

Project#3 Due Date: To be announced later (along with Project#4)

You have to maintain information of a dictionary. Your program should read the words and its relevant information from a file named *inputWords.txt*. As well as, the user should be able also to enter words into the dictionary with their relevant information. Please use the following format for inputs

Word: meaning1, meaning2, ... , meaningN / a synonym * an antonym. N≥1.

Example
recent: new, modern / up-to-date * old

To keep track of the dictionary, a computer program based on an AVL tree data structure should be implemented.

1.   Write a program to help creating the dictionary by implementing the following operations of an **AVL tree**:

   - Read *inputWords* file and create the dictionary.
   - Insert a new word from user with all its associated data.
   - Find a word and support updating of the word info if found.
   - List words in the dictionary in lexicographic order with their associated meanings, synonyms, and antonyms.
   - List all synonym and antonyms of a given word.
   - List all words in lexicographic order that belong to the same first character.
   - Delete a word from the dictionary.
   - Delete all words that start with a specific letter.
   - Save all words in file *dictionary.data*.

2.   Then create a **Hash Table** using the dictionary data of the previous step (use words as keys) and implement the following functions on the hash table:

   - Print hashed table (including empty spots).

- Print out table size.

- Print out used hash function.

- Insert a new record to hash table.

- Search for a specific word.

- Delete a specific record.

- Save hash table back to file.

Good luck!