**Lab 18**

In this lab, we practice using the sorted list class to work with struct type data.

Add the following struct type definition for BookType to slist.h file. In addition, make "ItemType" an alias of the type "BookType".

#ifndef SortedList\_H

#define SortedList\_H

struct BookType

{

string title;

string author;

int publicationYear;

bool operator < (const BookType & rhs) {

return (title < rhs.title);

}

bool operator != (const BookType & rhs) {

return (title != rhs.title);

}

bool operator > (const BookType & rhs) {

return (title > rhs.title);

}

};

typedef BookType ItemType; // 🡨 this line sets the item type of this list to be of type "BookType"

class SortedList

{

....

};

#endif

Write the client program to read the book records from the data file one record at a time. Once the values of one book is read, insert it into the list of books. Repeat this until the end of the data file is reached.

int size=0;

BookType aBook;

while (size < MAX\_SIZE && getline(myIn, aBook.title)) {

getline(myIn, aBook.author);

myIn >> aBook.publicationYear;

myIn.ignore(100, '\n');

// You are required add code below

// to add the book into the list and update "size"

}

After the list of books is built, display the books one by one as shown below. Prompt the user to enter the name of an author, display only the books written by this author. Here is the program logic for the client program:

// First, add code here to "reset" the iterator for the list object

// Then, apply a "for" loop to go through the entire list item by item:

{

// First, retrieve the next item

// Then, check to see if this item has the author name matches with the author name entered by the user

// If the name matches, display the information about the book

}

Example output of the program

The list of books are:

Title: A Couple of Blaguards

Author: Frank McCourt

Publication Year: 2013

Title: Angela's Ashes: A Memoir

Author: Frank McCourt

Publication Year: 2012

Title: Born Free

Author: Leo Johnson

Publication Year: 2012

Title: Cat Lovers

Author: Mary Johnson

Publication Year: 2013

Title: Catching Fire

Author: Suzanne Collins

Publication Year: 2013

Title: Emma

Author: Jane Austin

Publication Year: 2013

Title: Harry Potter And The Order Of The Phoenix

Author: J. K. Rowling

Publication Year: 2015

Title: Harry Potter and the Deathly Hallows

Author: J. K. Rowling

Publication Year: 2014

Title: Harry Potter and the Half-Blood Prince

Author: J. K. Rowling

Publication Year: 2015

Title: Mockingjay

Author: Suzanne Collins

Publication Year: 2014

Title: Persuasion

Author: Jane Austin

Publication Year: 2015

Title: Pride and Prejudice

Author: Jane Austin

Publication Year: 2012

Title: The Cat Bible

Author: John Eddleman

Publication Year: 2012

Title: The Fault in Our Stars

Author: John Green

Publication Year: 2013

Title: The Girl on the Train

Author: Paula Hawkins

Publication Year: 2014

Title: The Golden Compass: His Dark Materials

Author: Philips Pullman

Publication Year: 2012

Title: The Hunger Game

Author: Suzanne Collins

Publication Year: 2011

Title: The Jungle Cats

Author: Steve Martin

Publication Year: 2013

Please enter the name of an author: J. K. Rowling

Title: Harry Potter And The Order Of The Phoenix

Author: J. K. Rowling

Publication Year: 2015

Title: Harry Potter and the Deathly Hallows

Author: J. K. Rowling

Publication Year: 2014

Title: Harry Potter and the Half-Blood Prince

Author: J. K. Rowling

Publication Year: 2015