1. Please download and move the files "books.txt" and “quiz\_lab7.cpp” to your project directory of quiz\_lab7. The cpp file contains just a program shell in which you will write all the programming statements needed to complete the program. Here is a copy of the current contents of “quiz\_lab7.cpp” and “books.txt”.

**[quiz\_lab7.cpp]**

// Online Quiz Lab7 Book Data

// This program stores book information in a structure.

#include <iostream>

#include <fstream>

#include <string>

using namespace std;

/\*Write a structure "BookData" to store the book information \*/

/\*including book title, authors, released year, prices \*/

struct BookData

/\* Function prototype \*/

int main() {

BookData book[4];

string str;

int num\_books;

int number;

ifstream BookFile;

/\*Part 1: Read in the books.txt \*/

BookFile.open("G:\\Workspace\_\_Qt\_creator\\lab7\\books.txt"); //use your own file path

BookFile >> str;

BookFile >> num\_books;

for (int i=0; i< num\_books; i++) {

if(BookFile.fail()) {

break; //Nothing to read

}

BookFile >> str;

BookFile >> number;

if (str != "Book") //Format error

break;

BookFile.get();//remove "\n" at the end

GetBookInfoFromFile(BookFile, book[i]);

}

/\*Part 2: Display the book information\*/

for (int i=0; i< num\_books; i++) {

displayBookInfo(book[i]);

}

/\*Part 3: Compare which book has the highest price,

\* and show it on the screen\*/

return 0;

}

/\* Functions \*/

void GetBookInfoFromFile(ifstream& inFile, BookData& m){

}

void displayBookInfo(BookData m) {

}

**[books.txt]**

Num\_of\_Books 4

Book 0

Fundamentals of Microelectronics

Behzad Razavi

2013

144.85

Book 1

Computer Architecture, Fifth Edition: A Quantitative Approach

John L. Hennessy, David A. Patterson

2011

64.64

Book 2

Pattern Recognition, 4th Edition

Theodoridis, Koutroumbas

2008

109

Book 3

Linear Algebra, 4th Edition

Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence

2002

146.27

1. The program will read book information from books.txt and store into the variable, which is a structure. Please complete the functions at the end of the source code:

for Part 1, void GetBookInfoFromFile(ifstream& inFile, BookData& m)

for Part 2, void displayBookInfo(BookData m)

1. Complete Part 3, compare which book has the highest price, and show it on the screen.

**[Sample Run]**

The book title: Fundamentals of Microelectronics

Authors: Behzad Razavi

Year: 2013

Book Price: 144.85 (dollars)

The book title: Computer Architecture, Fifth Edition: A Quantitative Approach

Authors: John L. Hennessy, David A. Patterson

Year: 2011

Book Price: 64.64 (dollars)

The book title: Pattern Recognition, 4th Edition

Authors: Theodoridis, Koutroumbas

Year: 2008

Book Price: 109 (dollars)

The book title: Linear Algebra, 4th Edition

Authors: Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence

Year: 2002

Book Price: 146.27 (dollars)

The book with the highest price is Linear Algebra, 4th Edition

Its price is 146.27

1. Once you have your program working, ask TAs to check your results.
2. Copy the codes and your test output to your answer file. Upload your “quiz\_lab7.cpp” and the answer file to the “online\_quiz\_lab7” section on iLMS.

**[Reference Source Code]**

// Online Quiz Lab7 Book Data

// This program stores book information in a structure.

#include <iostream>

#include <fstream>

#include <string>

using namespace std;

/\*Write a structure "BookData" to store the book information \*/

/\*including book title, authors, year released, prices in US dollars\*/

struct BookData {

string title;

string authors;

int year; // Year released

double price;// prices in US dollars

};

/\* Function prototype \*/

void GetBookInfoFromFile(ifstream& inFile, BookData& m);

void displayBookInfo(BookData m);

int main() {

BookData book[4];

string str;

int num\_books;

int number;

ifstream BookFile;

/\*Part 1: Read in the books.txt \*/

/\*Remind! Ensure your file directory works. \*/

BookFile.open("G:\\Workspace\_\_Qt\_creator\\lab7\\books.txt");

BookFile >> str;

BookFile >> num\_books;

cout<<num\_books<<endl;

for (int i=0; i< num\_books; i++) {

if(BookFile.fail()) {

break; //Nothing to read

}

BookFile >> str;

BookFile >> number;

if (str != "Book") //Format error

break;

BookFile.get();//remove "\n" at the end

GetBookInfoFromFile(BookFile, book[i]);

/\*getline(BookFile, book[i].title);

getline(BookFile, book[i].authors);

BookFile >> book[i].year;

BookFile >> book[i].price;\*/

}

/\*Part 2: Display the book information\*/

for (int i=0; i< num\_books; i++) {

displayBookInfo(book[i]);

}

/\*Part 3: Compare which book has the highest price,

\* and show it on the screen\*/

string tmp\_title = "tmp";

double tmp\_price = 0;

for(int i=0; i< num\_books; i++){

if(book[i].price>=tmp\_price){

tmp\_title = book[i].title;

tmp\_price = book[i].price;

}

}

cout<<"The book with the highest price is "<<tmp\_title<<endl;

cout<<"Its price is "<<tmp\_price<<endl;

return 0;

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Functions \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

void GetBookInfoFromFile(ifstream& inFile, BookData& m){

getline(inFile, m.title);

getline(inFile, m.authors);

inFile >> m.year;

inFile >> m.price;

}

void displayBookInfo(BookData m) {

cout<<"The book title: "<<m.title<<endl;

cout<<"Authors: "<<m.authors<<endl;

cout<<"Year: "<<m.year<<endl;

cout<<"Book Price: "<<m.price<<" (dollars)"<<endl<<endl;

}