Final Cart

Start Assignment

Due Friday by 8:15pm   **Points** 100   **Submitting** a file upload   **Attempts** 0
Allowed Attempts 1

/**
 * Online Shopping Cart:
 *
 * 100 TOTAL POINTS

NOTE

1. 90 MINUTES to complete!!!

2. THIS PROGRAM CAN BE COMPLETED OPEN BOOK, OPEN INTERNET, USE ALL RESOURCES EXCEPT OTHER STUDENTS!!!

 *
 * NOTE: 40 POINTS DEDUCTED IF SUBMITTED LATE OR INCORRECTLY (e.g., no Driver class calling static demo(), demo2() methods, etc.).
 *
 * Simulate on-line shopping with cart by:
 *   - adding initial items to cart
 *   - repeatedly sorting and totaling items in cart
 * - removing items from cart then showing and totaling items in cart
 * - adding additional items to cart then showing and totaling items in cart
 *
 * READ CAREFULLY AND FOLLOW ALL INSTRUCTIONS PRECISELY:
 *
 *   1. 10 TOTAL POINTS Create AbstractItemAPI;
 *
 *   2. 30 TOTAL POINTS Derive Item class from AbstractItemAPI with the following inner classes:
 *   a. (10 POINTS) Create AbstractFactoryAPI INNER abstract class (in Item class)
 *   b. (10 POINTS) Derive AbstractItemFactory INNER class (in Item class) from AbstractFactoryAPI
 *   c. (5 POINTS) Implement AbstractItemFactory as Lazy Singleton factory for creating all Item objects
 *   d. (5 POINTS) Item class MUST override toString()
 *

```
 *    3. 20 TOTAL POINTS Create Cart class with demo() and demo2() static methods for class Driver to
call:
 *        a. Cart must COMPLETE the implementation of demo() method (attached BELOW)
 *           - Using Stream API AND Lambda expressions to:
 *             SORT initial items in Cart by ASCENDING ID, NAME & ASCENDING PRICE and SHOW
WITH TOTAL
 *             REMOVE items from Cart and SHOW WITH TOTAL
 *             ADD ADDITIONAL items in Cart and SHOW WITH TOTAL
 *        b. Cart must CREATE static demo2() to do SAME FUNCTIONALITY as demo() WITHOUT USING
LAMBDA expressions
 *
 *    4. 10 TOTAL POINTS Create following item objects (in FOLLOWING order) using
AbstactItemFactory and add to Cart:
 *        "3,Almond Milk,2.49"
 *        "5,Wheat Bread,1.49"
 *        "2,OJ,3.49"
 *         and SHOW Total all items in Cart:
 *
 *  5. 20 TOTAL POINTS Remove item #3 Almond Milk AND item #5 Wheat Bread from Cart and SHOW
Total all items in Cart
 *
 *  6. 10 TOTAL POINTS ADD additional items #6 Swiss Cheese, $6.49 AND item #7 Blue Cheese 6.49
to Cart and SHOW Total all items in Cart
 *
 * NOTE:
 *    FULL CREDIT GIVEN ONLY IF BOTH demo() and demo2() implementations are completed and
submitted on time.
 *  OTHERWISE AT MOST HALF CREDIT GIVEN for #2, #7
 *
 * @author dpeters
 *
 */

public class Cart {


    /**
     * Demonstrate the use of this class and simulate on-line shopping cart
     */
    public static void demo() {
        System.out.println("\n\t" + Cart.class.getName() + ".demo()...");
```

```
Cart obj = new Cart();
/**
 * Add initial Items to Cart IN THIS ORDER using factory
 */
System.out.println("ADD ITEM to CART: \"3,Almond Milk,2.49\"");
System.out.println("ADD ITEM to CART: \"5,Wheat Bread,1.49\"");
System.out.println("ADD ITEM to CART: \"2,OJ,3.49\"");
System.out.println("\n\t AND SHOW UPDATED CART ...");

** TO BE COMPLETED BY STUDENT **
    obj.show();
    System.out.println();

    /**
     * sort Items in Cart and SHOW CART WITH TOTAL COST (after each SORT)
     */
    System.out.println("\n\t SORT Items by ID...");

** TO BE COMPLETED BY STUDENT **


    System.out.println("\n\t SORT Items by PRICE...");

** TO BE COMPLETED BY STUDENT **


    System.out.println("\n\t SORT Items by NAME...");
** TO BE COMPLETED BY STUDENT **


    /**
     * Remove Items from cart:
     *      "5,Wheat Bread,1.49"
     *      "3,Almond Milk,2.49"
     */
    System.out.println("\n\t Remove Items from CART...");
    System.out.println("\n\t Remove \"5,Wheat Bread,1.49\" ...");
    System.out.println("\n\t Remove \"3,Almond Milk,2.49\" ...");
    System.out.println("\n\t AND SHOW UPDATED CART...");

** TO BE COMPLETED BY STUDENT **
    System.out.println();
```

```java
    /**
     * add items to cart and SHOW CART with TOTAL COST
     */
    System.out.println("ADD ADDITIONAL Items to Cart...");
    System.out.println("ADD ITEM to CART: \"6,Swiss Cheese,6.49\"");
    System.out.println("\n\t AND SHOW UPDATED CART ...");

** TO BE COMPLETED BY STUDENT **
    System.out.println();


    System.out.println("ADD ITEM to CART: \"7,Blue Cheese,6.49\"");
    System.out.println("\n\t AND SHOW UPDATED CART ...");

** TO BE COMPLETED BY STUDENT **
    System.out.println();


    System.out.println("\n\t" + Cart.class.getName() + ".demo()... done!");
  }
```