CPSC 3300 Fall 2016 Lab #2

Objectives

By the end of the lab you will be able to:

- Create a table
- Insert data into a table
- Select data from a table
- Update data in a table
- Delete data from a table

Lab Assignment

A database for courses, students, and registration of courses has been developed. The structures and contents of the database are shown below.

Table name: Students

studentID	firstName	lastName	gender	dateofBirth
861103-2438	Adam	Johnson	M	1990-10-01
911212-1746	Eva	Smith	F	1991-08-20
950829-1848	Anna	Washington	F	1993-09-26
123456-0980	Eric	Alonzo	M	1990-05-26
908023-2456	Bo	Ek	M	1992-03-15
098735-3456	Danny	Goss	M	1992-02-01
124345-3430	Mike	White	M	1995-06-10
124568-1345	Emily	Young	F	1995-04-28
908409-0010	Cathy	Lee	F	1993-10-06
124587-9088	Ben	Woo	M	1992-11-30
120953-0909	Anna	Washington	F	1990-10-09
120449-1008	John	Goss	M	1995-10-26

(Note: In table “Students”, “studentID” is the PK. “firstName”, “lastName”, “gender”, and “dateofBirth” cannot be NULL.)

Table name: Courses

courseCode	courseName	level	credits
CS056	Database Systems	G1	5
CS010	C++	U1	5
ENG111	English	U1	3
FIN052	Finance	G1	5
PHY210	Physics	U2	5
CHE350	Chemistry	U3	5
BIO001	Biology	U1	3
CS052	Operating Systems	G1	5

(Note: In table “Courses”, “courseCode” is the PK. “courseName” and “credits” cannot be NULL.)

Table name: Registration

studentID	courseCode	grade
861103-2438	CS056	4
861103-2438	CS010	4
861103-2438	PHY210	3.5
911212-1746	ENG111	2
950829-1848	CHE350	3
950829-1848	BIO001	2.5
123456-0980	CS052	3.5
123456-0980	CS056	4
908023-2456	PHY210	3.0
908023-2456	CS056	1.0
908023-2456	CS010	2.0
124345-3430	FIN052	2.5
124345-3430	CHE350	4
908409-0010	CS052	2
124587-9088	BIO001	4
124587-9088	CS052	3.5

(Note: In table “Registration”, “studentID” and “courseCode” are the PKs and the FKs. “studentID” references “studentID” in table “Students”; “courseCode” references “courseCode” in table “Courses”. “grade” cannot be NULL.).

Given the structure and contents of the database, use SQL commands to answer questions below.

1. (2 points) Write the SQL code that will create the table structures for the table Students, Courses, Registration, separately. The table structures are summarized below.

Students

Attribute Name	**Data Type**
studentID	char(11)
firstName	varchar(20)
lastName	varchar(20)
gender	char(1)
dateofBirth	date

Courses

Attribute Name	**Data Type**
courseCode	varchar(6)
courseName	varchar(70)
level	char(2)

credits	int

Registration

Attribute Name	**Data Type**
studentID	char(11)
courseCode	varchar(6)
grade	decimal(2, 1)

2. (1 point) Write the SQL code to enter data in each table.

3. (1 point) List the names (first name, last name) of all the students. Sort first by last name and then by first name alphabetically.

4. (1 point) What are the student ID and the names of the female students who were born after 1993?

5. (1 point) How many students are registered in the course "CS056"?

6. (1 point) What courses (courseCode and courseName) are offered by the department of Computer Science (i.e. course codes CS***)?

7. (1 point) Which course(s) (couseCode and courseName) give less than 5 credits?

8. (1 point) How many courses are there on each level?

9. (1 point) Which courses (course codes only) have been taken by the student with student ID 861103-2438?

10. (1 point) Which students (studentID only) have the highest grade for the course 'CS052'?

11. (1 point) Find the courses (course codes only) that have been taken by both the student 861103-2438 and the student 123456-0980.

12. (1 point) Find the students who have not registered any course yet.

13. (1 point) Find the student (studentID only), the sum of grade, and the average of grade, for each student who has registered courses and the average of grade is above 3.

14. (1 point) Find the student who has registered the most number of courses. If there are multiple students who has registered the most number of courses, just take one student (To take only one record - the 1st record in the returned result, use 'limit 1' at the end of your SQL code).

15. (1 point) Find the students (studentID only) who have taken either "PHY210" or "BIO001".

16. (1 point) Find the youngest student's name.

17. (1 point) Change the credit for all Computer Science courses (i.e. course codes CS***) with five credits from 5 to 6.

18. (1 point) Delete the registration record for the student 908409-0010.

19. (1 point) Change the grade of "PHY210" for student 861103-2438 from 3.5 to 3.8.

Submission

Use Canvas to submit your SQL statements (in a Word file, sql file or plain text file). Make sure you test your SQL statements on the database server "cssql.seattleu.edu" before submission. I will grade your SQL statements by running them on the server.