DBMS Assignment 8

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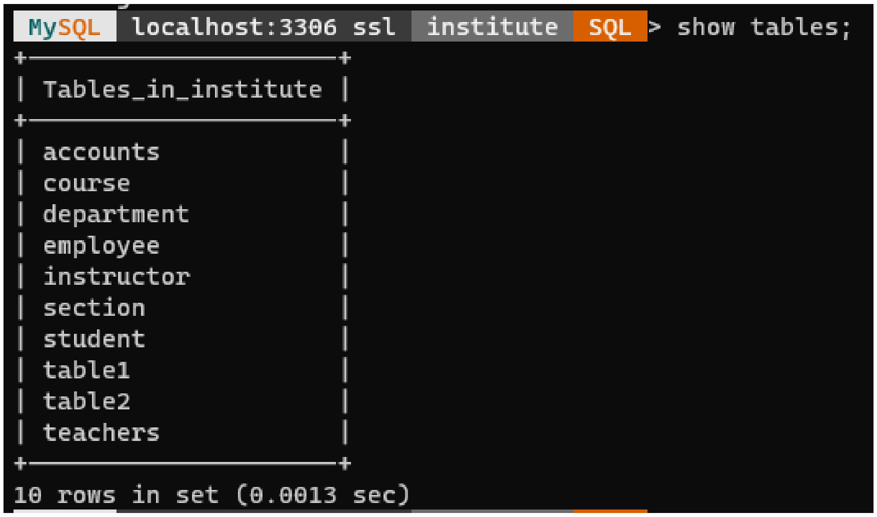
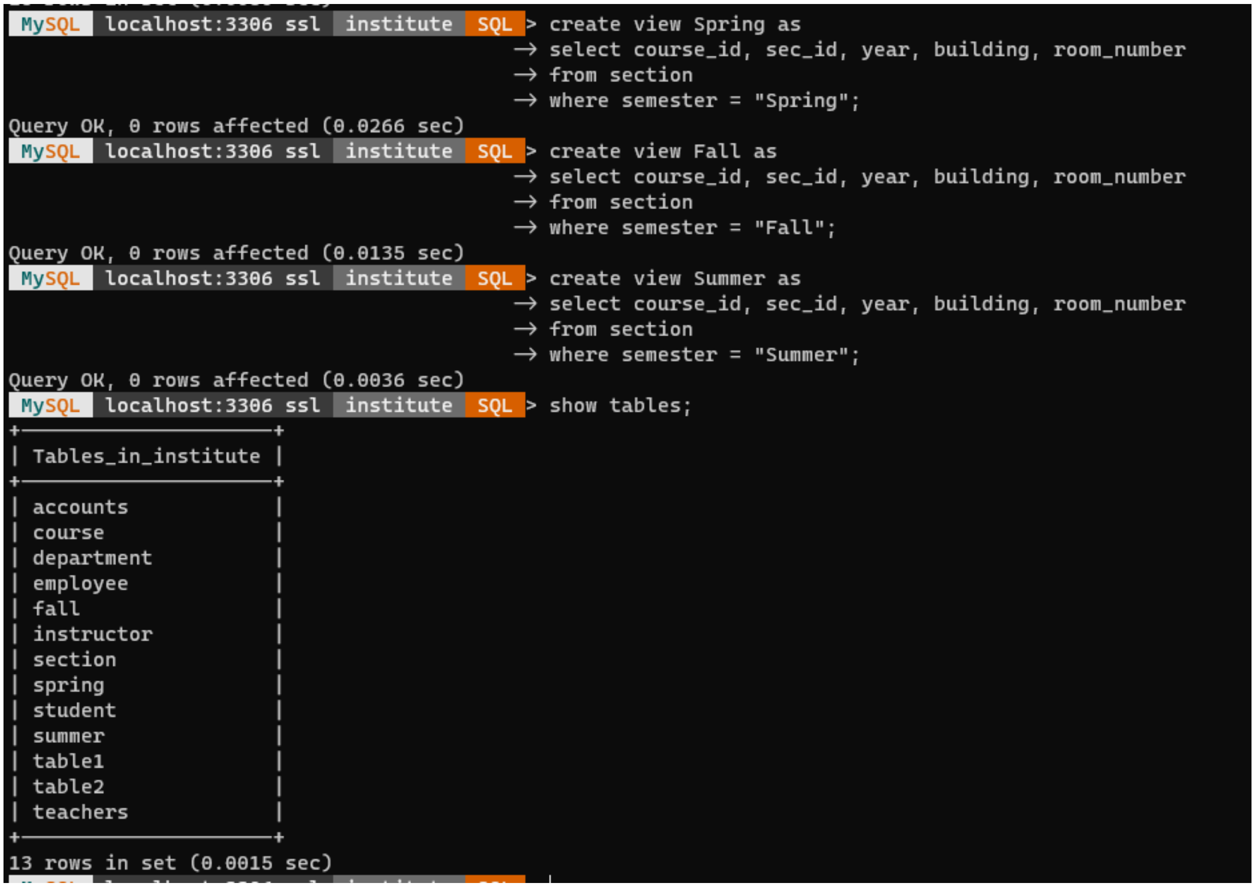
Question 1

