

University Database System

University System Description

XYU University is a large institution with several campuses. Each campus has a different name, address, distance to the city center and the only bus running to the campus. Each campus has one club. The name of the club, the building in which the club is located, the phone number of the club and the multiple sports which club offers, should all be recorded.

The University consists of a number of faculties, such as the Art Faculty, the Science Faculty, and so on. Each faculty has a name, dean and building. A faculty may be divided into a number of schools, for example, the Science Faculty has a School of Physics and a School of Chemistry. Each school belongs to one faculty only and is located on just one campus, but one campus may be the location of many schools.

Every school has name and a building assigned to. Each school offers different programs and each program can be offered by only one school. Each program has a unique code, title, level and duration. Each program comprises several courses, different programs have different courses. Each course has a unique code and course title. Some courses may have one or more prerequisite courses and one course can be the prerequisite course of some other courses.

Each of the students is enrolled in a single program of study which involves a fixed core of courses specific to that program as well as a number of electives taken from other programs. Students work on courses and are awarded a grade in any course if he/she passes the course. Otherwise the student has to re-take the failed course. The system needs to record the year and term in which the course was taken and the grade awarded to the student. Every student has a unique ID. The system also keeps the student name, birthday and the year he/she enrolled in the course.

The school employs lecturers to teach the students. A lecturer is allowed to work for one school only. Each lecturer is assigned an ID which is unique across the whole university. The system keeps the lecturer's name, title and the office room. A supervisor maybe in charge of several lecturers, but a lecturer, however reports to only one supervisor. A lecturer can teach many different courses. A course may also have been taught by many different lecturers.

The university is operated by committees. Each faculty has to have a number of committees with the same titles across the university, such as the Faculty Executive, the Post Graduate Studies Committee, the Health and Sanity Committee, and so on. The committees meet regularly, such as weekly or monthly. The frequency is determined by the faculty involved. A committee's members are all lecturers. A lecturer may be a member of several committees.

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The list of requirement activities for the system usage

- List all the schools are located in 'Toronto Campus', and sort them by school name.
- List all the programs provided by 'science faculty'.
- Give all the names of the lecturers who are the members of the committee and sort by their name.
- List all supervisor's name and the name of the lecturer they manage. Please sort by supervisor name and lecturer name.
- Give all the lecturers who are not the member of the committee.
- Give the total number of courses for each program.
- Give all the lecturers with the courses they are teaching. Sort by lecturer name.
- Give all the course titles and their corresponding prerequisite course titles.
- Give the top 5 courses which have more students involved.
- Give any of the prerequisite courses was not taken by any of the students who enrolled into the university in 2010, and were taking the courses in 2011.

In addition to the above queries, we need other activities such as hiring/adding/inserting new lecturer and updating lecturer with respect to school, committee, and course changes and finally removing a lecturer from the system (university).