**Part 1.** (50 points) BookStore Class

The goal of this exercise is to write a BookStore class to add, search, and sell books in the inventory of the book store. Use Book class that is attached with this exercise.

1. Modeling and specifying in BookStore.h

a) The data members for the bookstore is a pointer **inventory** to a built-in Book array and **bookCount** for distinct titles to keep track of how many titles are currently in the inventory.

b) Add the prototypes for the member functions

i) Define a getter function to return a reference to the inventory array and another getter for the bookCount.

ii) Define a default constructor that creates an inventory for 200 distinct titles.

iii) Define addBook() member function that takes a Book reference object and adds it to the inventory and increment the bookCount. If the title already exists (check for ISBN) than instead of adding a new Book item, increment the count of the book object with the new count.

iv) Define sellBook() member function that takes an ISBN number and decrements the count of the book object in the inventory. If the count is already zero, an exception should be thrown saying “Out of stock” and must be handled in the main program(Hint: Use a try-catch block)

v) Define searchByTitle() member function which takes a title parameter and searches similar titles in the inventory and prints them on the screen(Hint: You may use find() member function from string class). If nothing is found “No result found” should be printed on the screen.

vi) Define searchByISBN() member function which takes isbn parameter and searches the book on the screen. If nothing is found “No result found” should be printed on the screen.

vii) Define searchByAuthor() member function which takes author name for a parameter and searches for similar names in the inventory and prints them on the screen. If nothing is found “No result found” should be printed on the screen.

2) Code the implementations for the member functions in BookStore.cpp

**PART 2.** (50 points) Main Program

Write a main program that allows the store owner to add, sell and search for books.

Sample output:

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**1

**Enter book title:** Harry Potter and the Sorcerer's Stone

**Enter author:** J.K.Rowling

**Enter isbn:** 123

**Enter publisher:** Scholastic

**Enter year:** 1994

**Enter count:** 20

**Enter price:** 13.34

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**1

**Enter book title:** Alice in Wonderland

**Enter author:** Lewis Caroll

**Enter isbn:** 456

**Enter publisher:** Penguin

**Enter year:** 1890

**Enter count:** 10

**Enter price:** 12.2

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**2

**Enter ISBN:** 123

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**2

**Enter ISBN:** 456

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**3

**Enter title:** Alice

**[2] Lewis Caroll . (1890). Alice in Wonderland. Penguin. $12. Count: 9. ISBN: 456.**

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**3

**Enter title:** Harry Potter

**[1] J.K.Rowling. (1994). Harry Potter and the Sorcerer's Stone. Scholastic. $13. Count: 19. ISBN: 123.**

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**4

**Enter author:** Rowling

**[1] J.K.Rowling. (1994). Harry Potter and the Sorcerer's Stone. Scholastic. $13. Count: 19. ISBN: 123.**

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**5

**Enter ISBN:** 456

**[2] Lewis Caroll . (1890). Alice in Wonderland. Penguin. $12. Count: 9. ISBN: 456.**

**Enter choice:**

**1 to add book**

**2 to sell book**

**3 to search by Title**

**4 to search by author**

**5 to search by isbn**

**6 to quit ?**6

Submission instructions: Submit all files (Book.h, Book.cpp, BookStore.h, BookStore.cpp, main.cpp)

**Book.h**

#ifndef Book\_h

#define Book\_h

class Book{

public:

//constructors

Book();

Book(std::string, std::string, std::string, std::string, std::string, int, double);

//setters

void setIsbn(std::string);

void setAuthor(std::string);

void setTitle(std::string);

void setYear(std::string);

void setPublisher(std::string);

void setCount(int);

void setPrice(double);

//getters

std::string getIsbn() const;

std::string getAuthor() const;

std::string getTitle() const;

std::string getYear() const;

std::string getPublisher() const;

int getCount() const;

double getPrice() const;

//other member functions

std::string toString() const;

private:

std::string isbn;

std::string author;

std::string title;

std::string year;

std::string publisher;

double price{0.0};

int count{0};

};

#endif /\* Book\_h \*/

**Book.cpp**

#include <iostream>

#include "Book.h"

#include <sstream>

#include <iomanip>

#include <stdexcept>

using namespace std;

Book::Book(){}

Book::Book(std::string theIsbn, std::string theAuthor,

std::string theTitle, std::string theYear, std::string thePublisher,

int theCount, double thePrice): isbn{theIsbn}, author{theAuthor},

title{theTitle}, year{theYear}, publisher{thePublisher}

{

if(count < 0) count = 0;

else count = theCount;

if(price < 0) price = 0;

else price = thePrice;

}

void Book::setIsbn(std::string theIsbn){isbn = theIsbn;}

void Book::setAuthor(std::string theAuthor) { author = theAuthor;}

void Book::setTitle(std::string theTitle) {title = theTitle;}

void Book::setYear(std::string theYear){ year = theYear;}

void Book::setPublisher(std::string thePublisher){ publisher = thePublisher;}

void Book::setCount(int theCount){

if(theCount<=0) throw invalid\_argument("Count should be greater than zero.");

else count = theCount;

}

void Book::setPrice(double thePrice){

if(thePrice <= 0) throw invalid\_argument("Price should be greater than zero.");

else price = thePrice;

}

//getters

std::string Book::getIsbn() const{ return isbn;}

std::string Book::getAuthor() const { return author;}

std::string Book::getTitle() const { return title;}

std::string Book::getYear() const { return year;}

std::string Book::getPublisher() const { return publisher;}

int Book::getCount() const { return count;}

double Book::getPrice() const { return price;}

//other member functions

std::string Book::toString() const

{

ostringstream ostream;

ostream << getAuthor()<< ". (" << getYear() <<"). " << getTitle() << ". "

<< getPublisher() << ". $" << setprecision(2) << getPrice() << ". "

<< "Count: " << getCount() << ". ISBN: " << getIsbn() << ".";

return ostream.str();

}