

# ECE 71 – Engineering Computations in C

Professor Kriehn – Fall 2016

**Code Due By:** Midnight on Monday, October 10, 2016

**Writeup Due By:** Class on Tuesday, October 11, 2016

## HOMEWORK #17 – Computer Discount Policy

A computer company needs a program to implement its computer teacher's discount policy. The program is to prompt the user to enter the purchase total and to indicate whether the purchaser is a teacher. The store plans to give each customer a printed receipt, so your program needs print your results to the screen neatly. Computer teachers receive a 10% discount on their computer purchases unless the purchase total is \$100 or higher. In that case, the discount is 12%. The discount calculation occurs before the addition of the 9.975% Fresno County sales tax.

### Specifications:

Define the discount rates and sales tax as double precision floating point constants. Allow the program to enter either uppercase or lowercase letters for the 'Y' or 'N' characters, and print an error condition that will keep repeating if the user does not enter in a proper character. Create a nicely formatted table for the output file, and assume that the total purchase price will not be over \$9999.99. If you execute the program, the following information should be displayed:

~> hw17.o

Enter the total purchase price: 10.0

Is the customer a teacher (Y/N)?: Y

Total Purchases	\$	10.00
Teacher's Discount (10%)	\$	1.00
Discounted Total	\$	9.00
Sales Tax (9.975%)	\$	0.90
Total	\$	9.90

~> hw17.o

Enter the total purchase price: 122.00

Is the customer a teacher (Y/N)?: q

Please enter 'Y' or 'N': y

Total Purchases	\$	122.00
Teacher's Discount (12%)	\$	14.64
Discounted Total	\$	107.36
Sales Tax (9.975%)	\$	10.71
Total	\$	118.07

~> hw17.o

Enter the total purchase price: 24.90

Is the customer a teacher (Y/N)?: N

Total Purchases	\$	24.90
Sales Tax (9.975%)	\$	2.48
Total	\$	27.38

~>

## HOMEWORK #18 – Average Word Length

Write a program that calculates the average word length for a sentence. Your program should consider a punctuation mark to be part of the word to which it is attached unless it is a comma, period, or exclamation point. Display the average word length to one decimal place.

For instance, in the sentence “And, that’s the way the cookie crumbles.”, the first word (“And,”) contains 3 characters, the second word “that’s” has 6 characters, and the last word (“crumbles.”) has 8 characters.

### Specifications:

Prompt the user to enter a sentence. Use the `getchar()` function and a while loop to read in characters one at a time and perform your calculations (keep track of the total number of words in a sentence, the number of letters in a word, whether you need to ignore some punctuation, etc.). Then print a second prompt asking the user to press the Enter key to continue. Once the Enter key is pressed, the results should be displayed to the screen.

Here are a couple of examples...

```
~> hw18.o
Enter a sentence: And, that's the way the cookie crumbles.
Press Enter to Continue... ↵
Average word length: 4.6
~> hw18.o
Enter a sentence: I love ECE 71!
Press Enter to Continue... asdf↵
Average word length: 2.5
~>
```