CMSC 113: Computer Science I
Homework: Files
due on Gradescope by the beginning of class on Monday, November 6, 2017

For this assignment, you will read in text from a file that the user chooses and perform a few simple analyses on this text, reporting the results back to the user. You must perform the following 5 analyses:

1. Report the number of lines in the input file.

2. Report the number of characters in the input file. Note that files use a newline character to separate lines; these newline characters must be counted in your result.

3. Report the number of times the sequence of letters `the` occurs in the file. In this analysis, you are simply looking for that sequence of characters all in a row, so it will count the standalone word `the` as well as the word `there`.

4. Report the number of time the *word* `the` occurs in the file. Here, a *word* is a sequence of characters delimited either by the end/beginning of the string, or a non-letter. The Java method `Character.isLetter` detects characters, and the Java method `charAt` can extract a letter from a string. For example, if `str` is a `String`, then `str.charAt(2)` is the third letter in the string. You can test whether this character is a letter by saying `Character.isLetter(str.charAt(2))`.

5. Report the number of lines in the file that contain only whitespace. Whitespace is detected by the Java method `Character.isWhitespace`, which works similarly to `Character.isLetter`.

Here is a sample run of the program on the text of Lewis Carroll's *Alice's Adventures in Wonderland*, as downloaded from http://www.gutenberg.org/ebooks/28885 and available on the course website.

```
What file should I read? alice.txt
1. Number of lines = 4046
2. Number of characters = 173365
3. Number of 'the' = 2334
4. Number of 'the' words = 1716
5. Number of blank lines = 1064
```