

Assignment-4

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13th September 2022

1 Q-Create a user called universityDB+last 4 digits of roll number:

Query:

```
CREATE USER 'universityDB0039'@'localhost' IDENTIFIED BY 'Password';
```

```
mysql> create user 'universityDB0039'@'localhost' identified by 'Password';  
Query OK, 0 rows affected (0.09 sec)
```

Query to grant all privileges to the user:

```
GRANT ALL PRIVILEGES ON university.* TO 'universityDB0039'@'localhost';
```

```
mysql> grant all privileges on university.* to 'universityDB0039'@'localhost';  
Query OK, 0 rows affected (0.12 sec)
```

2 Q-Create a database called university:

Query:

```
CREATE DATABASE university
```

```
mysql> create database university;  
Query OK, 1 row affected (0.13 sec)  
  
mysql> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| performance_schema |  
| university |  
+-----+  
3 rows in set (0.00 sec)
```

3 Q-Connect the database:

Query:

USE university

```
mysql> use university;  
Database changed
```

4 Q-Create the tables in the university database using DDL.sql file:

Query:

Source Documents/DBIS-Labs/Assignment-4/DDL.sql

```
mysql> source Documents/DBIS-Labs/Assignment-4/DDL.sql  
Query OK, 0 rows affected (0.46 sec)  
  
Query OK, 0 rows affected (0.64 sec)  
  
Query OK, 0 rows affected (1.52 sec)  
  
Query OK, 0 rows affected (0.47 sec)  
  
Query OK, 0 rows affected (0.63 sec)  
  
Query OK, 0 rows affected (0.61 sec)  
  
Query OK, 0 rows affected (0.65 sec)  
  
Query OK, 0 rows affected (0.64 sec)  
  
Query OK, 0 rows affected (0.48 sec)  
  
Query OK, 0 rows affected (0.47 sec)  
  
Query OK, 0 rows affected (0.61 sec)  
  
mysql> SHOW TABLES;  
+-----+  
| Tables_in_university |  
+-----+  
| advisor               |  
| classroom             |  
| course               |  
| department            |  
| instructor            |  
| prereq               |  
| section              |  
| student              |  
| takes                |  
| teaches              |  
| time_slot             |
```

5 Q-Load the data into tables using insert.sql:

Query:

Source Documents/DBIS-Labs/Assignment-4/InsertValues.sql;

```
mysql> source Documents/DBIS-Labs/Assignment-4/InsertValues.sql;
Query OK, 0 rows affected (0.04 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.01 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.01 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.01 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.10 sec)

Query OK, 1 row affected (0.09 sec)

Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.08 sec)

Query OK, 1 row affected (0.11 sec)

Query OK, 1 row affected (0.10 sec)

Query OK, 1 row affected (0.06 sec)
```

Result of the Query:

```
mysql> SELECT * FROM classroom;
+-----+-----+-----+
| building | room_number | capacity |
+-----+-----+-----+
| Packard  | 101         | 500      |
| Painter  | 514         | 10       |
| Taylor   | 3128        | 70       |
| Watson   | 100         | 30       |
| Watson   | 120         | 50       |
+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> SELECT * FROM course;
+-----+-----+-----+-----+
| course_id | title                                | dept_name | credits |
+-----+-----+-----+-----+
| BIO-101   | Intro. to Biology                   | Biology   | 4       |
| BIO-301   | Genetics                           | Biology   | 4       |
| BIO-399   | Computational Biology                | Biology   | 3       |
| CS-101    | Intro. to Computer Science          | Comp. Sci. | 4       |
| CS-190    | Game Design                         | Comp. Sci. | 4       |
| CS-315    | Robotics                            | Comp. Sci. | 3       |
| CS-319    | Image Processing                    | Comp. Sci. | 3       |
| CS-347    | Database System Concepts            | Comp. Sci. | 3       |
| EE-181    | Intro. to Digital Systems           | Elec. Eng. | 3       |
| FIN-201   | Investment Banking                  | Finance   | 3       |
| HIS-351   | World History                       | History   | 3       |
| MU-199    | Music Video Production              | Music     | 3       |
| PHY-101   | Physical Principles                 | Physics   | 4       |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)
```

