

CISC 1600-L01 Computer Science I

Instructor: Vincent Mierlak — Spring 2019

Homework Assignment 2

Due on January 31, 2019 by 2:30 PM

Instructions

- There is only 1 part to this assignment; please follow the instructions carefully.
- Name your source code file `bookstore.cpp` and submit it on Blackboard when you are ready.

The Very Small Computer Science Bookstore

You have been asked to write a customer order program for The Very Small Computer Science Bookstore. The program takes an order from a customer, calculates the total amount due, and determines how much change is owed. The program displays a detailed invoice for the customer.

The Very Small Computer Science Bookstore only sells three titles:

Title	Price
Data Structures	78.87
Computer Architecture	95.49
Compilers	89.99

a) Specifications

Your program must do the following:

1. Display a welcome message
2. Collect the following information from the customer:
 - a first name and a last name
 - the number of Data Structures textbooks to purchase
 - the number of Computer Architecture textbooks to purchase
 - the number of Compilers textbooks to purchase
3. Calculate the total amount due, including New York State sales tax of 8.875%
4. Display the total amount due
5. Prompt the customer for the amount he or she will pay (your program must allow the customer to enter dollars and cents, for example 125.25)

6. Display an invoice that contains the following information:

- the customer's full name
- the title, quantity ordered, unit price, and total cost for each textbook title (this information should appear on a single line, one line for each book)
- the total cost before adding sales tax
- the sales tax due on this order
- the total amount due, including the sales tax
- the amount of money collected as payment from the customer
- the amount of exact change owed to the customer

7. Display a personalized goodbye message (meaning, incorporate the customer's name in the goodbye message)

b) Assumptions About User Input

You can assume that the customer will:

- provide one first name and one last name
- buy at least 1 textbook
- pay an amount equal to or greater than the total amount due

c) Grading Guidelines

To get full credit, your code must:

- compile on `erdos`
- meet the program's specifications
- have a comment header at the top with your name, course number, assignment number, and date
- have sensible variable names
- observe proper indentation and coding style
- contain comments

d) Sample Execution

```
[mierlak@erdos]~/ $ ./bks.out
Welcome to the Very Small Computer Science Bookstore!
Please enter your first and last name: Alan Turing

Alan, how many of each textbook do you wish to purchase?
Enter number of Data Structures textbooks: 2
Enter number of Computer Architecture textbooks: 2
Enter number of Compilers textbooks: 2

Your total order is 575.62
How much money are you giving me? 600.00
```

Invoice for Alan Turing

Item	Qty	Unit Price	Total Cost
Data Structures	2	78.87	157.74
Computer Architecture	2	95.49	190.98
Compilers	2	89.99	179.98
<hr/>			
Subtotal:	528.70		
Sales Tax:	46.92		
Total Due:	575.62		
<hr/>			
Total Payment:	600.00		
CHANGE DUE:	24.38		

```
Thanks for shopping with us, Alan!
[mierlak@erdos]~/ $
```