

```
1 import components.queue.Queue;
2 import components.queue.Queue2;
3 import components.simplereader.SimpleReader;
4 import components.simplereader.SimpleReader1L;
5 import components.simplewriter.SimpleWriter;
6 import components.simplewriter.SimpleWriter1L;
7
8 /**
9  * Reads an input file and outputs an html file glossary with
10  * specifications
11  *
12  * @author Isaac Frank
13  *
14  * @customer Cy Burnett
15  */
16 public final class Glossary {
17
18     /**
19      * Default constructor--private to prevent instantiation.
20      */
21     private Glossary() {
22     }
23
24     /**
25      * Reads a String and creates an html file for one term and its
26      * definition.
27      *
28      * @param input
29      *         the name of the file with the term and definition
30      *         to read
31      *
32      * @param outFolder
33      *         the folder to output files to
34      *
35      * @requires input is formatted with a one word term, followed
36      *         by a space
37      *         and the definition of the term
38      *
39      * @ensures the creation of an html file titled with the name
40      *         of the term,
41      *         the html file's contents are the term in red
42      *         boldfaced italics
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```
38      *          followed by its definition AND generateTerm = term
39      *
40      * @return the name of the term
41      */
42      public static String generateTerm(String input, String
outFolder) {
43          int firstSpace = input.indexOf(' ');
44          String term = input.substring(0, firstSpace);
45          String definition = input.substring(firstSpace + 1);
46
47          SimpleWriter outFile = new SimpleWriter1L(
outFolder + '/' + term + ".html");
48          outFile.println("<html> <body> <p
style=\"color:#FF0000\">");
49          outFile.println("<strong> <em>" + term + "</em> </strong>
</p>");
50          outFile.println("<p>" + definition);
51          outFile.println("</p> </body> </html>");
52
53          outFile.close();
54
55          return term;
56      }
57
58      /**
59      * Takes an input file and sorts the terms A to Z, printing the
sorted list
60      * in a new text file (uses insertion sort technique).
61      *
62      *
63      * @param sort
64      *          all terms and definitions (term + definition is
one element)
65      *
66      * @requires sort is formatted such that the term is the first
word of each
67      *          element
68      *
69      * @ensures sort is sorted alphabetically by terms
70      */
71      public static void sortAToZ(String[] sort) {
72          int len = sort.length;
73          for (int i = 0; i < len - 1; i++) {
74              String temp = sort[i + 1];
```

```
75         int j = i;
76         for (; j >= 0 && sort[j].compareTo(temp) > 0; j--) {
77             sort[j + 1] = sort[j];
78         }
79         sort[j + 1] = temp;
80     }
81 }
82
83 /**
84  * Generates the glossary top level index with terms in
85  * alphabetical order.
86  * @param inFileNames
87  *         the input file name with terms and definitions
88  *
89  * @param outFolder
90  *         the name of the folder to output files to
91  *
92  * @requires the file that inFileNames leads to is formatted
93  * such that a
94  *         single term on the first line is followed on the
95  *         next line by
96  *         its definition on one or more lines, and after
97  *         each definition
98  *         is a new, empty line AND outFolder must exist AND
99  *         the input
100  *         file is not empty
101  *
102  * @ensures an html file is generated that fits all of Cy's
103  * glossary
104  *         requirements
105  */
106 public static void generateList(String inFileNames, String
107 outFolder) {
108     SimpleWriter outFile = new SimpleWriter1L(
109         outFolder + '/' + "index.html");
110     SimpleReader inFile = new SimpleReader1L(inFileNames);
111
112     // Storing each term and def into an unsorted queue (can't
113     // do an array
114     // because there is an unknown number of terms)
115     Queue<String> unsortedQ = new Queue2<>();
```

```
110         while (!inFile.atEOS()) {
111
112             // Takes out the term and copies to termAndDef and then
adds a space
113             String termAndDef = inFile.nextLine();
114             if (termAndDef.length() == 0) {
115                 termAndDef = inFile.nextLine();
116             }
117             termAndDef += ' ';
118
119             // Add definition to termAndDef here until empty line
120             while (!inFile.atEOS() && inFile.peek() != '\n') {
121                 termAndDef += inFile.nextLine();
122             }
123             // Adds each term and definition onto unsorted
124             unsortedQ.enqueue(termAndDef);
125         }
126
127         // Moving all elements from unsortedQ to an unsorted String
array
128         String[] sorted = new String[unsortedQ.length()];
129         while (unsortedQ.length() > 0) {
130             sorted[unsortedQ.length() - 1] = unsortedQ.dequeue();
131         }
132
133         // Stores the sorted array of terms and definitions
134         sortAToZ(sorted);
135
136         // Opening tags and heading
137         outFile.println("<html> <body> <h1>" + "Glossary" + "</
h1>");
138         outFile.println("<ul>");
139
140         for (int i = 0; i < sorted.length; i++) {
141             String term = generateTerm(sorted[i], outFolder);
142             // Adding term to a list and making it a link
143             outFile.print("<li>");
144             outFile.print("<a href = \"" + term + ".html" + "\">");
145             outFile.print(term + "</a>");
146             outFile.println("</li>");
147         }
148         // Closing tags
149         outFile.println("</ul>");
```

```
150         outFile.print("</body> </html>");
151
152         // Closing streams
153         outFile.close();
154         inFile.close();
155     }
156
157     /**
158     * Main method.
159     *
160     * @param args
161     *         the command line arguments; unused here
162     */
163     public static void main(String[] args) {
164         SimpleReader in = new SimpleReader1L();
165         SimpleWriter out = new SimpleWriter1L();
166
167         // Get user input for input file
168         out.print("Enter the input file name: ");
169         String inFile = in.nextLine();
170
171         // Get user input for output folder name (must already
172         exist)
173         out.print("Enter an existing folder's name to output
174         glossary to: ");
175         String outFolder = in.nextLine();
176
177         // Output index.html with a list of items
178         generateList(inFile, outFolder);
179
180         // Closing streams
181         in.close();
182         out.close();
183     }
184 }
```