17.05 Assignment Instructions

Instructions: For this assignment, you are going to test your sort algorithm knowledge.

1. Create a folder called **17.05 Assignment** in your Module 17 assignments folder.
2. Create a class called **Item**.
   a. **Item** will need instance variables `itemID, itemName, inStore,` and `Price` (of types `String, String, int` and `double` accordingly).
   b. **Item** will need appropriate methods and constructors. Make sure to have a `toString()` method that prints the item, making sure to format the float to 2 decimal places with $.
   c. Save the class as **Student.java**.
3. You are to create a class called `TestItem` and save it as **TestItem.java**.
   a. Make sure that you create an array called `hardware`. Add the items.

itemID	itemName	inStore	Price
1011	Air Filters	200	10.5
1034	Door Knobs	60	21.5
1101	Hammers	90	9.99
1600	Levels	80	19.99
1500	Ceiling Fans	100	59
1201	Wrench Sets	55	80

   b. Create a method called `printInventory()` that traverses through the array and prints out each element.
   c. Create a method called `sortID()` that sorts the array using `itemID`. You may choose to use sorting algorithm of your choice (e.g. Insertion, Selection, or Merge, but <u>not</u> the Bubble sort).
   d. Create a method called `sortName()` that insertion sorts the array using `itemName`.
   e. Create a method called `sortInStore()` that selection sorts the array using `inStore`.
   f. Create a method called `sortPrice()` that merge sorts the array using `price`.
   g. Test your methods similar to output shown below

```
BlueJ: Terminal Window - demo

Options

Original Array:

itemID    itemName      inStore      price
----------------------------------------
1011      Air Filters     200      $ 10.50
1034      Door Knobs       60      $ 21.50
1101      Hammers          90      $  9.99
1600      Levels           80      $ 19.99
1500      Ceiling Fans    100      $ 59.00
1201      Wrench Sets      55      $ 80.00

Sorted by ID:

itemID    itemName      inStore      price
----------------------------------------
1011      Air Filters     200      $ 10.50
1034      Door Knobs       60      $ 21.50
1101      Hammers          90      $  9.99
1201      Wrench Sets      55      $ 80.00
1500      Ceiling Fans    100      $ 59.00
1600      Levels           80      $ 19.99

Sorted by Name:

itemID    itemName      inStore      price
----------------------------------------
1201      Wrench Sets      55      $ 80.00
1600      Levels           80      $ 19.99
1101      Hammers          90      $  9.99
1034      Door Knobs       60      $ 21.50
1500      Ceiling Fans    100      $ 59.00
1011      Air Filters     200      $ 10.50
```

```
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Options

Sorted by inStore:

itemID    itemName     inStore      price
---------------------------------------
1201     Wrench Sets      55      $  80.00
1034     Door Knobs       60      $  21.50
1600     Levels           80      $  19.99
1101     Hammers          90      $   9.99
1500     Ceiling Fans    100      $  59.00
1011     Air Filters     200      $  10.50

Sorted by Price:

itemID    itemName     inStore      price
---------------------------------------
1201     Wrench Sets      55      $  80.00
1500     Ceiling Fans    100      $  59.00
1034     Door Knobs       60      $  21.50
1600     Levels           80      $  19.99
1011     Air Filters     200      $  10.50
1101     Hammers          90      $   9.99
```