CSI 31 Homework Weeks 6 & 7

1. [#7 on page 163} Write a program that can encode and decode Caesar ciphers. The input to the program will be a string of text and the value of the key (shift factor). The output will be an encoded message where each character in the original message is replaced by shifting it *key* characters in the ASCII character set. For example, if ch is a character in the string and key is the amount to shift, then the character that replaces ch can be calculated as: chr(ord(ch)) + key. The original message can be recovered (decoded) by using the negative of the key. (One program or two separate programs)

2. [# 9 on page 163] Write a program that counts the number of words in a sentence entered by the user. [Hint: Use input to get the sentence as a string; use string.split() to create a list of the words. Then the length of the list is the number of words.]

3. Word count. [# 14 on page 164] A common utility on Unix/Linux systems (and MS Word too) is a small program called wc. This program analyzes a file to determine the number of lines, words, and characters contained in the file. Write your own version of wc. The program should accept a file name as input and then print three numbers showing the count of lines, words, and characters in the file.(A file reading as user input)

4. Rewrite the convert GUI shown on page 106 so that it converts Fahrenheit temperatures to Celsius temperatures.

5. [p. 118 #7] Modify the circle intersection program so that: (1) the circle is entirely within the window (restrict the length of the radius); and (2) the line intersects the circle (restrict the value of the *y*-intersect).

6. Finish the sum of the squares program by writing the squareEach(nums) and sumList(nums) described in #12 and #13 on page 198 of edition 2.