Database Management Systems

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2019ucs0073
Assignment-3

```
SHOW databases;
USE institute;
```

Question 1:

a.) Select courses offered by the computer science department
Soln:

```
/*Method 1:*/
SELECT * FROM course
WHERE dept_name = "Comp. Sci.";


/*Method 2:*/
SELECT * FROM course
WHERE dept_name LIKE "%Comp. Sci.%";


/*Method 3:*/
SELECT * FROM course
WHERE course_id LIKE "%CS%";
```

```
MySQL  localhost:3306 ssl  institute  SQL > select * from course
                                     -> where dept_name = "Comp. Sci.";
+-----------+---------------------------+------------+---------+
| course_id | title                     | dept_name  | credits |
+-----------+---------------------------+------------+---------+
| 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 |
+-----------+---------------------------+------------+---------+
5 rows in set (0.0004 sec)
```

```
MySQL  localhost:3306 ssl  institute  SQL > select * from course where dept_name like "%Comp. Sci.%";
+-----------+----------------------------+------------+---------+
| course_id | title                      | dept_name  | credits |
+-----------+----------------------------+------------+---------+
| 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 |
+-----------+----------------------------+------------+---------+
5 rows in set (0.0008 sec)
MySQL  localhost:3306 ssl  institute  SQL > select * from course
    -> where course_id like "%CS%";
+-----------+----------------------------+------------+---------+
| course_id | title                      | dept_name  | credits |
+-----------+----------------------------+------------+---------+
| 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 |
+-----------+----------------------------+------------+---------+
5 rows in set (0.0007 sec)
```

b.)Select courses offered by the computer science department where credits=4.

```
/*Method 1*/
SELECT * FROM course
WHERE credits = 4 and course_id like "%CS%";
```

```
MySQL  localhost:3306 ssl  institute  SQL > select * from course
    -> where credits = 4
    -> and course_id like "%CS%";
+-----------+----------------------------+------------+---------+
| course_id | title                      | dept_name  | credits |
+-----------+----------------------------+------------+---------+
| CS-101    | Intro. to Computer Science | Comp. Sci. |       4 |
| CS-190    | Game Design                | Comp. Sci. |       4 |
+-----------+----------------------------+------------+---------+
2 rows in set (0.0006 sec)
MySQL  localhost:3306 ssl  institute  SQL >
```

c.)Get courses which has a substring 'ro' in title
Soln.

```
SELECT * FROM course
WHERE title LIKE "%ro%";
```

```
MySQL  localhost:3306 ssl  institute  SQL > select * from course
                                        -> where title like "%ro%";
+-----------+------------------------------+------------+---------+
| course_id | title                        | dept_name  | credits |
+-----------+------------------------------+------------+---------+
| BIO-101   | Intro. to Biology            | Biology    |       4 |
| CS-101    | Intro. to Computer Science   | Comp. Sci. |       4 |
| CS-315    | Robotics                     | Comp. Sci. |       3 |
| CS-319    | Image Processing             | Comp. Sci. |       3 |
| EE-181    | Intro. to Digital Systems    | Elec. Eng. |       3 |
| MU-199    | Music Video Production       | Music      |       3 |
+-----------+------------------------------+------------+---------+
6 rows in set (0.0054 sec)
MySQL  localhost:3306 ssl  institute  SQL > _
```

d.)Get courses where title is made of 3 words (hint: like operator)
Soln.

```
SELECT * FROM course
WHERE title LIKE "% % %"
and title not LIKE "% % % %";
```

```
MySQL  localhost:3306 ssl  institute  SQL > select * from course
                                        -> where title like "% % %"
                                        -> and title not like "% % % %";
+-----------+---------------------------+------------+---------+
| course_id | title                     | dept_name  | credits |
+-----------+---------------------------+------------+---------+
| BIO-101   | Intro. to Biology         | Biology    |       4 |
| CS-347    | Database System Concepts  | Comp. Sci. |       3 |
| MU-199    | Music Video Production     | Music      |       3 |
+-----------+---------------------------+------------+---------+
```

