COMP231 – Advanced Programming

Assignment # 2

Objectives:

1. Create Classes and Objects.
2. Process Array of objects.
3. To use the **String** class to process immutable strings.

Specification

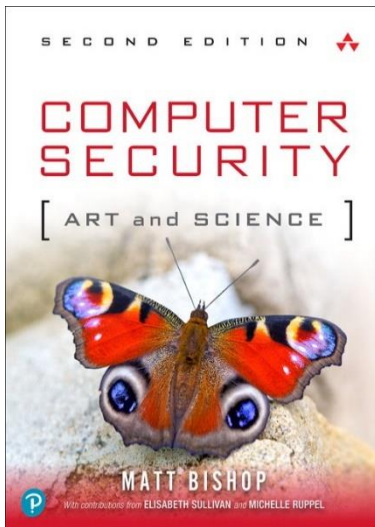**Submission**: Online **through Ritaj**.

What to submit: Your **OWN** **well-structured** and **well-commented** JAVA files (**.java**)

into a **studentId_sec#.rar** file, e.g. **118dddd_sec1.rar**).

Deadline: **24/10/2019** by midnight.   (The online submission will be disabled after this time).

Tasks

Book class

A book has many attributes. Consider the following "Computer Security" book as an example:

Title	Computer security
Author	Matt Bishop
Edition	2
Publisher	Addison-Wesley Professional
Date	2019
language	English
pages	1136
ISBN-10	0201440997 I
ISBN-13	9780201440997

- Create a **Book** class using <u>at least</u> the following 5 attributes:
    - *Title, Author, Edition, Publisher,* and *Language*.
- Create <u>two</u> constructors as follow:
    - No-argument constructor: that creates a book object using the default "Computer security" values.
    - A constructor with arguments using the basic **5** attributes that mentioned before.
- Create a public function called "***toString***" that returns a string contains the book object information.

Task 2: Library class

Create a **Library** class that contains an **array** of **Book**s (**with max 50 books**).
- The Library class has the following methods:
    - ***newBook*** : which adds a new book object to the Library's array.
    - ***borrowBook*** : search for a book in the Library's array using book's title (***or part of the title***) and if it's found and not borrowed mark it as borrowed else show a meaningful error message. Considering the following:
        - You can't borrow a book twice unless it has been returned.
        - If the book is not in the Library's array, it should indicate that the book is not available.
            - *Hint: consider a new Boolean attribute inside the book class to handle the borrow.*
    - ***returnBook*** : if a book was borrowed mark it to indicates that it has been returned.
    - ***printAvailableBooks*** : should print all the available(Not borrowed) books in the library.

Task 3: Driver class

Create a **Driver** class to test the **Library** and **Book** classes as follow:
- Add 10 different **Book** objects to the library.
- Borrow the 3rd and 4th book from the library.
- Try to borrow the 4th book again.
- Return the 3rd book to the library.
- Print the **available** (Not borrowed)books in the library.

Good Luck!