**ITEC 136 Homework 3 Name: \_\_\_Danielle Hooven\_\_\_\_\_**

1. **[10 points]** Write a function that takes one parameter, a text string. It counts the number of alphabetic characters (a through z, or A through Z) in the text string and then keeps track of the count and percentage of the lowercase letter 'a'. Do not use global parameters. No global variables are used in the function. Function parameters must be used. The output must show percentage in one decimal place. Use string format to show one decimal place output.  
     
   Your function should print an analysis of the text like this:  
   Your text contains **232** alphabetic characters, of which **24.8**% are 'a'.
2. **[10 points]** Write a function that implements a substitution cipher. In the substitution cipher one letter is substituted for another to garble the message. For example A -> Q, B -> T, C -> G etc. your function should take two parameters, the message you want to encrypt, and a string that represents the mapping of the 26 letters in the alphabet. Your function should return a string that is the encrypted version of the message. Don’t encrypt non-alphabet characters.

**Note:** The function must have two parameters, the text string to be encrypted and the mapping in lowercase form. Do not hard code the mapping. The mapping must be passed to the function. For example, one can re-use the same function with a different mapping. No global variables used in the function. Function parameters must be used. You must process the input string on your own. Do not use string method to translate the mapping.

**Hint:** How does the mapping 'abcdefghijklmnopqrstuvwxyz' and 'qwertyuiopasdfghjklzxcvbnm' is related? Check their respective position.

|  |
| --- |
| For example, if your text is  'abc Franklin Student123!', and your mapping is 'abcdefghijklmnopqrstuvwxyz' to 'qwertyuiopasdfghjklzxcvbnm' which means 'a' is going to be replaced by 'q', 'b' is going to be replaced by 'w' and so on. Same rules apply for upper case letters. 'A' is going to be replaced with 'Q', and so on.  Your program should print the encrypted version of 'abc Franklin Student123!', which in this case is:  'qwe Ykqfasof Lzxrtfz123!' |

1. **[5 points]** Weekly Learning and Reflection  
   In two to three paragraphs of prose (i.e. sentences, not bullet lists) using APA style citations if needed, summarize and interact with the content that was covered in the introductory videos provided for this course. In your summary, you should highlight the major topics, theories, practices, and knowledge that were covered. Your summary should also interact with the material through personal observations, reflections, and applications to the field of study. In particular, highlight what surprised, enlightened, or otherwise engaged you. Make sure to include at least one thing that you’re still confused about. In other words, you should think and write critically not just about what was presented but also what you have learned through the session. Feel free to ask questions in this as well since it will be returned to you with answers.