1. Complete this on your own, then review the videos and code in the class website: develop a class with miscellaneous string operations.

Write a class with the following static methods:
- wordCount. This method should accept a reference to a String object as an argument and return the number of words contained in the object.
- arrayToString. This method accepts a char array as an argument and converts it to a String object. The method should return a reference to the String object.
- mostFrequent. This method accepts a reference to a String object as an argument and returns the character that occurs the most frequently in the object.
- frequency. This method accepts a reference to a String object as an argument and returns an integer array with the frequencies of all of the character occurrences. (e.g. if there are 6 a's (or A's) in the String, there is a 6 in the slot 0 of the array. If there are 2 z's, there is a 2 in the 26th slot (slot 25)).
- replaceSubstring. This method accepts three references to String objects as arguments. Let's call them string1, string2, and string3. It searches string1 for all occurrences of string2. When it finds an occurrence of string2, it replaces it with string3. For example, suppose the three arguments have the following values:

>   string1: "the dog jumped over the fence"
>   string2: "the"
>   string3: "that"

  With these three arguments, the method would return a reference to a String object with the value "that dog jumped over that fence."

Write a program that demonstrates all of the methods.

2. Use the class as follows or write new classes as necessary. Select one to post to the class website.

a. Write a program that encodes and decodes a block of text read in from a file. Encode by shifting letters by a constant value. Decode by shifting in the other direction. (So if the constant value is 4, then a is replaced by e, b is replaced by f, z is replaced by d, etc.)

b. Write a program that translates an alphabetic phone number(such as 1-800-GO-FEDEX) to a fully numeric phone number (1-800-463-3339). And you will be doing the world a favor.

c. Write a program to convert a String to Morse code. There is a table on page 651 of your book or you can Google it. Translate letters first. If you have time, add numbers and special characters. -..-!

d. Write a program to guess the language of a String based on the frequency of characters. You can use the table of frequencies here: http://en.wikipedia.org/wiki/Letter_frequency. Distinguish among English, French, German, and Spanish.