6 Q-Get the details of all the tables using information_ schema:

Query:

```
SELECT table_name,column_name, data_type
FROM information_schema.columns
WHERE table_name = 'table_name'
```

results for various tables

```
mysql> SELECT table_name, column_name, data_type
-> FROM
-> information_schema.columns
-> WHERE
-> table_name = 'advisor';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| advisor     | i_ID        | varchar    |
| advisor     | s_ID        | varchar    |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

advisor

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'classroom';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| classroom   | building    | varchar    |
| classroom   | capacity    | decimal    |
| classroom   | room_number | varchar    |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

classroom

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'course';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| course      | course_id   | varchar    |
| course      | credits     | decimal    |
| course      | dept_name   | varchar    |
| course      | title       | varchar    |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

course

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'department';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| department   | budget      | decimal    |
| department   | building    | varchar    |
| department   | dept_name   | varchar    |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

department

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'instructor';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| instructor   | dept_name   | varchar    |
| instructor   | ID          | varchar    |
| instructor   | name        | varchar    |
| instructor   | salary      | decimal    |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

instructor

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'prereq';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| prereq      | course_id   | varchar    |
| prereq      | prereq_id   | varchar    |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

prereq

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'section';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| section      | building    | varchar    |
| section      | course_id   | varchar    |
| section      | room_number | varchar    |
| section      | sec_id      | varchar    |
| section      | semester    | varchar    |
| section      | time_slot_id | varchar    |
| section      | year        | decimal    |
+-----+-----+-----+
7 rows in set (0.01 sec)
```

section

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'student';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| student     | dept_name   | varchar    |
| student     | ID          | varchar    |
| student     | name        | varchar    |
| student     | tot_cred    | decimal    |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

student

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'takes';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| takes       | course_id   | varchar    |
| takes       | grade       | varchar    |
| takes       | ID          | varchar    |
| takes       | sec_id      | varchar    |
| takes       | semester    | varchar    |
| takes       | year        | decimal    |
+-----+-----+-----+
6 rows in set (0.00 sec)
```

takes

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'teaches';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| teaches     | course_id   | varchar    |
| teaches     | ID          | varchar    |
| teaches     | sec_id      | varchar    |
| teaches     | semester    | varchar    |
| teaches     | year        | decimal    |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

teaches

```
mysql> SELECT table_name, column_name, data_type FROM information_schema.columns WHERE table_name = 'time_slot';
+-----+-----+-----+
| TABLE_NAME | COLUMN_NAME | DATA_TYPE |
+-----+-----+-----+
| time_slot   | day         | varchar    |
| time_slot   | end_hr      | decimal    |
| time_slot   | end_min     | decimal    |
| time_slot   | start_hr    | decimal    |
| time_slot   | start_min   | decimal    |
| time_slot   | time_slot_id | varchar    |
+-----+-----+-----+
6 rows in set (0.00 sec)
```

time-slot

- 7 Q-Install Phpmyadmin tool (if not installed) for interacting with MySQL using a GUI interface.
1. Login to the user which you have created in Question number 1
 2. Use database University
 3. Do some 1 insert and select operation on each table of the University database

Show query box

✓ 1 row inserted. (Query took 0.0061 seconds.)

```
INSERT INTO `prereq`(`course_id`, `prereq_id`) VALUES ('MM-201', 'PHY-101');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0057 seconds.)

```
INSERT INTO `time_slot`(`time_slot_id`, `day`, `start_hr`, `start_min`, `end_hr`, `end_min`) VALUES
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0043 seconds.)

```
INSERT INTO `advisor`(`s_ID`, `i_ID`) VALUES ('S02', 'I02');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0053 seconds.)

```
INSERT INTO `takes`(`ID`, `course_id`, `sec_id`, `semester`, `year`, `grade`) VALUES ('S02','MM-201'
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0052 seconds.)

```
INSERT INTO `student`(`ID`, `name`, `dept_name`, `tot_cred`) VALUES ('S02','Rahul','MMAE','64');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0067 seconds.)

```
INSERT INTO `teaches`(`ID`, `course_id`, `sec_id`, `semester`, `year`) VALUES ('I02','MM-201','Sec_2'
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0061 seconds.)

