

King Saud University
College of Applied Studies and Community Service
CT 1313: Database Design
Project / Spring, 2015



Project (100 Points):

This is the description of the task for the project. The details may change over time, so please visit the online version again.

- The project will be based on exist university database schema (see files attached). Your main task is to manipulating and retrieving data from database. In order to this, you will need to perform the subtasks described in terms of three milestones of project.
- The university database consists of the following tables:
Prereq, time_slot, advisor, takes, student, teaches, section, instructor, course, department, and classroom.
- The database DDL file and insert into table files are provided for students.
- The three files are available in course website under project section.

Two provided files:

DDL_With_Drop

Insert_File

The university schema:

Prereq(course_id,prereq_id)

time_slot(time_slot_id,day,start_hr,start_min,end_hr,end_min)

advisor(s_ID,i_ID)

takes(ID, course_id,sec_id,semester, year,grade)

student(ID,name,sept_name,tot_cred)

teaches(ID,course_id,sec_id,semester,year)

section(course_id,sec_id,semester,year,building,room_number,time_slot_id)

instructor(ID,name,dept_name,salary)

course(course_id,title,dept_name,credits)

department(dept_name,building,budget)

classroom(building,room_number,capacity)

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First milestone (20 Points):

Due on: Week#8

Submission: No need to submit a printed copy of your work.

Description: The first milestone of the project consists of the following tasks:

1. Using **DDL_With_Drop , Insert_File** files do the following tasks:
 - a) Copy, paste, and run DDL statements from **DDL_With_Drop**. Then tables will be created at database.
 - b) Load some sample data, by using **Insert_File** file. Copy, paste, and run queries.
 - c) Run very simple SQL queries to test your database. Some example queries:
 - `select * from instructor;`
 - `select * from course;`
 - `select * from classroom;`

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Second milestone (50 Points):

Due on: Week#11

Submission: Submit a printed copy of your work.

Description: The second milestone of the project consists of the following tasks:

- Perform section a and section b from first milestone again.
- Write SQL statements to do the following:

Basic SQL:

1. Find the names of all the instructors from Biology department.
2. Find the names of courses in Computer science department which have 3 credits.
3. Find all information for the student with ID '23121'.
4. Find the names of all students who have taken any Comp. Sci. course ever (there should be no duplicate names)
5. Find the names of student in Computer science who takes more than 20 credits.

Intermediate SQL:

1. Find the maximum and minimum enrollment across all sections, considering only sections that had some enrollment, don't worry about those that had no students taking that section
2. Find all sections that had the maximum enrollment (along with the enrollment), using a subquery.
3. Find the total number of students in the university.
4. Find all courses that were taken by student with ID '12345'.
5. How many sections for CS-319 course.

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Third milestone (30 Points):

Due on: Week#15

Submission: Submit a printed copy of your work.

Description: The third milestone of the project consists of the following tasks:

- Perform section a and section b from the first milestone again.
- Write SQL statements to do the following:

Advanced SQL

In this assignment, you will write more complex SQL queries, using the usual schema by default. Again, you have to add required data to test your queries, and must include the SQL statements to create the data along with your queries.

1. Find all courses whose identifier starts with the string "CS-1"
2. Insert each instructor as a student, with tot_creds = 0, in the same department
3. Update the salary of each instructor to 1000 times the number of course sections they have taught.
4. Create your own query: define what you want to do in English, then write the query in SQL. Make it as difficult as you wish, the harder the better.
5. Create your own query: define what you want to do in English, then write the query in SQL. Make it as difficult as you wish, you have to use ORDER BY clause.
6. Create your own query: define what you want to do in English, then write the query in SQL. Make it as difficult as you wish, you have to use GROUP BY clause.
7. Find all students who have 2 or more F grades.
8. Find all rooms that have been assigned to more than one section at the same time. Display the rooms along with the assigned sections; I suggest you use a WITH clause