

Comp 3711 Object Oriented Analysis and Design

Instructor: Richard Chau

Due: At end of lab session (October 6, 2008 for sects 3A, 3B, 3F and October 8 for sect 3G)

Work Effort: The assignment must be done with a *partner* from your set. IF there is an odd number of students in your set and you are the odd person left out, talk to your lab instructor. He will give you permission to do the assignment by yourself or help arrange a partner from another set. If your partner drops out of the program or does a vanishing act, talk to your lab instructor immediately.

Submission: (1) Submit a printed copy (stapled) in word document format (Word 2003 format) to Lab Instructor at the end of your lab session in the week of October 6, 2008. The relevant diagrams must be pasted in the Word document. Hand written assignment will not be marked. You must use the front cover page template (which includes the marking guideline) provided in the appendix and personalize the required detail (First and Last names, Student_ids and Set_id).

(2) When you submit your printed copy, you also submit a electronic copy in a file to the share-in drive identified by *<LastName><FirstName><Student_ID><SetID>C3711Assg1.zip* with setID=setXX where XX is your set identifier. Your zip folder should contain all the relevant mdl files and the word document. Make sure you save your work in the lab to a file and paste to the Word document. Make sure you post your electronic copy in the respective set folder in the share-in drive.

Assignment 1

Your Assignment Deliverables:

1. Create the package in the Use Case View in Rational Rose.
2. Find the classes for the “Select Courses to Teach” use case. Construct a UML Domain Class Diagram in the Logical View showing the classes. You are to show all relevant attributes for each domain class and the associations between the classes.
3. Construct UML SSD (System Sequence Diagram) and Collaboration Diagrams for the “Add Course Section to Teach” stated in the S-1 scenario of the “Select Courses to Teach” Use Case given below.

Problem Statement:

For your group’s 39xx project, you’ve been asked to build a new online registration system for Cap College. A previous group of students has left you with following the Analysis information, including system description, brief descriptions of the Use Cases, a detailed Use Case description of the “Select Course Sections to Teach”.

1. At the beginning of each term, students may request a course catalogue containing a list of course and 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.

SYSTEM USE CASE MODEL

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

1. Student
 - a person who is registered to take classes at the college
2. Instructor
 - a person who is certified to teach classes at the college
3. Registrar
 - the person who is responsible for the maintenance of the Cap College Course Registration System
4. Billing System
 - the external system responsible for student billing

B. A list of use cases with a brief description of what the use case does.

1. Register for courses
This use case is started by the student. It provides the capability to create, modify, and/or review a student schedule for a specified semester
2. Select course sections to teach
This use case is started by the instructor. It provides the capability to add or remove a course section from the instructor's load. It also provides the capability of reviewing or printing the current load.
3. Request course roster
This use case is started by the instructor. It provides the capability to display all of the course sections that the Instructor is teaching and the students that are registered in the sections
4. Maintain course information
This use case is started by the registrar. It provides the capability to add, modify, delete and display courses and sections
5. Maintain instructor information
This use case is started by the registrar. It provides the capability to add, modify, delete and display instructors
6. Maintain student information
This use case is started by the registrar. It provides the capability to add, modify, delete and display students
7. Create course catalog

This use case is started by the registrar. It provides the capability to print a catalogue of courses

- C. Below contains a detailed write up of the “Select Courses to Teach” Use Case which is used by the “Instructor” actor. The write up includes preconditions, main flow, sub flows, alternative flows and any post use case guarantees. This Use Case is preceded by the Create Course Sections sub flow of the Maintain Course Information Use Case.**

1.1 *Preconditions*

The Create Course Sections sub flow of the Maintain Course Information use case must execute before this use case begins

1.2 *Main Flow*

1. *This use case begins when the Instructor logs onto the Registration System and enters his/her password. The system verifies that the password is valid (E-1) and prompts the Instructor to select the current semester or a future semester (E-2).*
2. *The Instructor enters the desired semester The system prompts the Professor to select the desired activity: ADD, DELETE, REVIEW PRINT or QUIT*
3. *If the activity selected is ADD, the S-1: Add a Course Section sub flow is performed.*
4. *If the activity selected is DELETE, the S-2: Delete a Course Section sub flow is performed.*
5. *If the activity selected is REVIEW the S-3: Review Schedule sub-flow is performed.*
6. *If the activity selected is PRINT the S-4: Print a Schedule sub flow is performed.*
7. *If the activity selected is QUIT the use case ends.*

S-1: Add Instructor to a Course Section (similar to Add a Course Section)

1. *The system displays the course screen containing a field for a course name and number.*
2. *The Instructor enters the name and number of a course (E-3).*
3. *The system displays the course sections for the entered course (E-4).*
4. *The Instructor selects a course section.*
5. *The system links the Instructor to the selected course section (E-5).*
6. *The use case then begins again.*

S-2: Delete Instructor from a Course Section (similar to Delete a Course Section)

