Unit\_4.07\_Homework: ArrayList Practice

**Homework Questions:**

Part I. a Create a new class named ArrayListPractice

1. Write a method createList that creates an arrayList filled with the values "The", "fox", "jumped", "over",  "the", "cat", "and", "dog". In your main method call createList and then print out the array list.
2. Write a method addAdjectives that updates the arrayList created in step 1 and inserts the strings "quick", and "red" before the string "fox" and the string "lazy" before the string "dog". Use the method indexOf on the list to find the index to add your adjectives. Add the call to addAdjectives at the end of main and again print out the list. Note you are changing the current list NOT making a new one.
3. Write a method updateColor that updates the arrayList updated above and changes the element "red" to "brown" in the list. Use the method indexOf on the list to find the index of "red". Add the call to updateColor at the end of main and again print out the list. Note you are changing the current list NOT making a new one.
4. Write a method removeTheCat that updates the arrayList updated above and removes the values "cat" and "and". Add the call to removeTheCat at the end of main and again print out the list. Note you are changing the current list NOT making a new one.
5. Write a method convertToSentence that returns the values of arrayList updated above as a sentence (ie with a space after every value except the last (use a period after the last). Add the call to print out the return value of convertToSentence at the end of main.

Part II. b Add to class ArrayListPractice

1. Write a method sequence that takes an starting number, a delta, and an maximum number and creates and returns a new ArrayList of integers filled with all the numbers starting at the starting number and increasing by the delta.  Stop when the next number is greater than the maximal number. Call sequence in your main method with the starting value 17, delta 11 and the ending value 273. Print out the resulting sequence in main.
2. Write a method createDivisibleSubset that takes an ArrayList of integers and another int and creates a new ArrayList containing only those numbers in the passed-in ArrayList that are divisible by the other int.  Use the for-each version of looping! Note this method DOES not change the list passed in ArrayList, it creates a new ArrayList. Call createDivisibleSubset in main passing in the result to your prior call to sequence and 3. Print out the resulting new list.
3. Write a method removeDivisible that takes an ArrayList of integers and another int and removes all of the values of the ArrayList that are divisible by the passed in int from the passed in ArrayList. Note you are supposed to update the passed in ArrayList NOT create a new one.  Hint: when removing values from an array list you should use the index for loop and loop starting from the end down to 0. In main, call removeDivisible with the list created above by the sequence call and 3. Then, print out the passed in list.

Part III. Create A new class named Lines

1. Write a method called getLines which reads lines from the user until “!go” is entered. It should return an ArrayList<String> of all the lines other than “!go”.
2. Write a method called averageLineLength which takes an ArrayList<String> and then prints each line, its length and then the average line length at the end.  Be sure to use the for-each style loop. Add a main method to call getLines and averageLineLength.
3. Write a method called removeDuplicates which takes an ArrayList<String> and uses nested for loops to remove any duplicate strings.  Don’t forget to loop from the back. Then make your main method print list.
4. Do the Chapter 10 Self Check Practice Its:

* [BJP4 Self-Check 10.15: ArrayListMystery1](https://practiceit.cs.washington.edu/problem/view/bjp4/chapter10/s15-ArrayListMystery1)
* [BJP4 Self-Check 10.16: ArrayListMystery2](https://practiceit.cs.washington.edu/problem/view/bjp4/chapter10/s16-ArrayListMystery2)
* [BJP4 Self-Check 10.17: ArrayListMystery3](https://practiceit.cs.washington.edu/problem/view/bjp4/chapter10/s17-ArrayListMystery3)
* [BJP4 Self-Check 10.18: ArrayListMystery4](https://practiceit.cs.washington.edu/problem/view/bjp4/chapter10/s18-ArrayListMystery4)