CSE212: SOFTWARE DEVELOPMENT METHODOLOGIES

YEDITEPE UNIVERSITY

FALL 2021

ASSIGNMENT 2 – DUE DATE DECEMBER 3RD, 2021

As part of your second assignment, you are required to alter the code from your previous work (Assignment 1) and enhance it using inheritance.

In addition to classes you have already implemented, you should create two new classes that would be inheriting their common attributes from another class as shown below (see Figure 1).

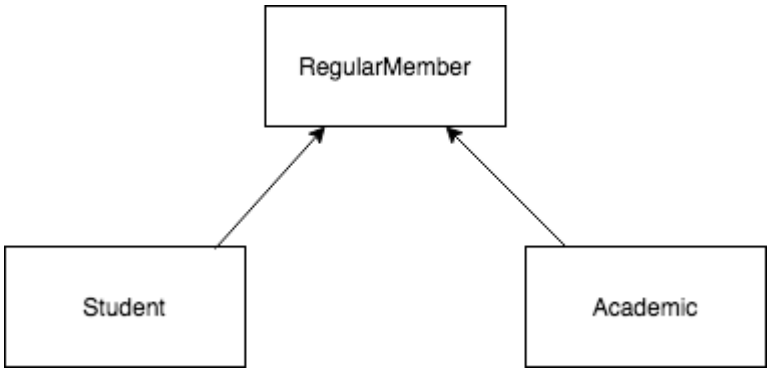

Figure 1: Inheritance Hierarchy

You should create *Student* and *Academic* classes as subclasses of the *RegularMember* class, since these two classes have common attributes with the *RegularMember* class. You should access common attributes with the help of the "*super*" keyword. Furthermore, any existing *private* attributes should be updated as "*protected*" to be able to use these fields throughout the inheritance hierarchy.

Additionally, you should alter the existing Book and OnlineArticle variables of the Reader class with an array of the corresponding class type. The *RegularMember* class should be able to store only 1 Book and 1 OnlineArticle. On the other hand, the *Student* class should be able to store up to 2 Books and 2 OnlineArticles and the *Academic* class should be able to store 3 Books and 3 OnlineArticles. In order to follow good programming practices, all

functionally of these classes should be implemented using setters and getters.Accordingly, the books and online article objects should be set using specialized methods such as *addBook(Book b)* and *addOA(OnlineArticle oa)*. The reserved book and accessed online article counts should be controlled with these methods.

The menu should be modified as follows:

1. Add a new book
2. Add a new Online Article
3. Create a member account
4. Reserve a book
5. Get access to an online article
6. Display all accounts
7. Exit.

When the user press 3rd option to create a reader account a sub-menu should appear as follows:

1. Create a regular member account
2. Create a student member account
3. Create an academic member account

If the user chooses the 1st option, a *RegularMember* class object should be created. Respectively, if the user selects the 2nd option a *Student* account and if 3rd option selects the *Academic* account should be created. All regular, student, and academic member accounts should be stored in the same array.

If the user presses the 6th option in the main menu, the program should iterate through the member array and display the reserved books and accessed online articles of all member accounts. To be able to do this you should add a displayInfo() method to your *RegularMember*, *Student*, and *Academic* classes.

Submit your assignments in a zip file, which has your student number as name, through the YULEARN (https://yulearn.yeditepe.edu.tr) latest by the end of Wednesday, December 3rd, 2021.