

## Assignment 01

### Due: Self November 28, Open November 29

A retail store wishes to update its computer system and needs to store the following details: Customer: idNo, name, shipping address, email address; Product: product ID, product name, product quantity, product price; Order: order ID, date of order, products in the order. Employee: empID, name, address, contact number, email address, job title.

- a) Use composition to reduce the programming effort and store the data appropriately.
- b) Write code for the order class, initializing the variables through constructors. An order can have multiple products. Initially, an order has no products, but should be able to add products to the order. If a product already exists in the order, increment the quantity of the product. The class also has a method for removing a product from the order and a method for displaying the products. The order class should have method to calculate the total price for all the products. The class should also keep track of the total number of orders generated.
- c) Write code for all the classes. You can add more classes or variables if required.
- d) All the classes should have toString methods to prints its details.
- e) Propose a solution that allows the product objects to be initialized with and without an initial quantity.
- f) Write a test class that instantiates the objects for all the classes and adds products to the order.
- g) The store has multiple employees in different roles, for example, managerial staff works on fix pay, cashiers work on hourly basis, with 40 hours maximum per week, and are paid 1.5 time of their normal pay for the extra hours. A cashier's name might appear on the order receipt of the customer.
- h) Products can be edible and nonedible. Nonedible items are charged sales tax at the rate of 17%.
- i) Draw a UML class diagram that shows the classes and the relationships among the different classes you have identified.