**CMPSC-121  
Project #2  
Due: Wednesday, October 24, 2016**

Write a C++ program to read details of invoices from a file and to output invoices which indicate the total cost of each item and the total cost of the invoice together with full details.

Details of an invoice are available as follows:

**The number of items on the invoice, the date of the invoice**

**For each item, an item code (6 digits), a quantity and a unit cost.**

Thus a typical set of lines in the file for invoices might be:

**3 10/22/2014**

**161432 5 6.50**

**543289 10 2.25**

**876234 2 10.75**

**2 10/25/2014**

**135876 12 22.50**

**543287 4 19.25**

The above indicates that there are three items on the first invoice and its date is 3/15/2014, the first item has an item code of 161432, an order quantity of 5 and a unit price of $6.50. There are two items on the next invoice, etc.

Write a C++ program to read the file (input.txt) with details of invoices and to output to a file an invoice which indicates the total cost of each item and the total cost of the invoice together with full details. The above details might produce a file as follows:

**Invoice date: 10/22/2014**

**Item Quantity Unit Price Total Price**

**161432 5 6.50 32.50**

**543289 10 2.25 22.50**

**876234 2 10.75 21.50**

**Total ……………………………………………………………………… 76.50**

**Invoice date: 10/25/2014**

**Item Quantity Unit Price Total Price**

**135876 12 22.50 270.00**

**543287 4 19.25 77.00**

**Total ……………………………………………………………………… 347.00**

The functions could be specified as follows:

**Function type : double**

**Function name : calccost**

**Operation : Calculates the cost for a single item.**

**Description : Given the unit price of an item in**

**dollars and cents and the quantity of**

**the item, it calculates the total cost in**

**dollars and cents**

**Parameters : int quantity**

**double unitcost**

**Return : totalCost**

**--------------------------------------------------------------------------**

**Function type : double**

**Function name : acctotal**

**Operation : Accumulates the total cost of invoice**

**Description : Given current total invoice cost and**

**the total cost of an invoice item**

**calculates the new total invoice cost.**

**Parameters : double totalCost**

**double itemCost**

**Return : newTotalCost  
--------------------------------------------------------------------------**

**Function type : void**

**Function name : writeLine**

**Operation : Writes a line of the invoice.**

**Description : Given the item reference number, the**

**quantity, the unit price and total**

**price of an item, outputs a line of**

**the invoice.**

**Parameters : string itemno**

**int quantity**

**double unitCost**

**double totalCost  
--------------------------------------------------------------------------**

**Function type : void**

**Function name : printHeader**

**Operation : Writes “Invoice date: “ and the date to the file**

**Description : Accepts the date and writes Invoice date: followed by the  
 date into the file.  
Parameters : string date  
--------------------------------------------------------------------------  
Function type : void**

**Function name : printTotal**

**Operation : Writes “Total ……………………………………………………………………………” followed  
 by the total and then an endl in the file.**

**Description : Accepts the total and writes it followed by a line of dots  
 and then the invoice total and an endl  
 date into the file.  
Parameters : double invoiceTotal**

The pseudocode for main would be:

Open output file (***Before*** main, create output file with the line:  
 **ofstream fout;**

Create and open input file

Be sure to test to see if you can read the file. If not display a message and end the program.

Read number of items and date. Date can just be a string. This will be the main read loop which will end the program when it encounters end of file

while( fin >> items >> date)

totalCost = 0

printHeader (date)

Use a for loop (i=0;i<number of items) to read line items:

fin >> item >> quantity >> unitPrice  
 totalcost = calcCost(quantity, unitPrice)  
 invoiceCost = accTotal(invoiceCost, totalCost)  
 writeLine(itemno, quantity, unitCost, totalCost)  
 end for  
 printTotal(invoiceCost)

End main read loop

Close input and output files

To submit this project for grading, upload the .cpp file only to the Project 2 dropbox.

See instructor for help as needed.