Object Oriented Programming Lab

Lab 06 **Marks 10**

Instructions

Work on this lab individually. You can use your books, notes, handouts etc. but you are not allowed to borrow anything from your peer student. *You are strictly **NOT ALLOWED** to include any additional data-members/functions/constructors* in your class.

Marking Criteria

Show your work to the instructor before leaving the lab to get some or full credit.

What you must do

Program the following task in your C++ compiler and then compile and execute them. *Write the **main** function first and keep testing the functionality of each function once created.*

ADT: Item

Write a class named **Item** that has the following:

1. The class should have following **four private data members**.
    1. An **integer** named **id** that holds the **item's item number**.
    2. A **string** named **name** that holds the **item's name**.
    3. An **integer** named **quantity** for holding the **quantity** of the items on hand.
    4. A **float** named **cost** for holding the wholesale **per-unit cost** of the item.

    Value should only be assigned to data member **id**, **quantity,** and **cost** if they are positive, **zero** otherwise.
2. Provide the implementation of **mutators** for all the data members (id, name, quantity, and cost) of the class.
3. Provide the implementation of **accessors** for all the data members (id, name, quantity, and cost) of the class.
4. Provide the implementation of following **constructors** and a **destructor.**
    1. The constructor should accept the **item's item number**, **name**, **quantity,** and **cost** as arguments. These values should be assigned to the object's appropriate member variables.
    2. The constructor should accept the **item's item number**, **name,** and **quantity** as arguments. These values should be assigned to the object's appropriate member variables. The **cost** should be assigned the default value.
    3. The constructor should accept the **item's item number**, **name,** and **cost** as arguments. These values should be assigned to the object's appropriate member variables. The **quantity** should be assigned the default value.
    4. A **copy constructor** to initialize an item's object with already existing object.
    5. A **destructor** that does nothing except displaying a simple message "Destructor executed…" on the screen.
5. Provide the implementation of following ***non-static*** member functions.
    1. **setItem** method accepts **item's item number**, **name**, **quantity,** and **cost** as arguments and assigns them to the appropriate member variables.
    2. **getItem** method to **initialize the data** of an item **taken** from the user.
    3. **putItem** method to display the information of a particular **item**.
    4. **getTotalCost** method should provide the facility to **calculate and return the total cost** of an item only if the quantity is greater than or equal to **1**, return **0** otherwise.
    5. **isEqual** method should provide the facility to **compare two objects** and return **true** if they are having same state, **false** otherwise.
    6. **updateName** method should accept an **array of Item objects** with its **size** and **update the item name** of all those objects to the **item name** of left-hand side object exist in the array having same **item id number** as of left-hand side object.
    7. **getMinimumCostItem** method should accept an **array of Item objects** with its **size** and return the **item** having the **minimum cost** in the array.
    8. **getAveragePrice** method should accept an **array of Item objects** with its **size** and store the **average cost** of all the objects exist in the array to left hand side object's cost.
6. Once you have written the class, write **main** function and test its functionality by creating some objects of **Item**.

☺ ☺ ☺ **BEST OF LUCK** ☺ ☺ ☺