Assignment 3

1. For large distributed business franchises in Bangladesh, a well-known software farm is building software that can be used commonly. Here the concept is that the business management policies are provided from a Head office and the Back offices are the distributed franchisors who abide by the business policies.

   Here, the Head Office component contains five components that are Stock Item database component, Policy component, Tax component, Rebate component, and Special Price component. The Policy component provides two interfaces, setPolicy, and taxExempt. The setPolicy interface is required by the Stock Item component. Tax and Rebate components provide an interface called readStock which is dependent on stock details from the Stock Items component. These two components also require the taxExempt interface. The Special Price component requires the tax price interface which is provided by the Tax component and Rebate component. The Tax component provides taxStatus interface, Rebate component provides rebateStatus interface, Special Price component provides specialValue interface which is exposed outside of The Head Office component through 3 ports and all three of these interfaces are required by The Back Office component. The Back Office component provides two interfaces taxExempt and setArea which are required by the Tax Rebate component and the Region Component respectively.

   Design a Component Diagram based on the above scenario.

2. Let's assume you are planning an e-commerce startup company called Rent-a-Boi. In this system, the User needs to input his/her user id and password. If the credentials are wrong, the system will show an error message to the user. A user can search for a book. If the book is unavailable, users can request that too. Users can also buy books from this system. Users can make payments to the system and the system will send an acknowledgment to the user. The system can send the requested book list to the Admin. Admin can add new books and update the book database.

Now **Design** the context diagram of the Rent-a-Boi system.

   A user inputs his/her credentials to the login process. Login process verifies the information by checking with the user datastore. When a user searches for a book, check the availability process takes that input and checks the availability by looking at the Book datastore. A user can buy books from the system that is handled by the AB2C (add book to cart) process. The checkout process takes all books from the AB2C process, updates the Book datastore and forward the total price to make payment process. On the other hand, the user provides the payment information to the payment process too and it sends an acknowledgment to the user. When a user requests a new book, the request book process forwards the requested book information to the Admin. Admin can add new books to the Book datastore or update the datastore with the new collection.

Now Design the Level-1 diagram of the Rent-a-Boi system.

**Make necessary assumptions where needed.