a) Show all table names before and after creating views

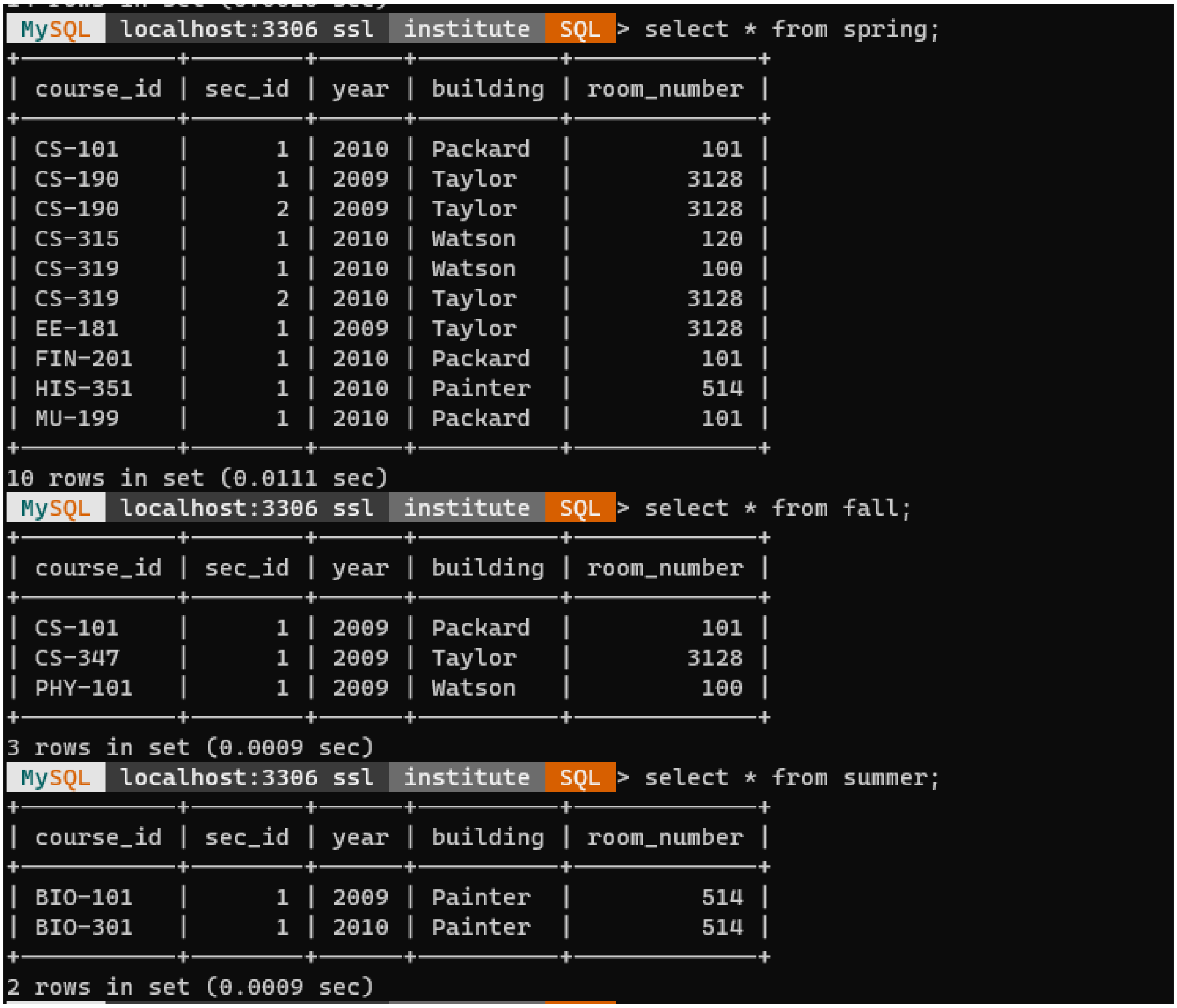


```
MySQL  localhost:3306 ssl  institute  SQL > show tables;
+---------------------+
| Tables_in_institute |
+---------------------+
| accounts            |
| course              |
| department          |
| employee            |
| instructor          |
| section             |
| student             |
| table1              |
| table2              |
| teachers            |
+---------------------+
10 rows in set (0.0013 sec)
```



