

Due Thu Jan 25 at the start of your lab section; Submit Server: `class = cse2010, assignment = hw1SxIndividual`

Due Thu Jan 25 at the end of your lab section; Submit Server: `class = cse2010, assignment = hw1SxGroupHelp`
 x is 14 or 23—your section number (sections 1 and 4 are combined into section 14, ...).

On some shopping sites (e.g., amazon.com), a product can have multiple sellers. Usually, the seller list is displayed based on the total cost (product price plus shipping cost). The inventory of the product at a seller determines whether the seller is on the seller list.

For this assignment, assume you are managing three products: `appleiPhone`, `hdmi2VgaAdapter`, and `USBdrive`. For simplicity, the product price and shipping cost are set at the beginning and do not change. To separately manage the seller list in *ascending* order of total cost for each product, use `SinglyLinkedList` (textbook).¹ You might choose to add methods to `SinglyLinkedList` to increase its general functionality.

Input: To simulate the shopping and inventory events, an input file contains events in the same directory as your program file called `HW1.java` that has the main method. Initially, each product has no sellers (no inventory). Your submission takes the input file name as a command-line argument. Each line is one of the following event:

- `SetProductPrice product seller price`
- `SetShippingCost seller shippingCost minimumForFreeShipping`
- `IncreaseInventory product seller quantity`
- `CustomerPurchase product seller quantity`
- `DisplaySellerList product`

Shipping cost is zero if the product price is at least *minimumForFreeShipping*. `DisplaySellerList` considers the cost of one item of the product.

Output: The program prints events to the standard output (screen). Each event is on one line and possible events are:

- `SetProductPrice product seller price`
- `SetShippingCost seller shippingCost minimumForFreeShipping`
- `IncreaseInventory product seller quantity updatedInventory`
- `CustomerPurchase product seller quantity updatedInventory` or `NotEnoughInventoryError`
- `DisplaySellerList product`

```
1234567890123456789012345678901234567890 // just to show spacing
seller productPrice shippingCost totalCost // output starts
walmart      20.99      0.00      20.99
amazon        16.95      5.00      21.95
bestbuy        21.99      0.00      21.99
```

Assume a seller's name is at most 10 characters, use right justification for each column in the seller list.

Sample input and output files are on the course website.

Submission: Submit `HW1.java` that has the main method, (modified) `SinglyLinkedList.java` and other program files. Submissions from individual students are due at the beginning of their respective lab sections via assignment *hw1SxIndividual* (see the top). During the lab session on the due date, we encourage students to bring test cases (beyond the sample input) to test and improve each other's program in the group. Improved programs are submitted via assignment *hw1SxGroupHelp*, which is due at the end of the lab session (see the top). Your program is mainly evaluated based on *hw1SxIndividual*. Improvement on test cases will receive half credit. Specifically, $testCaseImprovement(hw1) = testCaseScore(hw1SxGroupHelp) - testCaseScore(hw1SxIndividual)$; $testCaseScore(hw1) = testCaseScore(hw1SxIndividual) + testCaseImprovement(hw1)/2$. Note the late penalty on the syllabus if you submit after the due date and time as specified at the top.

¹<http://cs.fit.edu/~pkc/classes/ds/src/net/datastructures/SinglyLinkedList.java>