CS 202: IT Workshop I
Mid semester Lab examination
October 4, 2020

Class hierarchy 1: "User" is an abstract class and it has two subclasses "Admin" and "General".

Class hierarchy 2: "Item" is an abstract class and it has two subclasses "FoodItem" and "NonFoodItem".

There are two more classes "Sell" and "Return".

The fields of the classes are as follows.

User (userID, name, dateOfBirth, Address, PAN)

Admin (dateOfJoining, salary, permissibleOperations)

General (dateOfJoining, salary, dutyHourPerDay)

Item (itemCode, price, AvailableQty)

FoodItem (dateOfExpiry)

NonFoodItem (returnCount)

Sell (dateOfSell, itemCode, quantity, totalAmount)

Return (dateOfReturn, itemCode, quantity, returnAmount)

System supports following operations:

For Admin user:
i) addNewStock (item): This will add a new item to the system
[Hint: create a new object of Item class and add in the arraylist]

ii) deleteStock (itemcode): This will delete an existing item (represented by itemcode) from the system. Before deleting, it should ensure that available quantity is zero.
[Hint: remove the object with itemCode itemcode from the arraylist]

iii) modifyStock (itemcode): This will update an Item details (it may be price or availableQty). Item is identified by itemcode.
[Hint: search in the arraylist with itemcode and update]

For General user:
i) sellItem (itemcode, quantity): This indicates selling of an item.
[Hint: create a new object of Sell class and add into arraylist, call modifyStock() with appropriate parameters]

ii) returnItem (itemcode, quantity): This indicates return of an item. The system should not accept a return in case of a food item.
[Hint: create a new object of Return class and add into arraylist, call modifyStock() with appropriate parameters]

iii) displayStock (itemcode): Displays the details of the item indicated by itemcode
[Hint: search arraylist and display]

iv) displaySell (startDate, endDate): Displays the details of the sold items within the date range
[Hint: search arraylist with dateOfSell falling in the range]

a) Define all the classes with appropriate variable names and method names. You may assume appropriate datatype for the fields. You may also make use of the keywords static, final, etc. wherever applicable. You may also assume additional fields as appropriate.   **[20]**

b) Implement all the methods with proper logic   **[40]**

c) The application should support command line execution as follows.   **[15+15]**

Application Admin Manojit

First, this will check whether Admin user "Manojit" is a valid Admin user or not [Hint: You may keep three different names in a String array beforehand and do the comparison and proceed]

Then, only the operation options under Admin user will be shown and proceed. Keep an option to exit.

Application General Manojit

First, this will check whether General user "Manojit" is a valid user or not [Hint: You may keep three different names in a String array beforehand and do the comparison and proceed]

Then, only the operation options under General user will be shown and the application will run. Keep an option to exit.

Additional hints:

Item code of food items should start with "F" and for non-food items should start with "NF" (example: F001, NF005, etc.)

Note:

No queries will be answered during the lab hour. If required, you assume things from your end (as appropriate) and write those as comments at the appropriate places.

There is no restriction on usages of available packages/classes from java libraries.

Write your own code. DO NOT copy from net or any other sources. This may lead to heavy penalty. If you copy from your friend, both the parties will be penalized.