1. *The system displays the course section screen containing a field for a course section name and number.*
2. *The Instructor enters the name and number of a course section (E-6).*
3. *The system removes the link to the Instructor (E- 7).*
4. *The use case then begins again.*

S-3: Review a Schedule

1. *The system retrieves (E-8) and displays the following information for all course sections for which the Instructor is assigned:*
 - course name*
 - course number*
 - course section*
 - number days of the week*
 - time, and location*
2. *When the Instructor indicates that he or she is through reviewing, the use case begins again.*

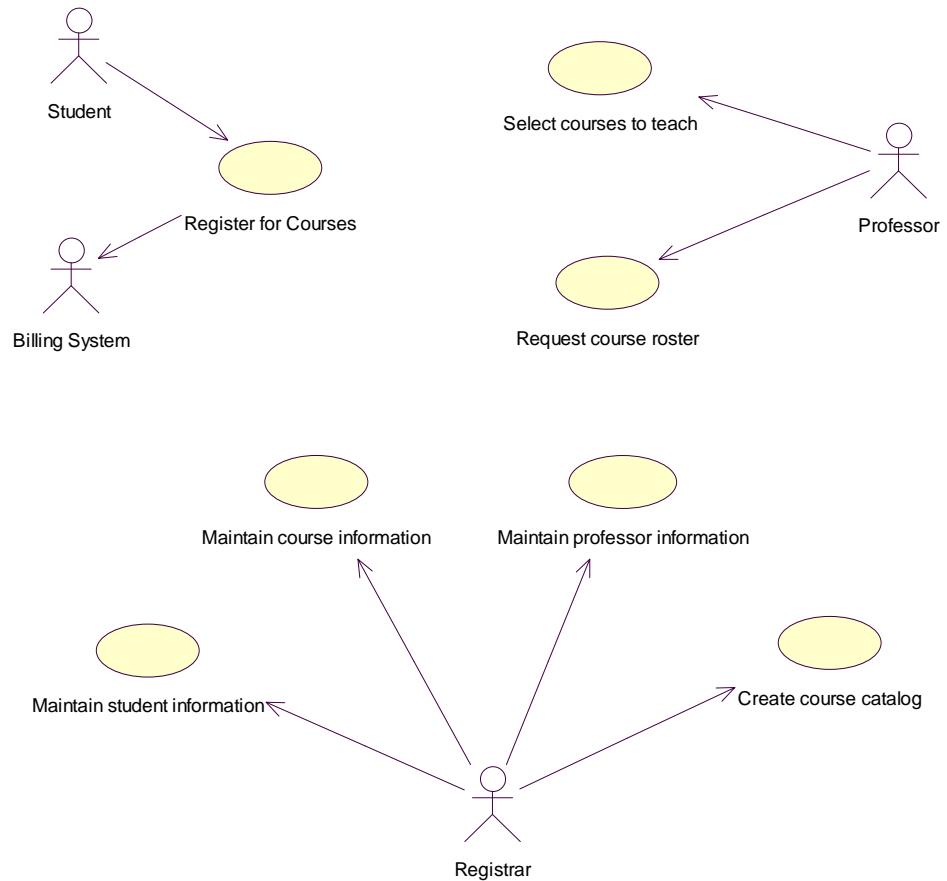
S-4: Print a Schedule

1. *The system prints the Instructor's schedule (E-9).*
2. *The use case begins again.*

Alternative (Error) Flows

- E-1: An invalid instructor ID number is entered. The user can re-enter a instructor ID number or terminate the use case.*
- E-2: An invalid semester is entered. The user can re-enter the semester or terminate the use case.*
- E-3: An invalid course name/number is entered. The user can re-enter a valid name/number combination or terminate the use case.*
- E-4: Course sections cannot be displayed. The user is informed that this option is not available at the current time. The use case begins again.*
- E-5: A link between the instructor and the course sections cannot be created. The information is saved and the system will create the link at a later time. The use case continues.*
- E-6: An invalid course sections name/number is entered. The user can re-enter a valid course sections name/number combination or terminate the use case.*
- E-7: A link between the instructor and the course sections cannot be removed. The information is saved and the system will remove the link at a later time. The use case continues.*
- E-8: The system cannot retrieve schedule information. The use case then begins again.*
- E-9: The schedule cannot be printed. The user is informed that this option is not available at the current time. The use case begins again.*

D. A UML use case diagram showing Actors, Use Cases and the Relationships between them for the full system.



COMP 3711

Assignment 1 Fall 2008

Submission Cover Sheet

Due by: October 9, 2008, Thursday, 3:30 pm

SET: _____

Name: _____
Student_Id: _____

Name: _____
Student_Id: _____

| Section | Max | Your Mark |
|-----------------------|-----------|-----------|
| Use Case Diagram | 5 | |
| SSD Diagram | 20 | |
| Domain Class Diagram | 20 | |
| Collaboration Diagram | 5 | |
| Total | 50 | |

Comments: