

Inventory Management System

Objective:

Work with multiple objects and reading data files.

Description: A wholesale distributor has six warehouses (Atlanta, Baltimore, Chicago, Denver, Ely and Fargo) and sells five different items (identified by part number: 102, 215, 410, 525 and 711). Each warehouse may stock any or all of the five items. The company buys and sells these items constantly. Company transaction records contain a transaction code ('P' for a purchase or 'S' for a sale) followed by an item number and the quantity (bought or sold).



The transaction records are contained in a transaction data file named Transactions.txt.

Sample transaction records: **Transactions.txt**

P 410 1000
S 215 120
S 711 300

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A separate data file contains the initial status of the six warehouses at the beginning of the day (i.e., the ending status from the night before). This data file has only six records (lines). Each record (line) contains five numbers that show the quantity on hand for the five items in that warehouse. This file is named **Inventory.txt**.

Sample status data file: **Inventory.txt**

500 120 60 0 350
100 230 0 50 0
0 75 0 0 220
600 50 120 300 40
210 160 30 80 50
90 50 90 200 70

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The status data file is updated by processing the transaction records in the transaction data file according to these rules:

- 1 – For a sale ('S') – subtract the quantity sold from the warehouse that has the largest supply of that item on hand.
- 2 – For a purchase ('P') – add the quantity purchased to the warehouse that has the lowest supply of that item on hand.

Instructions:

Write an **object-oriented** C# application to do the above inventory warehouse processing. Each of the six warehouses should be treated as an individual object. For example, Atlanta would be an object with each of the five part numbers as instance fields. Each of the other warehouses should also be objects with the five part numbers as instance fields. Of course, there would be one class which would be the main (driver) class from which these 6 objects would be created.

In the beginning of the program, the status data file (**Inventory.txt**) should be read and an object for each warehouse created. The **Inventory.txt** data file is in the following order: the first line is the Atlanta warehouse, the second line is the Baltimore warehouse, third Chicago, then Denver, Ely and Fargo. After the objects are created, the transactions data file (**Transactions.txt**) are read and processed. The objects should be updated as the transaction records are read and processed.

The program should:

- 1 – Display the initial (beginning-of-day) status for all warehouses.
- 2 – Process each transaction from the transaction data file and show which warehouse's inventory was updated to reflect that transaction.
- 3 – Display the final (end-of-day) status for all warehouses.

Requirements:

- The class must be named Inventory.
- The main program (driver) must be named Warehouses.
- A driver (main class) as well as a programmer-defined class must be used.
- Submit program through the assignment tool in Canvas.
- Include a comment stating your name.
- Each student must create his/her own independent program.