Question 7:

Implement a class which will hold the words in a spelling dictionary.

For the first part of the assignment, you should write a class that implements an Open Hash Table of strings. That is, the table is stored as an array of simple binary search trees of strings (or, more precisely, an array of pointers to such trees).

The class must include (In first three functions you will use your hash function and binary search trees functions to accomplish hash table functions)

* A function *add(s)* that adds the string s to the table, if it is not already there.
* A function*remove(s)* that removes the string s from the table, if it's there.
* A function *contains(s)* that returns a Boolean value that checks whether the string s is in the table.
* A function*size()* that returns the number of strings in the table.
* A hash function to compute the hash code of a string. Design your own hash function to minimize collisions as much as possible.
* A constructor that accepts the size of the table as a parameter.

The second part of the assignment is to write a main program that uses your hash table class. The main program will check individual words. You will be prompted to enter words. When you type a word, there are two possible responses: An output of "ok" means that the word is in the dictionary. An output of "not found" means that the word is not in the dictionary.

The file EnglishWords.csv has more than 30,000 words, read all words from the file and build your hash table of trees. Then it should prompt the user to enter words. For each word, it should check whether the word is in the dictionary. If so, it should say "ok". If not, it should say "not found".

One issue that you will have to settle is what to do with upper-case letters. Note that both the words in the dictionary and the user's input can contain upper case letters. I suggest that you simply convert all letters to lower case.

Your hash table design will be like the following diagram, array of pointers to binary search trees, and each node in any tree will be a word

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