Advanced Software Engineering

CSE870, Spring 2003

Homework 2

Due: February 21, 2003

BECS, like any other e-commerce systems (or, in fact, all systems that are running on the Internet), is at risk of many security threats, intentional or unintentional. Examples of such threats are:

- Database tampering, such as unauthorized modification of item prices.
- Information thefts, such as stealing customers’ credit cards’ information.
- System attacks, such as denial of service (DoS) attacks.

Therefore, BECS will have to be secure. However, since BECS is also intended for direct communication with customer, if the security system is too complicated, too intrusive, or too restrictive, the consumers will become frustrated and switch to more user-friendly competitors, resulting in market share decrease. Therefore, BECS system developers need to balance ease-of-use and security.

In this assignment, you will have to do the following:

1. Develop a security policy (written policy, no diagrams involved).
2. Extend your class diagram for BECS system to incorporate these added securities features from the aforementioned policy.
3. Create the two sequence diagrams, one for manager authentication and the other for customer authentication.
4. Create one state diagrams for login control system to handle both manager and customer login scenarios from the above sequence diagrams.

This assignment is to be completed by two students per team. That means you will have two class diagrams from the first homework, one from each of you. You can either choose one of your class diagrams or combine the two together into a new one.

Extra Credit create sequence diagram for one or more of the following features:

- Secure transmission of credit card number.
- Prevention of denial of service attacks (e.g. from too many access from the same IP address).
- Information verification (e.g. prevent usage of invalid credit card number).