**Tutorial 4**

**GC 312**

**Problem 1:**

Suppose we have State University (ASU) Registration System:

* Professors indicate which courses they will teach on-line.
* A course catalog can be printed
* Allow students to select on-line four courses for upcoming semester.
* No course may have more than 10 students or less than 3 students.
* When the registration is completed, the system sends information to the billing system.
* Professors can obtain course rosters on-line.
* Students can add or drop classes on-line.

Draw a use case diagram for this system.

**Problem 2:**

A user placing an order with a sales company might follow these steps :

1. Browse catalog and select items.
2. Call sales representative.
3. Supply shipping information.
4. Supply payment information.
5. Receive conformation number from salesperson.

Then translate Use Case sequence into Diagram.

**Problem 3:**

The following System: Vending Machine.

A vending machine sells small, packaged, ready to eat items (chocolate bars, cookies, candies, etc.).

Each item has a price and a name. A customer can buy an item, using a smart card (issued by the vending machine company) to pay for it. No other payment forms (i.e. cash, credit card) are allowed. The smart card records on it the amount of money available. The functions supported by the system are:

* Sell an item (choose from a list of items, pay item, distribute item).
* Recharge the machine.
* Set up the machine (define items sold and price of items).
* Monitor the machine (number of items sold, number of items sold per type, total revenue)

The system can be used by a customer, a maintenance employee (who recharges items in the machines), and an administrator (who sets up the machine).

Model this system with a class diagram and use case diagram.