**Lab Session Three Exercise**

**Q1. Create a UML Use Case Diagram for the following “print-on-demand service” scenario.**

The print-on-demand service provides customers the possibility to print posters, flyers, or books on demand. The customer should be able to select a type of product (poster, flyer, or book), a desired quantity, and a paper type. In case a book has to be printed, additionally the customer can choose between hard cover and soft cover. Finally, the customer needs to provide a PDF file containing the desired content.

In order for the customer to be able to place an order, he or she must have an account. The customer can create an account by choosing a username/password combination. Furthermore, his or her address and credit card number can be linked to the account, which is required information when placing an order.

Once a customer has provided the information for an order, the system checks if all required information is there, either given in the order (type of product, quantity, etc.), or in the account (address and payment information). If any information is lacking, the system will inform the customer that it needs to be added before the order can be placed. Once all information is in place, the order is placed, and the credit card information is sent to the bank for approval. If the bank approves the card, the order is finalized.

A printing agent is in charge of actually performing the printing. He or she inspects the provided PDF files of finalized orders. If a file does not meet the quality requirements, the customer will be informed about this, and the order is temporarily put on hold until the customer has provided a new PDF file.

Finally, the administrator monitors if at all times, sufficient paper and ink stock is present. Whenever the amount of paper or ink is running low, an order must be placed at the appropriate supplier (either the paper or ink supplier).

**Q2. Create a UML Use Case Diagram for the following “online DVD shop” scenario.**

Customers should be able to search for DVDs by Title and Category (some examples of categories are: Series, Movies, Music). Once they find a product they like, they can add a DVD 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 DVDs to the shopping cart as they want, and they can also remove DVDs. If they decide 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”.

Finally, the administrator is responsible for the DVD inventory. She can check the current inventory, order new DVDs from the supplier, and add DVDs to the inventory.