Logo, company name

Description automatically generated

Lab 7: Snow College Part 1

LIS464-Applied Database Design

Information School, University of Wisconsin-Madison

**Deliverables:** This word document with questions answered.

**Alert**: I highly recommend working in groups. Each group member needs to submit their own copy of the answer sheet for the assignment.

**Design a database for Snow College**

This lab asks you to provide the details about the conceptual design of a database project. Please read the case description and instructions below to finish this exercises. This lab can be **a group or an individual** project. If you are working as a group, please put all members’ names in this document. **However, each of the team is required to submit a copy of the answers to the Canvas assignment space.**

**Case Description:**

Snow College is a national liberal arts college located in Madison, Wisconsin. It was founded in 1936, and now has about 6,000 students, 200 faculty members and about 100 staffs. Snow College offers about 75 undergraduate majors and 20 graduate degrees. The college’s registrar uses spreadsheet to keep course and students related information, which had been a nightmare. They recently decided to hire a database development team to build a database system for the registrar office use. Image that you are the developing team. After interviewing many of them, this is the information that you got regarding their needs of this database.

**Database Objectives:**

* Snow College wants to keep information for students and faculty members (instructors/lectures), including their name, date of birth, email address, telephone number, university ID number, etc.
* Snow College wants to keep track of information on courses including title, description, credit hours, level (introductory, intermediate, advanced) and prerequisites
* Snow College wants to enforce use of a official list of semester codes. The semester codes include: code, semestername, semester year, start date, end date.
* The system must support a query that would generate an official “Schedule of Classes” for each semester. The official Schedule of Classes would include a complete listing of classes and their instructors for a particular semester. Students register for a class by looking at the produced schedule of classes for the correct semester.
* The system must support a query that will allow students to produce a “Personal Schedule” that lists their courses and instructors for a given semester.
* The registrar wants to help departments keep track of their instruction over time. The system should support queries that show a department what courses they offered each semester over many years, and who was the instructor for each class.

Business Rules :

1. **Courses** represent an area of study pertaining to a specific subject and level that would be listed in a university catalog such as guide.wisc.edu. It has no specific offering semester and no specific instructor. It is only in the abstract.
2. A **class** represents an instantiation of a course scheduled for a specific academic year, and assigned to specific instructors. Students would register for a specific class.
3. A course can be the prerequisite for many other courses
4. Each course can have as perquisites many other courses
5. Only one instance of a class will be scheduled for each semester (a vast simplification!)
6. A lecturer can lecture many classes in one semester.
7. Each class has just one lecturer (no co-teaching)
8. A course can be scheduled in many schedule of classes over time.
9. A student can register for many classes each semester
10. Each scheduled class can be registered by many students
11. Over time, a student registers for many different semesters during their time at Snow College

**Exercises**

1. Write a mission statement for the database (see H4).

The database exists to effectively organize information pertaining to students, faculty, courses, and scheduling in a way that is easy to understand where necessary information links to other relevant information in ways that a spreadsheet cannot. With the implementation of this database, administrative processes can be streamlined, data accuracy is improved, and less mistakes or enrollment conflicts are likely to happen, which benefit both students and faculty. Additionally, the database can support queries that create class schedules of a particular semester, as well as personal schedules for students, which would promote more efficient and smooth academic planning and student registration.

1. State at least 3 objectives for the database (see H4).

* Manage course-related information such as class names, credit hours, prerequisites, lecturers, description, and academic level while enforcing limitations such as prerequisites.
* Maintain comprehensive records of students and faculty such as names, date of birth, email, telephone number, and University ID.
* Utilize semester codes as a standardized reference for scheduling and academic tracking.
* Be able to generate schedules of classes so students can register easily and generate personal schedules of students for a given semester, while also providing a method to archive instruction over time for each department.

1. State one question that you would like to ask the managers or users of the database in order to better understand their needs.

What is the largest source of inefficiency or error when using the spreadsheet-based system when attempting to register for classes, organize student information, or looking up specific classes or people?

1. Fill in the below table with at least 5 proposed entity names and at least 4 attribute names per entity including a primary key. (Hint: there will eventually be 7 different entities in the Snow College database.)

|  |  |
| --- | --- |
| **Entity Name** | **Attributes** |
| Student | * StudentID (PK) * FirstName * LastName * DOB * Email * PhoneNumber * UniversityID |
| Faculty | * FacultyID (PK) * FirstName * LastName * DOB * Email * PhoneNumber * UniversityID |
| Course | * CourseID (PK) * CourseName * CreditHours * Level (Introductory, Intermediate, Advanced) * Description * Prerequisites |
| Semester | * SemesterID (PK) * SemesterName * SemesterYear * StartDate * EndDate |
| Class | * ClassID (PK) * CourseID (FK) * SemesterID (FK) * FacultyID (FK) |

1. Use pencil to fill in the below ERD shell. You can do this electronically, or take a photo of your drawing and upload it here.
   1. your entity names,
   2. your attribute names.
   3. Please label all primary keys and foreign keys.
   4. Crowsfoot relationship symbols identifying the one side and the many side of relationships,

