National University of Computer and Emerging Sciences, Lahore Campus

Course:	**Programming Fundamentals Lab**	**Course Code:**	**CL1002**
Program:	**BS (Electrical Engineering)**	**Semester:**	**Fall 2023**
Assessment Tool:	**Design Project**	**LLOs:**	**LLO-3**
			LLO-4
Total Marks:	**60 [Code(40)+Report and Quiz(20)]**		

Problem:

You have to develop an online Grocery Store. Your system should be able to store data related to the grocery items as well as the users. The details of the items must be maintained to develop a repository. The system should be able to generate bills for the customers and update the repository whenever there is a sale transaction. Furthermore, the system should be able to prompt if a certain item runs out so that the manager may decide for timely reinforcements.

You are required to do the following:

1) Start by reading data (i.e. grocery items) from a file which would contain the details as shown below. Set a limit to the number of items to be stored in the e-store (say 50). Every item may or may not have a fixed number of quantity available (say 50 boxes/bottles/packs). Once you upload the data, you can now work on the successive parts respectively. (10 Marks)

   The information related to the item(s) is as follows:
   - Product ID
   - Product Name
   - Weight
   - Mfg date
   - Exp date
   - Price (per pack/per bottle)
   - Quantity

2) Now that you have the data available with you, you must implement the following functionalities for the customer: (20 Marks)
   - Search an item in the repository (also show its expiry date and price)
   - Insert an item in the cart (if available)
   - Delete an item from the cart
   - Update quantity of an item (increase or decrease)
   - Get user details (i.e. Name, Address and Contact Number before check-out)
   - Add tax and delivery charges on the finalized order.

   Remember these functionalities will be used time and again so you need to use appropriate programming practices. Furthermore, system should prompt the user once an item runs out of quantity.

3) Now that the system is ready for the sale transactions. The system should be able to display bills for the purchased quantities inculcating tax amount and discounts (if any). The same receipt should be output to a file (display in a nicer format i.e. tabular form) so that the customer may get a print-out. (10 Marks)

   Bonus Tasks:
   a. Offer a discount of 20% to the Loyal Customers (a customer with more than 5 orders).
   b. If the order exceeds 10000PKR, delivery charges may be waived off.
   c. Try to inculcate GUI (i.e. Graphical User Interface) as much as possible.

SUBMISSION DETAILS
- You must do this assignment in a group (2 students) assigned to you.
- Code for all the problems is to be submitted on GCR by Tuesday 12th - 14th Dec 2023 in your respective lab sessions.
- Submit complete solution (Code + Report) in your respective Lab Session in last week of semester. Project Quiz to be conducted in the last lab session.

NOTE
Submit efficient and properly commented code. Try to inculcate exception handling as much as you can.

VERY IMPORTANT
Academic integrity is expected of all the students. Plagiarism or cheating in any assessment will result in negative marking or an **F** grade in the course, and possibly more severe penalties.