**CS 2060 Programming with C - Fall 2017**

**Assignment #2**

Due Date: Sept 6, 2017 at 9:25am (MW class), Sept 7, 2017 at 9:25am (TR class)

Purpose: Learn to variables of different types, boolean expressions, relational and logical

operators and if statements

Effort: Individual

Points: **80**

Deliverables: Upload the .c source code file to Blackboard by due date. No pseudocode is required.

**Please hand in a hardcopy version of your code at beginning of class.**

**Assignment Description**

Create a "very" simple bookstore program. The program will process a customer’s order and display the details of the order. The program must deal with invalid user input as described in specifications below.

Assume the following for this limited bookstore:

* The bookstore only sells three books – Math, English, History.
* Only one customer can be processed at a time.
* A customer can purchase only **one type** of book from the 3 possibilities.
* The cost and number of available books are fixed as stated in the table:

|  |  |  |
| --- | --- | --- |
| **Book Type** | **Cost** | **Available** |
| Math | $37.50 | 325 |
| English | $27.75 | 475 |
| History | $42.00 | 1000 |

* The number of books purchased determine if there is a **reduction** as well as **shipping costs**:
  + 1 to 20 books
    - Reduction: 0% off
    - Shipping: $2.99 per book
  + 20 to 50 books
    - Reduction: 10% off total cost
    - Shipping: $50 flat rate
  + 51 to 100 books
    - Reduction: 20% off total cost
    - Shipping: $25 flat rate
  + 101 or more
    - Reduction: 30% off total cost
    - Shipping: Free
* The bookstore charges a flat 7.5 % tax on all orders. Shipping is NOT included in tax calculation.

**Specifications**

1. Create a C project called **Assignment2 (please use this exact name)**
2. Follow "CS2060 Programming Assignments Policy"
3. Use correct data types and constants where possible
4. Write code that:

Displays a menu

* Display each book, cost, and number of available copies

Prompts user for:

* The book they would like to purchase
* The number of copies they want to purchase

Displays order details

* Number of books ordered
* Number of books on backorder, only display when books are on backorder
* Total cost of book(s)
* Reduction, only display if a price reduction was applied
* Shipping
* Taxes
* Amount due

1. The code must handle user validation for:

* Book selection
  + If an invalid menu option is entered
    - **MUST** print message and **EXIT**
* Number of copies
  + If user enters a value less than one for number of copies
    - **MUST** print message and **EXIT**
  + If the user exceeds the number of copies for selected book
    - Include in order details number of books on back order
* Use if-statements to handle user validation

**Note: Once an input error occurs, the program must display an error message and perform no more processing. For example, if the user enters 5 when asked what book to purchase, the program must display an error message and complete at that point. Use the power of if statements to make this happen properly.**

**Output**

Your output may look like the following:

**Output - Example 1**

Welcome to the CS2060 Limited Bulk Bookstore

Option Book Cost Available Copies

-----------------------------------------------------------

1 Math $1200.00 325

2 English $1350.00 475

3 History $550.00 1000

What book would you like to purchase? Select option 1, 2, or 3: 1

How many copies do you want? 15

CS2060 Limited Bulk Bookstore Order Details

Number books ordered : 15

Total cost : $562.50

Shipping cost : $44.85

Taxes : $42.19

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Amount Due : $649.54

**Output - Example 2 – Order Exceeds Number Books Available**

Welcome to the CS2060 Limited Bulk Bookstore

Option Book Cost Available Copies

-----------------------------------------------------------

1 Math $1200.00 325

2 English $1350.00 475

3 History $550.00 1000

What book would you like to purchase? Select option 1, 2, or 3: 1

How many copies do you want? 350

CS2060 Limited Bulk Bookstore Order Details

Number books ordered : 350

Number books shipped : 325

Number books back ordered: 25

Total cost : $13125.00

30 percent savings: $3937.50

Shipping cost : $0.00

Taxes : $689.06

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Amount Due : $9876.56

**Error handling Output - Example 1 – Invalid Menu Selection**

Welcome to the CS2060 Limited Bulk Bookstore

Option Book Cost Available Copies

-----------------------------------------------------------

1 Math $1200.00 325

2 English $1350.00 475

3 History $550.00 1000

What book would you like to purchase? Select option 1, 2, or 3: 0

Menu selection 0 is not a valid menu option.

Run program to try again - Good bye!

**Error handling Output - Example 2 – Invalid Number of Copies**

Welcome to the CS2060 Limited Bulk Bookstore

Option Book Cost Available Copies

-----------------------------------------------------------

1 Math $1200.00 325

2 English $1350.00 475

3 History $550.00 1000

What book would you like to purchase? Select option 1, 2, or 3: 1

How many copies do you want? 0

Number of copies must be greater zero.

Run program to try again – Good bye!