CS120 - Computer Science I
Assignment #9
Spring 2014

This exercise builds on Lab #10 and takes you into the realm of object-oriented programming.

Your neighbor loves your stock portfolio tracker, which at any one time contains up to 100 stocks. She still has a file named `stocks` containing the following information on the stocks that she owns:

Stock Name	Sector	Current Share Price	No. of Shares Owned

The sector is a single character which specifies the type of company, according to the following code:

A - Auto Companies
C - Consumer Products
F - Financial/Insurance
I - Industrial
T - Technology

You are to write a C++ program (you can start by copying and renaming your Lab #10) to manage changes to the portfolio. Your program must now include a class StockHolding to model your neighbor's ownership of particular stocks. Your class must have private member variables for stock name, sector, current share price, and number of shares. Class StockHolding must have a default constructor that initializes values (use 0 or 0.0 for numerics depending on their type, "?" and '?' for name and sector), and must have public member functions as follows:

```
// adds shares, returns new # of shares, -1 if nshares is negative
int buy(int nshares);
// sells shares, returns new # of shares, -1 if nshares is negative or
// portfolio does not have this many shares to sell
int sell(int nshares);
// set the current price to newprice; return 0 for success;
// skip update and return -1 if newprice was negative
int updateprice(double newprice);
```

After you read in the file named `stocks` as in Lab 10, you must close that file. Then your program shall read in a file named `transactions` containing the following information about changes to the stock portfolio:

Stock Name	Transaction Type	Transaction Value

The Transaction Type is a single character B (for Buy) S (for Sell), or U (when the price is Updated). Transaction Value is a number of shares (for code B or S) or a dollar-and-cent real number (for code U). Note that you may have to look at the transaction type to decide which type to input for Transaction Value. Now consider new stocks that were not in the old `stocks` file. You are guaranteed that the transaction file will contain an update (U) to set a price for such stocks. After an update that introduces a new stock, codes A, C, F, I, or T will indicate the type of company and otherwise be treated as a B (Buy) operation. For example, if you had 100 shares of Microsoft already, and wanted to buy 100 more shares, and 100 shares of a new stock (Oracle) at $119 per share:

```
Microsoft B 100
Oracle U 119.00
Oracle T 100
```

Apply all these transactions, and write out a modified copy of file `stocks` with the new portfolio information in `stocks.new`. Then print the stock information and updated value of the portfolio by sector to `cout` as in Lab 10.