ISOM3260 Database Design and Administration

Project Case

1. Introduction

Classic Education Center provides professional training services to working adults. Your team has been hired as IT consultants to develop a course enrollment system for the Center.

2. Requirements Definition

Classic Education Center has a similar business model as other typical tutorial centers. A customer is required to register as a student before he/she can log in to the system. Student browses a list of available courses in the system. Besides browsing for courses, student can also search for his/her desired courses using keywords.

When student has not decided to enroll into his/her favorite course(s) directly, he/she can bookmark the course(s) first. Student can view and delete the bookmarks later. A student's list of bookmarks should always contain valid courses. In other words, invalid bookmarks, like cancelled courses or any courses that are no longer available for enrollment, should be removed from the database automatically.

To successfully enroll into a course, there should be an available quota. Students can enroll into a course anytime, as long as the course has not ended. He/she needs to provide a credit card number for enrollment. After payment is confirmed, the enrollment is stored in the database. Student can always view his/her enrollment records afterwards.

On the other hand, manager logs into the system to view and maintain students, instructors and courses information. Manager needs to handle cancelled courses and the corresponding refund process through the system.

In addition, manager has a dashboard to generate different information for analysis, such as top instructors, the most popular course categories, and some other reports.

To allow more personalized teaching, instructor can view his/her own courses and class rosters.

After finishing a course, student may give feedback and rating to the course instructor. Course instructors can view the feedback and rating. To protect students' privacy, all feedback and ratings should be anonymous.

3. Summarized basic functional requirements

<u>Data Requirement</u>

d1.   Student-related info (e.g., name, address, email, password, current job, level of qualification, bookmarks, etc.)

d2.   Course details (e.g., course name, description, quota, instructor, timeslot, enrollment fee, etc.)

d3.   Enrollment details (e.g., student id, course enrolled, status, attendance, etc.)

d4.   Instructor details (e.g., instructor name, password, education background, biography etc.)

d5.   Any other data that you think will be valuable to store

<u>Process Requirement</u>

<u>Customer/Student</u>

s1.   Allow customer to register as a student

s2.   Allow customer to retrieve or reset the login name/password in case they have forgotten

s3.   Allow student to update the personal information

s4.   Allow student to list/search for courses and view the course details

s5.   Allow student to bookmark courses

s6.   Allow student to view and delete the valid bookmarked courses

s7.   Allow student to enroll into a course

s8.   Allow student to view his/her own enrollment records

s9.   Allow student to give rating and comment after finishing a course

<u>Instructor</u>

i1.   Allow instructor to list/view his/her own courses

i2.   Allow instructor to view for his/her class rosters

i3.   Allow instructor to view his/her course feedback and average course ratings

<u>Manager</u>

m1.   Allow manager to maintain student/instructor/course details

m2.   Allow manager to view real-time response rate of the course feedbacks

m3.   Allow manager to generate class roster for instructors

m4.   Allow manager to maintain the list of students that needs to refund due to course cancellation in real-time

m5.   Allow manager to display "Manager Dashboard" for r1-6

Note: Student/instructor/manager should login first to perform the processes, except s1 and s2.

<u>Manager Dashboard Requirements</u>

r1.   Show total daily and monthly revenue from course enrollments

r2.   Show all new enrollments of today (And be able to view detail of each student listed)

r3.   Show the 5 most popular course categories and each of the enrollment number

r4.   Show the top 5 instructors for the year/month (in terms of course rating)

r5.   Show the number of course enrollments of different statuses

r6.   Show the courses currently available for enrollment and their remaining available quota

4. Remarks

a)   You can assume the verification of validity of credit card is done by the Credit Card Clearing House. You do not have to verify whether the credit card number, CVV number, expiry date inserted by the customers are correct.

b)   This is an enrollment system. You can assume that other business functions, such as Accounting ,etc. are not handled by this system.

c)   In this phase, we decided to store the information of all courses in English only.

d)   For simplicity, you can use ERD, but not Enhanced ERD, for the system design.

e)   Use only simple attributes when designing the ERD as Oracle database stores simple attributes but not composite/multivalued attributes.

f)   For simplicity, you are not required to use images, videos, sound clips in this system.

5. Optional Feature

Your group may also consider implementing one set of optional functions. Due to time constraints, your group should only implement as most one of the three sets.

Set A
'Early bird discount'
a1. Allow manager to setup discount rate and the discount due date for each course
a2. Allow student to enjoy a discounted enrollment fee if he/she enrolls into a course earlier than a certain date defined in a1

For example, if a student enrolls into the course 1 month before the course starts, he/she can enjoy a discount of 20% off.

Set B
'Promote code'
b1. Allow manager to setup promote codes and their valid periods
b2. Allow student to enjoy a discounted enrollment fee if he/she enters a valid promote code while enrolling a course. Different promote codes may have different discount rates.

For example, student enters the promote code "HANDSOMESAMUEL" can get a discount of 20% off, entering the promote code "NICEJAMES" can get a discount of 50% off. When entering an invalid/expired promote code, such as "TALLCHRIS", the system should prompt an error and no discount is given.

Set C
'Pre-requisite'
c1. Allow manager to define **ONE** pre-requisite course for a course
c2. Allow student to enroll a course only if he/she has already received a passing grade in the pre-requisite course

For example, the pre-requisite of the course – "Japanese Intermediate" is "Japanese Basics". To enroll into "Japanese Intermediate", he/she must receive the passing grade in the course "Japanese Basics".

Hints:
You may have to add appropriate attributes or new entities to implement the optional features.