17.05 Assignment Instructions

Instructions: Let's pull together all your knowledge of sorting algorithms and use them in a project. Imagine you work in a store and have been asked to keep an inventory of the products for sale. Different people have requested that you sort the list and print it in various ways. You can do that and will do so using each of the different sorting algorithms.

1. Create new project called 17.05 Assignment in your Module 17 Assignment folder.
2. Create an implementation class to define an item in your store.
    a. Establish instance variables for the item's name, product number, price, and quantity currently in the store.
    b. Setup a constructor for an item that will initialize all the instance variables.
    c. Create appropriate methods including a toString method, making sure to format the cost to include the dollar sign and precision to two decimal places.
    d. Add any additional attributes or behaviors you feel are appropriate. (optional)
3. For this project, you will create a tester class that declares an array for the products in your inventory and makes use methods to sort the data.
4. Declare an array of at least 10 products. Of course, be sure to use school-appropriate items.
    For example: Chewbacca Mask, 1281, 19.99, 24
5. Design a static method that traverses through the array and prints each element in a table format.
6. Create the following static methods in the tester class. Using each sorting algorithm at least once, you may choose when to employ the insertion, selection, or merge sort. Use each at least once. Sorts using insertion or selection must have the option for ascending or descending order. The merge sort will sort only in ascending order.
    a. a method that sorts the array by the product number
    b. a method that sorts the array by the product's name
    c. a method that sorts the array by the item's price
7. Test your sorting methods by calling each and displaying the results. Start by showing the array without sorting. Then demonstrate each of the sorts you created. The output should be in a table format. Be sure to clearly label your output so someone looking at it knows which sort was applied each time.

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