Assignment Set 9 (Uploaded on October 22, 2014)
Clarification deadline date: October 28, 2014
Submission deadline date: October 30, 2014

Problem 1 [Trie and spell checker]:
Write C code for the following problem:

(a) Generate a trie structure T with all the words of the
file:
/usr/share/dict/words.

First, one should carefully look at the content of the file
as
there are some special characters other than the English
alphabets.
Your implementation of T should be able to handle those
characters.
Measure the time needed to create T.

(b) Now, take a word (the word is denoted as 'w') from the
user as input
and check whether 'w' is present in the Trie. The searching
should be
case-insensitive; i.e., if there is a word 'action' present
in the file
and the user types in 'Action', the search should be
successful. If 'w'
is found in T, report that the word is a dictionary word.
Otherwise,
generate spell-correcting suggestions from the dictionary.
There are four
groups of words that are suggested from the dictionary.

Group 1: words obtained from T by delete any one letter
from 'w';
Group 2: words obtained from T by adding one letter at any
          position of 'w';
Group 3: words obtained from T by changing any single
letter of 'w';
Group 4: words obtained from T by swapping any two letters
of 'w'.

Report all the suggested words that are present in the
dictionary.
Measure the searching time.

[Marks: 60 (a) + 80{(b); 20x4 (20 marks each for 4 groups)}
+ 20 {Good programming habits} = 150]

Naming conventions for program files. xx is your roll
number:

For Problem 1:
The name of the src file for problem 1 of assignment 8
should be
``cs14xx-assign9-src-prog1.c''.

The name of the app file for problem 1 of assignment 8
should be
``cs14xx-assign9-prog1.c''.

The name of the include file for problem 1 of assignment 8
should be
``cs14xx-assign9-prog1.h''.

At the top of each of your program files, add the
following. If you are
writing multi-file programs, then each file should have it.

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Name:
Roll Number:
Date of Submission:
Deadline date:
Program description:
Acknowledgements:

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