**CSE 274 – Spring, 2023**

**Homework #4 – Due Sunday, April 16, 2023 by 11:59 p.m.**

**No late assignments accepted for any reason**

**HashMaps**

**General requirements (not following any of these could result in a score of 0):**

* **Code is expected to compile and meet basic coding standards for readability**
* **You may use as many Java classes as you need- putting everything in main is NOT a good coding solution. Main method should be in a class by itself.**
* **Use the coding standards linked in your Canvas class under Useful Links. Failure to do so will result in deductions.**
* **Make sure you cite any code not written by you and add your name to the author list if you made changes. Put your name on any file you start from scratch. It is expected that no more than 25% of the code is cited or copied from examples given or websites**

# The Problem

We wish to create a program that uses a HashMap (yes, you can use java.util.HashMap or java.util.TreeMap) to keep track of how many time a word appears in a book. We also want to know what are the 10 most utilized words in the book.

The book is in text file notation (do not assume that I will test with the same text file I give you). Read the file using a regular expression as a delimiter that only reads alphabet characters. Here is some example code from SpellCheck.java to help you read in only the words. (Be careful when cutting and pasting from a Word document- not printing characters get embedded. You MUST use a Map properly in this problem, but you may use any other library classes or collection classes desired.

Hint: You can’t sort a HashMap so you may need to convert to another type of collection after finishing reading file for sorting.

Scanner in = **new** Scanner(**new** File(filename));

// Use any characters other than a-z or A-Z as delimiters

in.useDelimiter("[^a-zA-Z]+");

**while** (in.hasNext())

{

String theWord = in.next().toLowerCase();

// store the word in the Map appropriately

}

Example Input/Output:

Please enter a text file name: warAndPeace.txt

The ten most common words are:

The top ten words and their count are:

she, count= 1710

was, count= 1848

in, count= 1936

a, count= 2012

i, count= 2069

her, count= 2225

and, count= 3658

of, count= 3728

to, count= 4243

the, count= 4507

## Grading Criteria

|  |  |
| --- | --- |
| Criteria | Points |
| Uses HashMap Properly to store words and counts | 35 |
| Reads file (with proper exception handling) | 15 |
| Sorts words properly | 25 |
| Outputs are neat and easy to read | 10 |
| Code follows coding standards | 15 |