**CSC 3380 (S1) Assignment 2 (15 points) Spring 2016**DUE: Thursday, February18thSubmitted electronically before 8:00 AM

**Student Performance Objectives:**

* To review sorting and creating class declarations
* To demonstrate multi-level inheritance

**Program Scenario** (inspired by Starting Out with Java Early Objects, 5e, Tony Gaddis, p. 677.)

The Mon Cher Boutique utilizes a coupon discount scheme as a business strategy to reward frequent patrons and to ensure a steady income from returning customers. Discount coupons are printed and mailed to preferred customers every four months. A preferred customer must have spent at least $200.00 total. Coupons are awarded as follows:

|  |  |
| --- | --- |
| **Total Purchases** | **Discount on next Single Purchase**  (under $100.00; not to be combined with any other discount; not applicable to sale items) |
| Less than $200.00 | 0% discount |
| $200.00 but less than $500.00 | 25% |
| $500.00 but less than $750.00 | 30% |
| $750.00 but less than $1,000.00 | 35% |
| $1,000.00 or more | 40% |

The owner of Mon Cher Boutique has requested a report in descending order by the total $ purchases and showing data for all customers including the discount to be awarded (if any).

**Program Requirements:**

1. Follow programming standards for documentation and coding; see assignment #1.
   * Code your **Identification Header** at the beginning of your program2.?? file as comments.
   * Next, provide the **Problem Specification**, **Problem Analysis**, and **Implementation Directions**  
     as comments.
2. Use good OO design with main having minimal code. Isolate calculations from the read and print methods (functions); no calculations in conjunction with reading and printing!
3. INPUT FILE: **MonCher.data** ASCII text file in ascending order by the customer ID. Data lines end in a hidden new-line character. Fields are separated by spaces.

|  |  |  |
| --- | --- | --- |
| *Line #1* | **Name** (max 20 spaces)  <string> includes spaces | *Newline* |
| *Line #2* | **Address** (one line only; max 20 spaces) <string> includes spaces | *Newline* |
| *Line #3* | **Phone Number (**max 9999999999) <int> | *Newline* |
| *Line #4* | **Mailing List Flag**  <bool> 1 = yes; 0 = no | **Email**  <string> | *Newline* |
| *Line #5* | **Total $ Purchases** (max $999999.99) <real> 2-decimal places | *Newline* |

1. The input file data must be read, and stored into a list (1-D array). Data for each customer is organized using **multi-level inheritance**. Use preferred OOD techniques; data is hidden (private) and accessed via public methods*. NO code Libraries may be used for the list.* Declare: a class, **Person**, with fields   
    for Name, Address, and Phone Number,  
    Declare: a class, **Customer**, that inherits from the **Person** class with fields  
    for Mailing List Flag and Email address.

Declare: a class**, DiscountCustomer**, that inherits from the **Customer** class with fields,   
 for Total Purchases and Discount

1. Sort the array list in descending order using the **Selection Sort**.
2. ASCII Text Output file: **Report.out**

Print the array list in descending order by the Total Purchases using good report formatting (title heading, column heading, and justified data). Show the earned amount of the discount.

### Using UNIX

**Part 1**. Log on to UNIX with LogIn and password. From your home directory, create the prog2 subdirectory and change to the prog2 subdirectory.

**>mkdir prog2  
 >cd prog2**

**>pwd**

### Part 2. Implementation

### Create your files, compile, execute, test.

1. To end this session: **>logout**

**Part 3. Electronic Submission. *DO NOT resubmit*** after the deadline!!!   
1. Go to your home directory(verify with >pwd).

Copy your prog2 subdirectory to the grader's directory:

>**~cs3380\_dou/bin/p\_copy 2**

# 2. Make sure the copy was accomplished by using the verify command to list the number of files copied: >~cs3380\_dou/bin/verify 2