

## CECS 277 – Lab 10 – Maps

### Word Frequency

Create a program that keeps track of the frequency of each of the words in a text file (words.txt) by using a TreeMap. Allow the user to search for a particular word with its frequency or to display all of the words with their frequencies. Repeat the program until the user quits.

#### Methods:

1. `readFile` – passes in a filename as a String. Construct and return the map populated with each of the words in the file and the number of times each one appeared. Each time you come across a duplicate word, get the old value, increment it, and put it back in the map.
2. `search` – pass in the map. Prompt the user to enter a String. Display the word with its frequency in the format ‘word => frequency’ (ex. Alice => 2). If the word is not in the map, display it in the same format with a 0.
3. `display` – pass in the map. Display each of the words in the map with their frequencies where each word is displayed in the format ‘word => frequency’. (note: since the map is a TreeMap, it will automatically display in sorted order)
4. `menu` – display the menu below to prompt the user to enter a menu option, then return the user’s valid input (you can use `getIntRange` method of the `CheckInput` class provided on Beachboard).

#### Example Output (user input is in italics):

```
1. Search
2. Display
3. Quit
1
Enter word: sister
sister => 2
1. Search
2. Display
3. Quit
1
Enter word: hello
hello => 0
1. Search
2. Display
3. Quit
3
```

#### Notes:

1. Map methods: <https://docs.oracle.com/javase/7/docs/api/java/util/Map.html>
2. Add Javadocs and other brief comments to your program to describe your code.
3. Thoroughly test your program before submitting.