COMP 3831 – Object Oriented Analysis and Design

Assignment 1

Assignment Date: Week 3
Due Date: Week 5

Assignment Objective:

The purpose of this assignment is to review and practice the concepts that you learned in the first three lectures: requirements analysis, use cases, use case diagrams, domain model, class diagrams and object diagrams.

Problem Statement:

You have been asked to build a new online registration system for Cap College.

1.   At the beginning of each term, students may request a course catalog containing a list of course and course sections for the term. Information about each course such as instructor, department and prerequisites will be included to help students make informed decisions.

2.   The system will allow students to select 5 course sections for the coming term. In addition, each student will indicate 2 alternative choices in case a particular section is full or is cancelled.

3.   No section will have more than 20 students or fewer than 5 students. A section with less than 5 students will be cancelled.

4.   Once the registration process is completed for a student, the registration system sends the information to the billing system so that the student can be billed for the term.

5.   Instructors must be able to access the online system to indicate which course sections they will be teaching and to see which students have signed up for their sections.

6.   For each term, there is a period of time that students can change their schedule to add or drop courses or even to change sections.

Note: For each course the administrator will schedule course sections. A course section contains information regarding the location, time, no of students registered, etc. A student can register for a course section, not for a course. For example, the **course** COMP3831 has one **course section** available Wednesday 6:30-9:30pm, SE12-318.

Assignment:

1. Construct a use case model for the <u>complete system</u>. The use case model must contain:

   a. A list of actors with a brief description of each actor's relationship with the system.

   b. The Actor – Goal list.

   c. The list of use cases containing:

      1) The use case ID – for example UC1, UC2, etc.
      2) The Primary Actor
      3) The use case Name – starting with a verb
      4) A brief description of the goal

   d. Write the fully dressed use case document for: "Add Course Sections to Teach"
      - Primary actor – the Instructor
      - Goal - search the courses based on criteria: **term, course**
      - Select the desired course sections to add (select one and repeat)

      Write the use case following the **Actor – System** format and include preconditions, post-conditions, main flow and at least 2 alternate flows.

   e. Create the UML use case diagram showing the actors, the use cases and the relationships between them for the <u>entire system</u>.

2. Identify the domain model classes for the whole system. Draw the UML class diagram showing the classes and the relationships. Add a couple of attributes for each class.

3. Draw the UML sequence and collaboration diagrams for the "Add Course Sections to Teach" use case.

Submitting your assignment:
   1. Print all documents and diagrams. Staple the Assignment (this paper) and the Marking guide, which will be posted to the front of your assignment.
   2. Your assignment has to be submitted as a word document
   3. There will be marks awarded for submitting the assignment correctly.
   4. Upload the documents named starting with your surname, to the dropbox.

The instructor will decide if late assignments are accepted.

Marking Guide

Category	Maximum	Mark
Submission instructions followed	5	
List of actors	5	
Actor-Goal list	10	
List of use cases with description	10	
Main scenario for "Add Course Sections to teach"	15	
Alternate scenarios	10	
Use case diagram	10	
Domain Class diagram for the whole system	15	
Attributes and relationships for classes	5	
Class diagram for the use case	5	
Sequence and collaboration diagram for the use case	10	
Total	100	