CS 135
Exercise #11
Point value: 50
Date due:
email source file (using mail utility) to your lab instructor by 11:59pm Sun Nov 12
New Skills Practiced (Learning Goals)

- Problem solving and debugging.
- Strings.
- Functions.

Design a C++ program using functions (as described below) that will read a text file (via Linux redirection) and

- display your name, lecture and lab section #s and exercise #
- count the number of words in the file (a word is a consecutive series of non-whitespace characters)
- display each word in the file backwards, 1 per line (for example, "the" would be displayed as "eht")
- count the number of lowercase vowels in the file (vowels are a, e, i, o, and u)

To receive full credit for this exercise,

- the program must make use of functions and pass parameters (**no global variables**)
- there must be a void function that when passed a string (a word from the file) will display the characters in the string backwards
- there must be a value-returning function that when passed a string (a word from the file) will return a count of how many lowercase vowels are in the string
- all header files for library functions used by the program must be included
- additional functions are optional
- the file can only be read **ONE** time

NOTES:

- Assumptions about input: (you do not have to test for these conditions)
    - the data file will exist and will not be empty
    - there will be at least one word in the file
    - a word is a consecutive series of non-whitespace characters
    - words will be separated by blanks and/or linefeeds
    - the characters in the file can be letters, digits, punctuation marks, and/or other printable charcters
    - the last line in the data file will be terminated with a linefeed ('\n')
- Program must be designed to run in batch mode (no prompts) via Linux redirection.
- Include all header files for library functions used by the program.
- Label output and display counts as integers.
- A comment with your name, lecture section#, lab section#, and exercise# should be at the start of your program file.
- It is a good idea to send a carbon copy to yourself (-c option) of all emails sent to your lab or course instructor when using the mail utility.

Sample terminal session:
```
[lee@bobby keys]$ more data4eleven
December 8,  2017  is
the   LAST  regular  class
day of the SeMeSter.
```

```
"Hooray!!!!"
Then FINALS...
[lee@bobby keys]$ g++ ex11.cpp
[lee@bobby keys]$ ./a.out < data4eleven
Lee Misch LecSec#10__ LabSec#10__ Exercise#11

BACKWARDS WORDS
rebmeceD
,8
7102
si
eht
TSAL
raluger
ssalc
yad
fo
eht
.retSeMeS
"!!!!yarooH"
nehT
...SLANIF

Words in file: 15
Lowercase vowels in file: 19
```

Return to exercises list