Question 2.
a) Select all course_id where room_num are between 100-500.
Soln.

```
/*Method 1*/
SELECT * FROM section
WHERE room_number>=100
and room_number<500;

/*Method 2*/
```

```
SELECT * FROM section
WHERE room_number between 100 and 500;
```

```
MySQL   localhost:3306 ssl   institute   SQL > select * from section where room_number between 100 and 500;
+-----------+--------+----------+------+----------+-------------+-------------+
| course_id | sec_id | semester | year | building | room_number | time_slot_id |
+-----------+--------+----------+------+----------+-------------+-------------+
| CS-101    |      1 | Fall     | 2009 | Packard  |         101 | H           |
| CS-101    |      1 | Spring   | 2010 | Packard  |         101 | F           |
| CS-315    |      1 | Spring   | 2010 | Watson   |         120 | D           |
| CS-319    |      1 | Spring   | 2010 | Watson   |         100 | B           |
| FIN-20    |      1 | Spring   | 2010 | Packard  |         101 | B           |
| MU-199    |      1 | Spring   | 2010 | Packard  |         101 | D           |
| PHY-101   |      1 | Fall     | 2009 | Watson   |         100 | A           |
+-----------+--------+----------+------+----------+-------------+-------------+
7 rows in set (0.0007 sec)
MySQL   localhost:3306 ssl   institute   SQL > select * from section where room_number>=100 and room_number<500;
+-----------+--------+----------+------+----------+-------------+-------------+
| course_id | sec_id | semester | year | building | room_number | time_slot_id |
+-----------+--------+----------+------+----------+-------------+-------------+
| CS-101    |      1 | Fall     | 2009 | Packard  |         101 | H           |
| CS-101    |      1 | Spring   | 2010 | Packard  |         101 | F           |
| CS-315    |      1 | Spring   | 2010 | Watson   |         120 | D           |
| CS-319    |      1 | Spring   | 2010 | Watson   |         100 | B           |
| FIN-20    |      1 | Spring   | 2010 | Packard  |         101 | B           |
| MU-199    |      1 | Spring   | 2010 | Packard  |         101 | D           |
| PHY-101   |      1 | Fall     | 2009 | Watson   |         100 | A           |
+-----------+--------+----------+------+----------+-------------+-------------+
7 rows in set (0.0006 sec)
```

b.)Select course_Id, room_number from Section table. Room Number should be
in increasing order.

```
SELECT course_id, room_number from section
ORDER BY room_number ASC;
```

```
MySQL  localhost:3306 ssl  institute  SQL > select course_id, room_number from section
                                        -> order by room_number asc;
+-----------+-------------+
| course_id | room_number |
+-----------+-------------+
| CS-319    |         100 |
| PHY-101   |         100 |
| CS-101    |         101 |
| CS-101    |         101 |
| FIN-20    |         101 |
| MU-199    |         101 |
| CS-315    |         120 |
| BIO-101   |         514 |
| BIO-301   |         514 |
| HIS-351   |         514 |
| CS-190    |        3128 |
| CS-190    |        3128 |
| CS-319    |        3128 |
| CS-347    |        3128 |
| EE-181    |        3128 |
+-----------+-------------+
15 rows in set (0.0005 sec)
```

c.) How Many Rows are there when you apply like operator on building with 'ant','son'?
Soln.

```
/*ant*/
SELECT COUNT(*) FROM section
WHERE building LIKE "%ant%";

/*son*/
SELECT COUNT(*) FROM section
WHERE building LIKE "%son%";

/*union*/
SELECT COUNT(*) FROM section
WHERE building LIKE "%ant%"
or building like "%son%";
```

```
MySQL  localhost:3306 ssl  institute  SQL > select count(*) from section
                                        -> where building like "%ant%";

+----------+
| count(*) |
+----------+
|        0 |
+----------+
1 row in set (0.0022 sec)
MySQL  localhost:3306 ssl  institute  SQL > select count(*) from section
                                        -> where building like "%son%";

+----------+
| count(*) |
+----------+
|        3 |
+----------+
1 row in set (0.0005 sec)
MySQL  localhost:3306 ssl  institute  SQL > select count(*) from section
                                        -> where building like "%ant%"
                                        -> or building like "%son%";

+----------+
| count(*) |
+----------+
|        3 |
+----------+
1 row in set (0.0009 sec)
```

d.)Select all course_id that were offered in summer or spring of 2009.
Soln.

```
SELECT course_id from section
WHERE semester in ("Summer", "Spring")
and year = 2009;
```

```
MySQL  localhost:3306 ssl  institute  SQL > select course_id from section
                                        -> where semester in ("Summer", "Spring")
                                        -> and year = 2009;

+-----------+
| course_id |
+-----------+
| BIO-101   |
| CS-190    |
| CS-190    |
| EE-181    |
+-----------+
4 rows in set (0.0005 sec)
```