1050 Programming Logic

Lab 7 (20 points total)

Name: \_\_\_\_\_\_\_Dhruvil Patel\_\_\_\_\_\_\_\_\_\_\_

Please paste all of your code into this Word document and submit a single Word document for your solution. Please enter your answers in bolded or a different color font, so they’re easy to find - thanks! Note that the PowerPoint and the MSDN website resource on Object-Oriented Programming for this week might be helpful.

1. Create a class called Book defines properties Title, Author and Year. Add a method called Display() that outputs the Title and Author (4 points)

Category: Computer Science  
Title: Java programming  
Author: Micheal Owens  
Price: $15.00  
You must use toString() method in displaying data as shown above.  
  
  
ok so i have this part done. Heres what it looks like.  
  
  
public class Book {  
  
public String Category, Title, Author;  
public float Price;  
  
public void setCategory (String c){  
Category = c;  
}  
  
public void setTitle (String t){  
Title = t;  
}  
  
public void setAuthor (String a){  
Author = a;  
}  
  
public void setPrice (float p){  
Price = p;  
}  
  
public String getCategory(){  
return Category;  
}  
  
public String getTitle(){  
return Title;  
}  
  
public String getAuthor(){  
return Author;  
}  
  
public float getPrice(){  
return Price;  
}  
  
public String toString(){  
return String.format("Category: %s \nTitle: %s \nAuthor: %s \nPrice: $%4.2f\n\n" , getCategory(), getTitle(), getAuthor(), getPrice());  
}  
  
  
public static void main (String args[]){  
  
Book BookObject = new Book();  
  
BookObject.setCategory("Action");  
BookObject.setTitle("King");  
BookObject.setAuthor("Kobe Richards");  
BookObject.setPrice(18.99f);  
  
System.out.printf("%s\n", BookObject);  
}  
}

1. Create a class called BookTest that uses an object initializer to create an object of class Book (from step 1) and initialize all of its properties. Note: you will need to create a constructor method to do this (4 points)

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Price: $15.00  
If there are more Book objects in the ArrayList of Book type all should be displayed one after another.  
Add at least two Book objects to the ArrayList of Book type in the main() method.  
  
This What I have so far.  
  
import java.util.\*;  
  
public class BookCatalog {  
ArrayList books;  
  
public BookCatalog(){  
books = new ArrayList();  
}  
  
void add(Book x) {  
books.add(x);  
}  
  
boolean Book (String Title, String Author) {  
for(Book x: books)  
if (x.Title == Title && x.Author == Author) {  
return true;  
}  
return false;  
}  
  
Book getTitleAuthor(String Title, String Author) {  
for(Book x: books)  
if (x.Title == Title && x.Author == Author) {  
return x;  
}  
return null;  
}  
  
void remove(String Title, String Author) {  
for(Book x: books)  
if (x.Title == Title && x.Author == Author) {  
books.remove(x);  
}  
}  
  
public String toString(){  
String a = null;  
for(Book B: books)  
a= a + B.toString();  
return a;  
}  
  
public static void main (String args[]){  
  
BookCatalog BookCatalogObject = new BookCatalog();  
  
BookCatalogObject.setCategory("Action");  
BookCatalogObject.setTitle("CapintUnderpants");  
BookCatalogObject.setAuthor("Joseph Who");  
BookCatalogObject.setPrice(20.99f);  
  
System.out.printf("%s\n", BookCatalogObject);  
}  
  
}

Answer the following in essay form:

1. Before adding a constructor method, describe what is called when we create an instance of type Book? (2 points)

We use the Object oriented design to create an instance of type book or to define object types.

1. What concept would we be practicing if we created two new constructor methods? (2 points)

The concept of the constructor is to initialize the fields of the object. For example , it can check that a parameter is in correct value or not.

1. Why is it important to use exception handling? (2 points)

Exceptions provide the means to separate the details of what to do when something out of the ordinary happens from the main logic of a program. In traditional programming, error detection, reporting, and handling often lead to confusing spaghetti code. For example, consider the pseudocode method here that reads an entire file into memory.

1. What’s the purpose of private vs. public when we’re adding new properties and/or methods to our class? How does this apply to information hiding? (2 points)

Public scope to make that property/method available from anywhere, other classes and instances of the object. And on the other side private scope when you want your property/method to be visible in its own class only. By 'hiding' the information, the goal is to avoid direct access to the element in the data structure and having to understand the underlying implementation.

1. What is composition? How could we use Composition in our Book class? (2 points)

A class can contain objects of another class as data members. For example, you might create a class named Datethat contains a month, day, and year, and add two Datefields to an Employeeclass to hold the Employee’s birth date and hire date. Then you might create a class named Departmentthat represents every department in a company, and create each Departmentclass member to contain a supervisor, who is an Employee. When a class contains objects of another class, the relationship is called a whole-part relationship or composition. The relationship created is also called a has-a relationship because one class “has an” instance of another.

1. What is data abstraction? (2 points)

Data Abstraction means providing the essential information to the outside world and also hiding the background details or in other words to represent the needed information in program without presenting details.