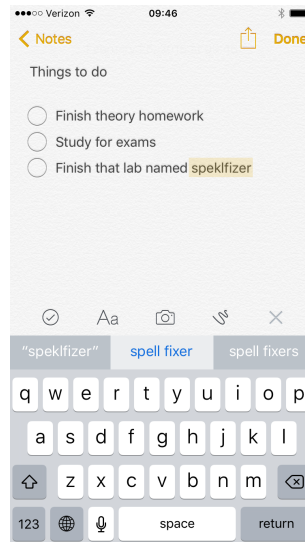


Computational Problem Solving Spelling Correction

CSCI-603 Lab 4

6/28/2021



1 Introduction

You will be using string manipulation and built-in data structures to develop a simple spelling error correction system.

2 Problem Solving Session

You will work in a group of three or four students as determined by the instructor. Each team will work together to complete the following activities.

1. Make a list of five *general* types of errors you believe users commonly make when entering text on a keyboard in a language that uses an alphabet without accented letters or other special marks.
2. For this lab assignment, you will correct errors that occur because a user's finger accidentally hit a key adjacent to the intended one *instead of* the intended one. For example, "laboratory" might be entered as "labo5atory" because the 5 key is adjacent to the r key on an English QWERTY keyboard.

List any fixed data resources or references your program would need to accomplish correction of the kind of error described above, once a language and keyboard layout are chosen. That is, what kind of standard data would you need to reuse every time your program runs? Provide an example of the information contained on each data resource.

3. Describe, using pseudocode , an algorithm that takes a single word (no white space or punctuation in it) as a parameter and returns a potentially different word that exists in the language and differs in at most one letter according to the error described above.
4. What is the big-O time complexity of your algorithm given a word of length n ?
5. Assume that your program reads one line of text at a time. Make a list of useful string operations that would split a line of text into its component words, free of white space or punctuation.

At the end of problem-solving, verify your work with either the instructor or SLI.