

## Lab 4 Feedback

Dr. Yoder, Fall 2013, CS2852

- ① -2 Make all instance variables private. Instance variables should be private unless they are immutable (that is, declared final so they do not change).
- ② -1 Prefer local variables to instance variables. If an instance variable is only used in one or two methods, consider passing it between the methods using arguments instead of creating a new instance variable. This makes it easier for others to read your program because it is easier to trace where the variables are used.
- ③ -2 Document all methods with a proper javadoc comment. This should include a description of the method, and if there are any parameters or return values, a Javadoc tag commenting these as well. You should also document each class.
- ④ -1 Constructor should clear() the collection. This ensures that it is empty. The method removeAll does clear a Collection. It simply removes the items that are in one collection from another. Even collection.removeAll(collection) is unnecessarily complicated to perform this task.
- ⑤ -2 Be sure to close the file. Once you are done processing, close the file to unlock it (in Windows) and free up the resources. By putting the closing of the file in a finally block, you can ensure the file is closed even if an error occurs while parsing it. See also ⑦.
- ⑥ -2 Let collection implement contains its own way. By iterating over the collection, we guarantee it will be at least  $O(n)$ . But if the collection is sorted, it can find our element in  $O(\log(n))$  instead.
- ⑦ To ensure that the file is closed, the best way is to use a try/using statement. For an example of this statement, see Dr. Taylor's File IO tutorial: <http://msoe.us/taylor/tutorial/se1021/fileIO>
- ⑧ Instead of `if( <condition> ) { return true; } else {return false}` you can simply use `return condition;`
- ⑨ -0 Check if Collection is null and throw an error if it is not.

Things not checked:

- 2 Cannot compare without finer units (Checked in earlier sections)
- 2 Searching in the Sorted-ArrayList should be faster (Checked in demos)
- 1 Include useful error message in thrown Exceptions.
- 3 Do not include file input time

Call them as I see them:

Prefer using braces

Prefer try/using statement to explicit .close()

Simplify: No need for if

Why printStackTrace?

Avoid the loop

Only one return