Project 4 (summative project)

Due date: Latest by 12/19/2017 6:00PM, Not late project will be accepted

The libraries of SmallTownX need a new electronic rental system, and it is up to you to build it. SmallTownX has two libraries. Each library offers many books to rent. Customers can print the list of available books, borrow, and return books.

**Problems:**

We provide two classes, Book and Library that provide the functionality for the book database. You must implement the missing methods to make these classes work.

Step One: Implement Book

First we need a class to model books. Start by creating a class called Book. Copy and paste the skeleton below. This class defines methods to get the title of a book, find out if it is available, borrow the book, and return the book. However, the skeleton that we provide is missing the implementations of the methods. Fill in the body of the methods with the appropriate code. The main method tests the methods.

When you run the program, the output should be:

Title (should be The Da Vinci Code): The Da Vinci Code

Rented? (should be false): false

Rented? (should be true): true

Rented? (should be false): false

Hint: Look at the main method to see how the methods are used, then fill in the code for each method.

Step Two: Implement Library

Next we need to build the class that will represent each library, and manage a collection of books. All libraries have the same hours: 9 AM to 5 PM daily. However, they have different addresses and book collections (i.e., arrays of Book objects).

Create a class called Library. Copy and paste the skeleton below. We provide a main method that creates two libraries, and then performs some operations on the books. However, all the methods and member variables are missing. You will need to define and implement the missing methods. Read the main method and look at the compile errors to figure out what methods are missing.

Notes : Some methods will need to be static methods, and some need to be instance methods.

Be careful when comparing Strings objects. Use string1.equals(string2) for comparing the contents of string1 and string2.

You should get a small part working at a time. Start by commenting the entire main method, then uncomment it line by line. Run the program, get the first lines working, then uncomment the next line, get that working, etc.

You must not modify the main method.

The output when you run this program should be similar to the following:

Library hours:

Libraries are open daily from 9am to 5pm.

Library addresses:

10 Main St.

228 Liberty St.

Borrowing The Lord of the Rings:

You successfully borrowed The Lord of the Rings

Sorry, this book is already borrowed.

Sorry, this book is not in our catalog.

Books available in the first library:

The Da Vinci Code

Le Petit Prince

A Tale of Two Cities

Books available in the second library:

No book in catalog

Returning The Lord of the Rings:

You successfully returned The Lord of the Rings

Books available in the first library:

The Da Vinci Code

Le Petit Prince

A Tale of Two Cities

The Lord of the Rings

**Book.java**

public class Book {

String title;

boolean borrowed;

// Creates a new Book

public Book(String bookTitle) {

// Implement this method

}

// Marks the book as rented

public void borrowed() {

// Implement this method

}

// Marks the book as not rented

public void returned() {

// Implement this method

}

// Returns true if the book is rented, false otherwise

public boolean isBorrowed() {

// Implement this method

}

// Returns the title of the book

public String getTitle() {

// Implement this method

}

public static void main(String[] arguments) {

// Small test of the Book class

Book example = new Book("The Da Vinci Code");

System.out.println("Title (should be The Da Vinci Code): " + example.getTitle());

System.out.println("Borrowed? (should be false): " + example.isBorrowed());

example.rented();

System.out.println("Borrowed? (should be true): " + example.isBorrowed());

example.returned();

System.out.println("Borrowed? (should be false): " + example.isBorrowed());

}

}

Library.java

public class Library {

// Add the missing implementation to this class

public static void main(String[] args) {

// Create two libraries

Library firstLibrary = new Library("10 Main St.");

Library secondLibrary = new Library("228 Liberty St.");

// Add four books to the first library

firstLibrary.addBook(new Book("The Da Vinci Code"));

firstLibrary.addBook(new Book("Le Petit Prince"));

firstLibrary.addBook(new Book("A Tale of Two Cities"));

firstLibrary.addBook(new Book("The Lord of the Rings"));

// Print opening hours and the addresses

System.out.println("Library hours:");

printOpeningHours();

System.out.println();

System.out.println("Library addresses:");

firstLibrary.printAddress();

secondLibrary.printAddress();

System.out.println();

// Try to borrow The Lords of the Rings from both libraries

System.out.println("Borrowing The Lord of the Rings:");

firstLibrary.borrowBook("The Lord of the Rings");

firstLibrary.borrowBook("The Lord of the Rings");

secondLibrary.borrowBook("The Lord of the Rings");

System.out.println();

// Print the titles of all available books from both libraries

System.out.println("Books available in the first library:");

firstLibrary.printAvailableBooks();

System.out.println();

System.out.println("Books available in the second library:");

secondLibrary.printAvailableBooks();

System.out.println();

}

}

Make sure you apply comment(s) and coding indentation to make your code look clearly.

Make sure you run and compile your code with bug free.

Make sure you email send successfully with the correct file attached.

Not time for you to change and fix it the issue due to the final grade schedule.

Not late project will be accepted.