Systems Analysis & Design CS183

Lab session 3

UML – Behavioural Modelling

(adapted from Dennis,Wixom & Tegarden (2005))

Objective:
Understand the process used to create sequence diagrams and state machine diagrams.

1. Read the following scenario for a video store system and create a sequence diagram. ***(Assume, for this diagram, that every customer entering the store has a valid membership card).***

   "Each customer must have a valid card in order to be allowed to rent a video for three days. Every time a customer rents a video, the system must check that the customer does not have any overdue videos. If so, the overdue videos must be returned, and a fine paid before the customer can rent any more videos.

   IMPORTANT NOTE: in iUMLite, the actors are considered part of the boundary - they are not shown as objects in the sequence diagram..

Hints:

- A customer selects a **video** and then **takes** the video to the front desk.
- The desk assistant **checks** the **RentalDatabase** to see if the customer has any overdue videos.
- When an overdue fee is paid, the **VideoDatabase** is updated, and the system must generate a receipt.

2. Consider the video store that is described in Question 1. Draw a **behavioural state machine diagram (state chart diagram, in iUMLite)** that describes the various states that the video class goes through from the time it is placed on the shelf through the rental and return process.

Hints:
A video can be

- ***displayed*** **by the store,**
- ***observed, selected, rented, watched, returned*** **by the customer.**
- ***checked*** **for damage by the store**
- ***checked in*** **if its condition is good**
- ***discarded*** **if its condition is poor**