**Lab Session Four Exercise**

**E-Commerce Study:**

Consider the following features of an online e-commerce shop: Customers should be able to search for products by Title and Category. Once they find a product they like, they can add the product to their shopping cart. This requires that they are logged in, therefore if they do not yet have an account, they should be able to create one. When creating an account, a username and password should be chosen, and optionally, they can enter their home address and/or the credit card information they want to use for paying. Credit card information consists of the name on the credit card, the credit card company, the credit card number, and the expiration date. They can add as many products to the shopping cart as they want, and they can also remove products. If they decide later at some point to check out the shopping cart, then they are asked to check the shipping address and credit card information supplied, and if either of those was not supplied, they are asked to supply it. Next, they can review the contents of the shopping cart, and if they agree, they can send the order. Then, the credit card information is sent to the bank, and, if approved, the order is finalized. If the information was not approved, then the customer is made aware of this, so he/ she can change the payment option.  A delivery agent can check the status of online orders, and process an order, meaning that it changes its status from “pending” to “delivered”. They can also add products to their favorite list for purchasing items in future. The administrator is responsible for the products inventory. He can check the current inventory, order new products from the supplier, and add products to the inventory.

1. **Implement and achieve (Abstraction, Encapsulation, Polymorphism and Inheritance) for the given scenario in Java/C++.**
2. **Also draw use case diagram for the given scenario.**