```
INSERT INTO `section`(`course_id`, `sec_id`, `semester`, `year`, `building`, `room_number`, `time_sl  
('MM-201','Sec_2','Winter','2019','Bhopali','102','B');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0111 seconds.)

```
INSERT INTO `instructor`(`ID`, `name`, `dept_name`, `salary`) VALUES ('I02','Raj','MMAE','60000');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0244 seconds.)

```
INSERT INTO `course`(`course_id`, `title`, `dept_name`, `credits`) VALUES ('MM-201','Machine','MMAE');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0047 seconds.)

```
INSERT INTO `department`(`dept_name`, `building`, `budget`) VALUES ('MMAE','Bhopali','60000');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Show query box

✓ 1 row inserted. (Query took 0.0106 seconds.)

```
INSERT INTO `classroom`(`building`, `room_number`, `capacity`) VALUES ('Bhopali','102','90');
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

8 Q-Execute the following queries:

i. Find the course id, title, instructor id and name of those instructors who are from CSE department but are teaching a course of Civil department in the year 2009. Arrange results in ascending order of instructor names

ii. Add a new course with course_id as cs333 (with suitable values for other attributes) for the CSE department which will have cs303 as a prerequisite. Write insert statements for the same.

iii. Update salaries of instructors by 10% if their departments have a budget of more than 900000 rupees. Write the update statements for the same.

iv. Find CSE department courses (id and title) and number of students taking that course in the year 2007 and semester Fall where the number is greater than 15. Arrange the results in ascending order of course id.

Queries Are in the *200010039_8.sql* file

Outputs:

```
SELECT DISTINCT inst.ID, inst.name, teaches.course_id, course.title FROM instructor AS inst, teaches, course, section WHERE inst.ID IN (SELECT ID FROM instructor WHERE dept_name = 'Comp. Sci.') AND inst.ID = teaches.ID AND teaches.course_id = course.course_id AND course.course_id = section.course_id AND course.dept_name = 'Civil Engg.' and section.year = '2009' ORDER BY inst.name ASC;
```

Q-8 i.

```
INSERT INTO prereq(course_id, prereq_id) VALUES ('CS-333', 'CS-303');
```

Q-8 ii.

Show query box

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0023 seconds.)

```
WITH selected_courses(Course_ID,Title,num_students) AS (SELECT course.course_id,course.title,count(student.ID) FROM course,student,section,takes WHERE course.course_id = section.course_id AND section.semester = 'Fall' AND section.year = '2007' AND section.sec_id = takes.sec_id AND student.ID = takes.ID AND takes.course_id = course.course_id GROUP BY course.course_id) SELECT Course_ID,Title,num_students FROM selected_courses WHERE num_students > 15 ORDER BY Course_ID ASC;
```

[Edit inline] [Edit] [Create PHP code]

Q-8 iii.

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0076 seconds.)

```
WITH updated_salaries(Name, Updated_Salary) AS (SELECT inst.name, inst.salary as New_Salary FROM instructor as inst,department WHERE inst.dept_name = department.dept_name AND department.budget > 90000) UPDATE instructor SET salary = salary * 1.1 WHERE instructor.name IN (SELECT Name FROM updated_salaries);
```

[Edit inline] [Edit] [Create PHP code]

✓ Showing rows 0 - 5 (6 total, Query took 0.0007 seconds.)

```
SELECT instructor.ID,instructor.name,instructor.dept_name,instructor.salary FROM instructor,department WHERE instructor.dept_name = department.dept_name AND department.budget > 90000;
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

	ID	name	dept_name	salary
<input type="checkbox"/> Edit Copy Delete	10101	Srinivasan	Comp. Sci.	71500.00
<input type="checkbox"/> Edit Copy Delete	45565	Katz	Comp. Sci.	82500.00
<input type="checkbox"/> Edit Copy Delete	83821	Brandt	Comp. Sci.	101200.00
<input type="checkbox"/> Edit Copy Delete	11	Siba	CSE	99000.00
<input type="checkbox"/> Edit Copy Delete	12121	Wu	Finance	99000.00
<input type="checkbox"/> Edit Copy Delete	76543	Singh	Finance	88000.00

↑ ☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Q-8 iv.