

**An-Najah National University**  
**Computer Engineering Department**  
**Object Oriented Programming (10636212)**

**HW2**

**Due date – 17/7/2022**

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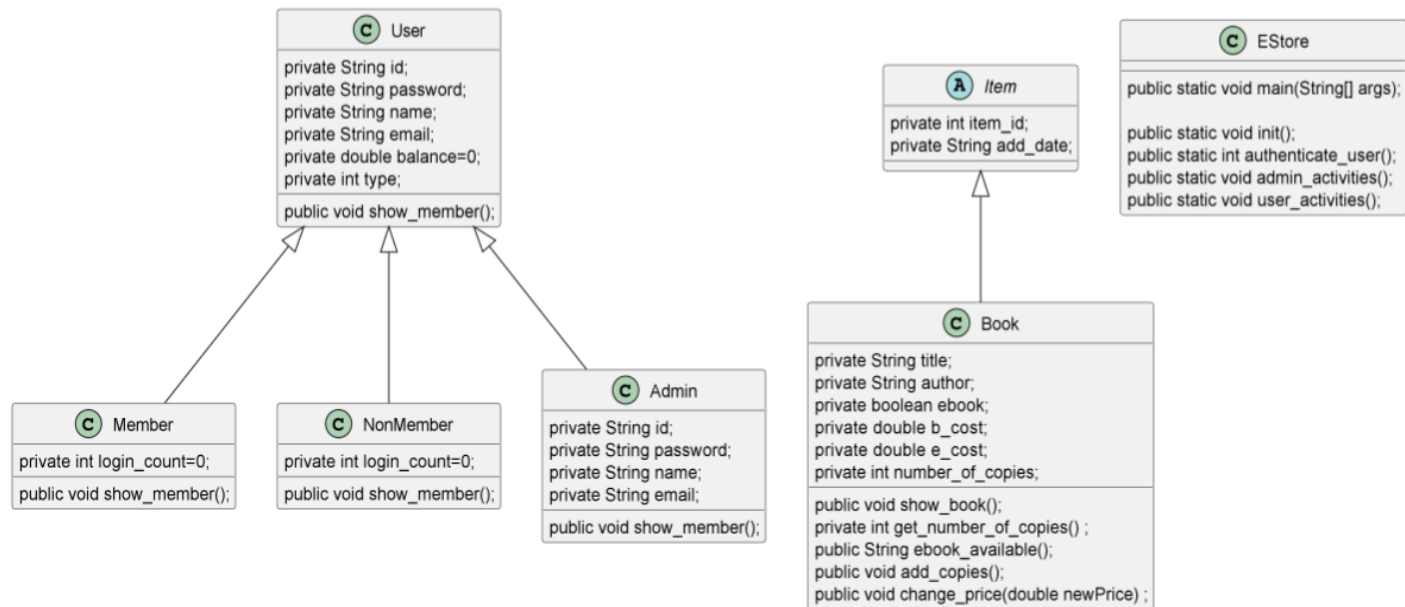
You are required to extend the **EStore application in HW1**

The application helps users to purchase books and Softwares in 2 formats.

- Book ⇒ can be purchased in the form of **physical** book and **e-book** format
- Software ⇒ can be purchased in the form of **CD** and the **download** format

**Phase2:**

Following the initial class diagram below, your task is to extend the implementation as required.



**EStore class: (Main application)**

`main ()`: used to call `init()`, `authenticate_user()`, `admin_activities()` and `user_activities()`;

Your task now is to implement the user\_activities which listed in the following menu:

1. Add item to shopping cart
2. View shopping cart
3. Remove item from shopping cart

4. Checkout
5. List all items
6. Print previous purchases for a specific user
7. exit

#### General implementation for all classes

1. Default constructor and user defined constructor.
  2. setter and getter for all member fields.
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1. Extend your application to include Software CD items; physical CD and online CD (i.e. can be downloaded).
  - a. Software CD items have a title and a publisher as attributes. [**Use all Inheritance** concepts; such as **super()**, **super ..**]
2. You should keep track of the availability of physical copies of Books and CDs as well as online items. (Use the concept of **Abstraction** to remove the duplicate code).
3. Each item should have a dedicated price; whether it is a physical book/CD or e-book/softwareCD-download.
4. A User can buy any mixed number of items (books and CD software).
5. A User can add one item at a time to his/her Shopping Cart.
  - a. A Non-Member user can only buy up to a total of 300 NIS. If a Non-Member User tries to add an item to his/her Shopping Cart that exceeds the maximum limit(300 NIS), then a customized error message should be displayed. [**Use the exceptional handling concept**]
    - i. if a Non-Member user has reached a total of 15% more than the limit (i.e. 300 NIS), then the system suggests becoming a Member user. if he agrees to become a Member User, then the system has to convert him/her to a member and then he/she can continue to take all privileges from the system[i.e. discount].
  - b. A Member user has no limit. But if a Member user has reached a total of more than:
    - i. 800 NIS, then they get a 5% **discount** off the total invoice.
    - ii. 1000 NIS , then they get a 8% **discount** off the total invoice.
  - c. When an Item is added to the Shopping Cart, the application should check the availability of that item (is there sufficient copies of it?)
  - d. If an Item is added or removed from the Shopping Cart, the number of copies available must be updated (increased or decreased the total number of copies).

- e. If an Item is added or removed from the Shopping Cart, then the total **balance** should be updated. **Balance** represents the amount of money that the user should pay when executing the checkout.
  - f. Items can be added and removed from a Shopping Cart until the Checkout action.
6. When the Checkout action is executed, then all items should be cleared from the Shopping Cart [becomes Empty Shopping Cart].
7. Users can log in and log out.
- i. They do not need to Checkout before logging out. If a User logs in back, their Shopping Cart must have the same items as before they logged out.
  - ii. **login\_count** attribute is used to retrieve the last activities and to check the contents of the Shopping Cart that belong to that login.
8. A user must keep track of all previous purchases, grouped by his/her Orders. Order is the set of items purchased at Checkout time.
9. An Administrator activities should be updated to include:
- i. The same functionalities in SoftwareCD such as add to the number of copies functionality.
  - ii. Print sales statistics in a well-formatted report [number of sales of each Item].

Enter UserName:

Haya Samaana

Enter PassWord

password

Welcome::Haya Samaana

Welcome User to EStore

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Please select an option:

- 1. Add item to shopping cart
- 2. View shopping cart
- 3. Remove item from shopping cart
- 4. Checkout
- 5. List all items
- 6. Print previous purchases

**Good Luck**