**Assignment 6** (pair assignment)

You are to design and implement a program that analyzes the frequencies of the words in a text file to the following extent:

* The design should support easy swap between a graphic-based interface and a console-based interface. An example of a graphical user interface (with scroll bars that did not show) is given below, while you design console-based interface with comparable features.
* The counting of word frequency shall not be case sensitive.
* Here is how the program shall work:
  + At the start of execution, all panels and textboxes are empty;
  + User types the name of a text file into the textbox, and then pushes the button “Get File & Analyze” on the top. If all goes well, the text shall appear in the right panel, and the analysis result of the word frequencies shall be shown in the left panel. The appropriate texts (for instructions) are also shown in the textboxes below the panels.
  + User can type a word into the left textbox below the panels and push “Enter” key (the textbox object would need to register an ActionListener object for handling the event), and then the frequency of the word in the given text would appear in the right textbox.
  + User can also push the button at the bottom to sort the words based on frequency, and the result would be displayed in the left panel, replacing the existing content.

***Get File & Analyze***

***Advice.txt***

Go placidly amid the noise and haste, and remember what peace there may be in silence. As far as possible without surrender, be on good terms with all persons. Speak your truth quietly and clearly; and listen to others, even the dull and the ignorant; they too have their story. Avoid loud and aggressive persons; they are vexations to the spirit. If you compare yourself with others, you may become vain and bitter; for always there will be greater and lesser persons than yourself. Enjoy your achievements as well as your plans. Keep interested in your own career, however humble; it is a real possession in the changing fortunes of time. Exercise caution in your business affairs; for the world is full of trickery. But let this not blind you to what virtue there is; many persons strive for high ideals; and everywhere life is full of heroism. Be yourself. Especially, do not feign affection. Neither be cynical about love; for in the face of all aridity and disenchantment it is as perennial as the grass. Take kindly the counsel of the years, gracefully surrendering the things of youth. Nurture strength of spirit to shield you in sudden misfortune. But do not distress yourself with dark imaginings. Many fears are born of fatigue and loneliness. Beyond a wholesome discipline, be gentle with yourself. You are a child of the universe, no less than the trees and the stars; you have a right to be here. And whether or not it is clear to you, no doubt the universe is unfolding as it should. Therefore be at peace with God, whatever you conceive Him to be, and whatever your labors and aspirations, in the noisy confusion of life keep peace with your soul. With all its sham, drudgery, and broken dreams, it is still a beautiful world. Be cheerful. Strive to be happy.

**Type a word here, hit “Enter”**

**Word frequency is displayed here**

Number of unique words: 171

a 5

about 1

achievements 1

affairs 1

affection 1

aggressive 1

all 3

always 1

amid 1

and 16

are 3

aridity 1

as 7

aspirations 1

at 1

avoid 1

be 11

beautiful 1

become 1

beyond 1

bitter 1

blind 1

born 1

broken 1

business 1

but 2

career 1

caution 1

changing 1

cheerful 1

child 1

clear 1

clearly 1

compare 1

conceive 1

confusion 1

counsel 1

cynical 1

dark 1

discipline 1

disenchantment 1

distress 1

do 2

doubt 1

dreams 1

drudgery 1

dull 1

enjoy 1

especially 1

even 1

everywhere 1

exercise 1

face 1

far 1

fatigue 1

fears 1

feign 1

for 4

fortunes 1

full 2

gentle 1

go 1

god 1

good 1

gracefully 1

grass 1

greater 1

happy 1

haste 1

have 2

here 1

heroism 1

high 1

him 1

however 1

humble 1

ideals 1

if 1

ignorant 1

imaginings 1

in 7

interested 1

is 8

it 5

its 1

keep 2

kindly 1

labors 1

less 1

lesser 1

let 1

life 2

listen 1

loneliness 1

loud 1

love 1

many 2

may 2

misfortune 1

neither 1

no 2

noise 1

noisy 1

not 4

nurture 1

of 10

on 1

or 1

others 2

own 1

peace 3

perennial 1

persons 4

placidly 1

plans 1

possession 1

possible 1

quietly 1

real 1

remember 1

right 1

sham 1

shield 1

should 1

silence 1

soul 1

speak 1

spirit 2

stars 1

still 1

story 1

strength 1

strive 2

sudden 1

surrender 1

surrendering 1

take 1

terms 1

than 2

the 16

their 1

there 3

therefore 1

they 2

things 1

this 1

time 1

to 8

too 1

trees 1

trickery 1

truth 1

unfolding 1

universe 2

vain 1

vexations 1

virtue 1

well 1

what 2

whatever 2

whether 1

wholesome 1

will 1

with 7

without 1

world 2

years 1

you 8

your 7

yourself 5

youth 1

171

***Sort words based on frequency***

* Draw a sequence diagram for the *actionPerformed* method invoked by the handler of button “Get File & Analyze”.

**Other considerations:**

* The text to be analyzed might be from a difference source such as a database or a web link. Thus, the design also needs to take this potential variation into consideration.
* For display of the text and word-frequency counts, you feel free to use “text area” component; but it would be nicer to use a split-pane component. You can find references and code examples at <http://docs.oracle.com/javase/tutorial/uiswing/components/splitpane.html>.
* You might need code such as the following to retrieve words only from a file by ignoring punctuation marks and white spaces:
  + - *try {*
      * *File f = new File("Advice.txt");*
      * *Scanner sc;*
      * *sc = new Scanner(f);*
      * *sc.useDelimiter("[^a-zA-Z']+");*
      * *while(sc.hasNext()) { ….. sc.next() ….. }*
    - *} catch(IOException e) {*
      * *System.out.println("Unable to read from file.");*
    - *}*
  + (To learn for about pattern patching and Java Regular Expressions used in the above code, you might visit this site <http://www.vogella.com/tutorials/JavaRegularExpressions/article.html> if interested.)