Top-20 Training Program
(Data Structures)
Assignment-3

1) Spell Checker: Given an input file and dictionary of words, write an efficient program to display the words that are spelled incorrectly.

2) Bidirectional SymbolTable：
Create a data structure that supports following operations in fastest time:

        put(key, value)
        getByKey(key)
        getByValue(value)

This kind of datastructure is very useful in DNS lookup and DNS reverse lookup i.e., domain name to IP resolution and viceversa.

3) Inverted index of web:
Given a list of web pages, create an inverted index for the words of those web pages i.e., associate with each word a list of web pages in which that word appears. Write a program that reads in a list of web pages, creates an inverted index, and support multi-word queries. That means, it must output the list of web pages that contain at least one occurrence of each of the query words.

4) LFU cache design: Create a cache with fixed size that supports the following operations:

boolean put(key, value) - add the item onto cache if it's not already present. If cache is full then remove the least frequently used element and then add this element.

value get(key) – return the value associated with key if present otherwise return null

void clear() – Clear the contents of cache

void display() – Display the contents of cache

Hint: In class we designed LRU cache with DLL and HashMap combination. Think of what way do u organize DLL elements for frequency based access and ofcourse, HashMap will be used for indexing.