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1  /**
2   * EECS233 HW6 Programming Project 3
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4   */
5
6  import java.util.Scanner;
7  import java.io.PrintWriter;
8  import java.io.IOException;
9  import java.io.File;
10
11 public class WordCounter {
12
13     public WordCounter(){
14     }
15
16     public static void main(String args[]) throws IOException {
17         String input;
18         String output;
19         Scanner sc = new Scanner(System.in);
20         System.out.println("Path of the input file?");
21         input = sc.nextLine();
22         System.out.println("Path of the output file?");
23         output = sc.nextLine();
24         WordCounter.wordCount(input, output);
25         sc.close();
26     }
27
28     public static String wordCount(String input_file, String output_file) throws
IOException {
29         String status = "";
30         File input = new File(input_file);
31         File output = new File(output_file);
32         if(input.exists() && output.exists()) {
33             MyHashTable words = new MyHashTable();
34             Scanner sc = new Scanner(input);
35             int wordcount = 0; //count the total number of words in the inputfile
36             while(sc.hasNext()) {
37                 String word = sc.next();
38                 wordcount++;
39                 word = word.toLowerCase();
40                 //trim the leading punctuations
41                 word = word.replaceFirst("[^a-zA-Z]+", "");
42                 //trim the trailing punctuations
43                 word = word.replaceAll("[^a-zA-Z]+$", "");
44                 //omit all white spaces
45                 word = word.trim();
46                 //deconstruct the word if there is a punctuation within it
47                 String[] decon = word.split("\\p{Punct}");
48                 for(int i=0; i<decon.length; i++) {
49                     if(words.loadfactor() >= 1) //if loadfactor is larger than 1, rehash
50                         words.rehash(); //if the loadfactor of a chaining hashtable is larger
than 1, performance will decrease significantly
51                     words.put(decon[i]); //put the words in the hashtable
52                 }
53             }
54             sc.close();
55             PrintWriter writer = new PrintWriter(output);
56             for(int i=0; i<words.getData().length; i++) {
57                 if(words.getData()[i] != null) {
58                     MyHashTable.MyNode curNode = words.getData()[i];
59                     while(curNode != null) { //write out all the nodes linked together in
each slot of the array
60                         writer.write("(" + curNode.getData() + " " + curNode.getOccur() + " " + curNode.getNext());
61                         curNode = curNode.getNext();
62                     }
63                 }
64             }
65             writer.close();
66             status += "OK; Total words: " + wordcount + ", Hash table size: " + words.
getMaxSize();

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67     status += ", Average length of collision lists: " + words.loadfactor();
68     System.out.println(status);
69 }
70 else {
71     status = "File(s) Not Found!";
72     throw new IOException("File(s) Not Found!");
73 }
74 return status;
75 }
76 }
77 }
```