

AP Computer Science Homework 18

Due date: Monday, April 25, 2016

Instructor: Mr. Alwin Tareen

Part A: Manipulating an ArrayList of words

- Submit your Java program `WordList.java` by uploading it to the Web-CAT automated grading platform.

The following class `WordList` is designed to store and manipulate a list of words. The incomplete class declaration is shown below. You will be asked to implement two methods.

```
public class WordList
{
    /** Contains Strings made up of letters */
    private ArrayList <String> myList;

    /** Returns the number of words in this WordList that are exactly
     *  len letters long.
     *  @param len length of word
     *  @return quantity of words with length equal to len
     */
    public int numWordsOfLength(int len)
    { /* to be implemented in part (a) */ }

    /** All words that are exactly len letters long have been removed
     *  from this WordList, with the order of the remaining words
     *  unchanged.
     *  @param len length of word
     */
    public void removeWordsOfLength(int len)
    { /* to be implemented in part (b) */ }

    /** There may be fields, constructors, and methods that are
     *  not shown. */
}
```

1. Write the `WordList` method `numWordsOfLength`. Method `numWordsOfLength` returns the number of words in the `WordList` that are exactly `len` letters long. For example, assume that the instance variable `myList` of the `WordList` `animals` contains the following: `["cat", "mouse", "frog", "dog", "dog"]` The table below shows several sample calls to `numWordsOfLength`.

Function Call	Result
<code>animals.numWordsOfLength(4)</code>	1
<code>animals.numWordsOfLength(3)</code>	3
<code>animals.numWordsOfLength(2)</code>	0

Complete method `numWordsOfLength` in the `WordList.java` file.

2. Write the `WordList` method `removeWordsOfLength`. Method `removeWordsOfLength` removes all words from the `WordList` that are exactly `len` letters long, leaving the order of the remaining words unchanged. For example, assume that the instance variable `myList` of the `WordList` `animals` contains the following: `["cat", "mouse", "frog", "dog", "dog"]`. The table below shows a sequence of calls to the (`removeWordsOfLength`) method.

Function Call	Result
<code>animals.removeWordsOfLength(4)</code>	<code>["cat", "mouse", "dog", "dog"]</code>
<code>animals.removeWordsOfLength(3)</code>	<code>["mouse"]</code>
<code>aniamls.removeWordsOfLength(2)</code>	<code>["mouse"]</code>

Complete method `removeWordsOfLength` in the `WordList.java` file.