Object-Oriented Programming Lab#5, Spring 2020

Today's Topics

- Class/Object, Constructor,
- package
- Array (Reference Type)
- ArrayList

ArrayLIst:

Action	Code
Creating an ArrayList	ArrayList<T> list = new ArrayList<T>();
Adding element to arraylist	list.add(T);
Accessing an element	List.get(int index)
Size of arraylist	list.size();

Problems/Assignments - Book Store Application

Create a book store application which will help **a book store owner** to keep the record of its books and run the business. The Book store application will help the store to keep the list of available books and have the functionalities to **1)** display all available books, **2)** sell books (should be able to sell multiple copies), and **3)** order new/existing books from publishers. Each book in the system will have 4 attributes*; **bookTitle, bookAuthor, bookISBN** and **numberOfCopies***.

With **sell** or **order** of existing books, number of copies attribute will decrease/increase. With order of new book, a new book entry will be added to the system. The system will display a menu on the screen for the user to choose from. Here is the menu.

Enter "1", to display the Books: Title – Author – ISBN - Quantity.

Enter "2", to order new books.

Enter "3", to sell books.

Enter "0", to exit the system.

Here is what you need to do to implement the Book Store.

1) Create the following **Book** class.

Book
String bookTitle String bookAuthor String bookISBN int numOfCopies
Book(String, String, String, int) void display()

   a. ***display()*** method will display the book info in "Title – Author – ISBN – Quantity" format.

2) Create another class "**BookStore**" which should contain all the book objects. For now you ca use an **array** of **Book** type and assume you can **have maximum 10 different books** (each book will have multiple copies). Or if you use ArrayList, no capacity restriction is needed.

BookStore
Book[] books
void sell(String bookTitle, int noOfCopies) void order(String isbn, int nofOfCopies) void display()

a. ***sell(String, int)*** method will search for the book in "***books***" array using the **bookTitle**. If the book is found in the list, **number of copies** will decrease. If the book is not found, a message should display.

b. ***order(String, int)*** method will order book for the book store. You have to handle both **new** book and **existing** book scenario.
   i. First search for the book in "***books***" array using the isbn value.
   ii. If the book is **found** in the list (which means the book already exists in the system), **number of copies will increase**.
   iii. If the book is **not found** (which means the book does not exists in the system and you need to order new book), a new book entry will be added to the "***books***" array/arraylist.

c. ***display()*** method will display info of all books in "books" array "Title – Author – ISBN – Quantity" format. Use ***Book*** class's ***display***() method to display each book's info.

3) Now create class "**BookStoreApp**" which should contain the **main** method. In main method create an object of **BookStore** class and then provide the **menu** as mentioned before. Once the user enters his/her option, you need to read the value and take appropriate action (See below) using the **BookStore** object.

- For option 1, **display** all the books in the format above, with each one on a separate line.
- For option 2, the system will allow you to **order** one or more books. For this option, you need to take ***ISBN*** and ***no. of copies*** as input from user.
- For option 3, the system will allow you to **sell** one or more books. It will ask user to enter the ***book title*** and ***no. of copies*** to sell book.
- For option 0, **exit** the application by breaking the loop or system exit