CIS 162 Lab 10
ArrayLists

Objectives
After completing this lab, you should be able to:
- *write* short problem solutions involving loops and `ArrayLists`

Activity
1. Check out the project ArrayListF18 from GitHub using this URL:
   https://github.com/kurmasz/ArrayListF18.git
2. Create a new class that includes an `ArrayList` of `Strings` as an instance variable.
3. Write a constructor that instantiates the `ArrayList`.
4. `public int numWords()` – Return the number of words currently in the list.
5. `public void display()` – Print the `ArrayList`'s contents to the terminal window. This is one line of code.
6. `public void addWords(String input)` - Instantiate a `Scanner` object that reads from `input`. Use the `Scanner`'s `next` and `hasNext` methods to read one word at a time and add it to the `ArrayList`.
7. `public int indexOf(String str)` – Search the `ArrayList` for the provided `String`. Searches should work regardless of case. Hint: the `String` class has a method named `equalsIgnoreCase(String str)`. Return the location of the first occurrence of `str` or return `-1` if `str` does not appear in the list.
8. Complete the unit tests for `indexOf()`.
9. `public void displayElementPerLine()` – Print the `ArrayList` contents to the terminal window with each element on its own line.
10. `public static boolean isValid(String word)` – A valid word contains letters only – no numbers, no punctuation, etc. Hint: Use the method `Character.isLetter()`.
11. Complete the unit tests for `isValid()`.
12. `public void removeInvalid()` – Remove any invalid `Strings` (as determined by the `isValid` method).
13. Complete the unit tests for `removeInvalid()`.
14. `public int count(String str)` – Return the number of times `str` appears in the `ArrayList`. *Use the "foreach" style loop*.
15. Complete the unit tests for `count()`.
16. `public boolean allUnique(String str)` – Return `true` if each word in the `ArrayList` is unique. Hint: Make use of the `count` method.
17. Complete the unit tests for `allUnique()`.

Extra Credit: Write *and test* a method that returns an `ArrayList` containing the words that appear the most.

Grading
This lab is graded by *demonstration*. You must demonstrate to the instructor or lab assistant that (1) your code passes all the unit tests and (2) that your unit tests were written correctly.