CS106 W20 - Lab 09

Text Processing

Due: Wednesday, March 11 11:59 PM

Starter code: L09StarterCode.zip

Question One: Word Play

In this exercise, you will practice processing text by solving word puzzles. These puzzles involve iterating over an array containing all the words in some long list, finding the ones that pass some sort of criterion or test. You will be given Starter Code that has a user interface for displaying the solutions to these puzzles; your job is to write the tests themselves.

Download the Starter Code. Open the `WordPlay` sketch. You will see that the sketch is divided into two tabs. The `WordPlay` tab sets up the sketch, loads in the word list, and builds the user interface. You do not need to change anything in that tab. Everything else you do will happen in the `Puzzles` tab.

There are six puzzles. They are solved by calling the functions `getWords_0()` ... `getWords_5()`. Each function must return an array of `strings` containing all the words that solve the puzzle. You do not need to call these six functions yourself—they are called for you by the code in the WordPlay tab. You will find that `getWords_0()` is solved for you as an example. You must add code to the other five functions to solve those puzzles (look for comments marked `TODO`).

You are to write the following five functions:

1. function `getWords_1()`, write code to find all words that start with "ha" and end with "ness". Example: "halfheartedness".

2. function `getWords_2()`, write code to find all the words that have two pairs of letters repeating, and these pairs must be side-by-side with no other letters in between. For example "hallooed" has "ll" followed immediately by "oo". You'll need an inner loop to compare letters.

3. function `getWords_3()`, write code to find all words in which the letters are in strict alphabetical order within the word, with no repeats. You'll need an inner loop comparing each letter to the next one in the word.

4. function `getWords_4()` write code to find all words in which no single letter occurs more than once anywhere in the word.

   There are a couple of different ways to solve this puzzle. The easiest is to first count the number of times each letter occurs in a word and determine if it occurs more than once.

5. function `getWords_5()`, write code to find all words in which the vowels "a", "e", "i", "o", "u" and "y" appear in the word in that order, with no other vowels. Example: "facetiously". The easiest way to solve this puzzle is with a regular expression. The good news is that the regular expression is provided for you! All you need to do is use it correctly. Use the built-

in `match()` function with the current word and the regular expression. If `match()` returns a non-null value, then the pattern was found and the word is one of the solutions to the puzzle.

Save your work in a sketch titled `WordPlay`.

Submission

Save your sketch WordPlay as one ZIP file called L09.zip and submit it to the dropbox on Learn. It is your responsibility to submit to the correct dropbox with the correct files before the deadline. Otherwise you will receive a mark of 0.