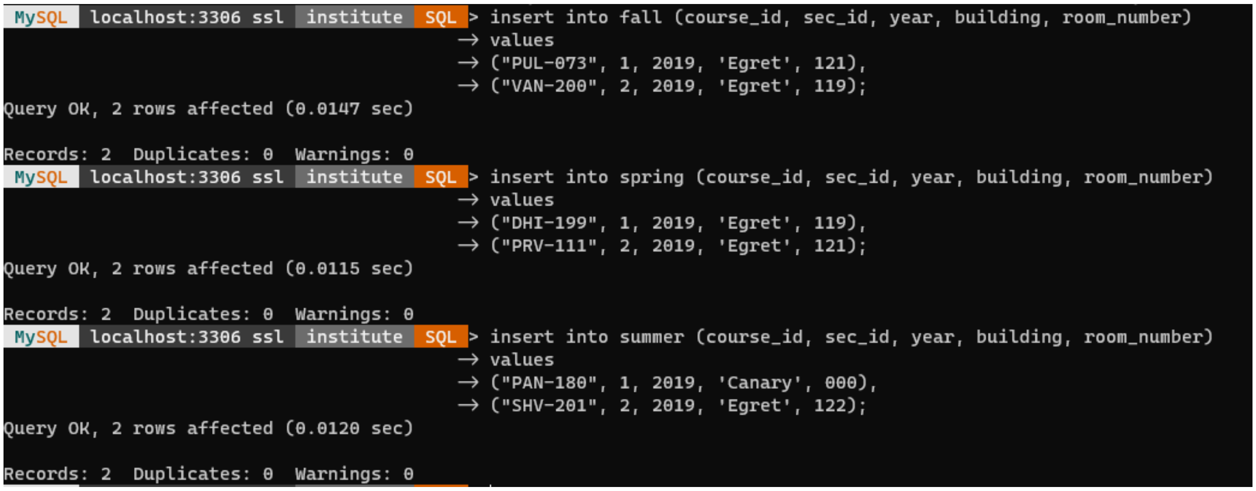
```
MySQL  localhost:3306 ssl  institute  SQL > create view Spring as
                                         -> select course_id, sec_id, year, building, room_number
                                         -> from section
                                         -> where semester = "Spring";
Query OK, 0 rows affected (0.0266 sec)
MySQL  localhost:3306 ssl  institute  SQL > create view Fall as
                                         -> select course_id, sec_id, year, building, room_number
                                         -> from section
                                         -> where semester = "Fall";
Query OK, 0 rows affected (0.0135 sec)
MySQL  localhost:3306 ssl  institute  SQL > create view Summer as
                                         -> select course_id, sec_id, year, building, room_number
                                         -> from section
                                         -> where semester = "Summer";
Query OK, 0 rows affected (0.0036 sec)
MySQL  localhost:3306 ssl  institute  SQL > show tables;
+---------------------+
| Tables_in_institute |
+---------------------+
| accounts            |
| course              |
| department          |
| employee            |
| fall                |
| instructor          |
| section             |
| spring              |
| student             |
| summer              |
| table1              |
| table2              |
| teachers            |
+---------------------+
13 rows in set (0.0015 sec)
```

b)Records of views before inserting the new values:



```
 MySQL  localhost:3306 ssl  institute  SQL > select * from spring;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2010 | Packard  |         101 |
| CS-190    |      1 | 2009 | Taylor   |        3128 |
| CS-190    |      2 | 2009 | Taylor   |        3128 |
| CS-315    |      1 | 2010 | Watson   |         120 |
| CS-319    |      1 | 2010 | Watson   |         100 |
| CS-319    |      2 | 2010 | Taylor   |        3128 |
| EE-181    |      1 | 2009 | Taylor   |        3128 |
| FIN-201   |      1 | 2010 | Packard  |         101 |
| HIS-351   |      1 | 2010 | Painter  |         514 |
| MU-199    |      1 | 2010 | Packard  |         101 |
+-----------+--------+------+----------+-------------+
10 rows in set (0.0111 sec)
 MySQL  localhost:3306 ssl  institute  SQL > select * from fall;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2009 | Packard  |         101 |
| CS-347    |      1 | 2009 | Taylor   |        3128 |
| PHY-101   |      1 | 2009 | Watson   |         100 |
+-----------+--------+------+----------+-------------+
3 rows in set (0.0009 sec)
 MySQL  localhost:3306 ssl  institute  SQL > select * from summer;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| BIO-101   |      1 | 2009 | Painter  |         514 |
| BIO-301   |      1 | 2010 | Painter  |         514 |
+-----------+--------+------+----------+-------------+
2 rows in set (0.0009 sec)
```

queries to insert the values



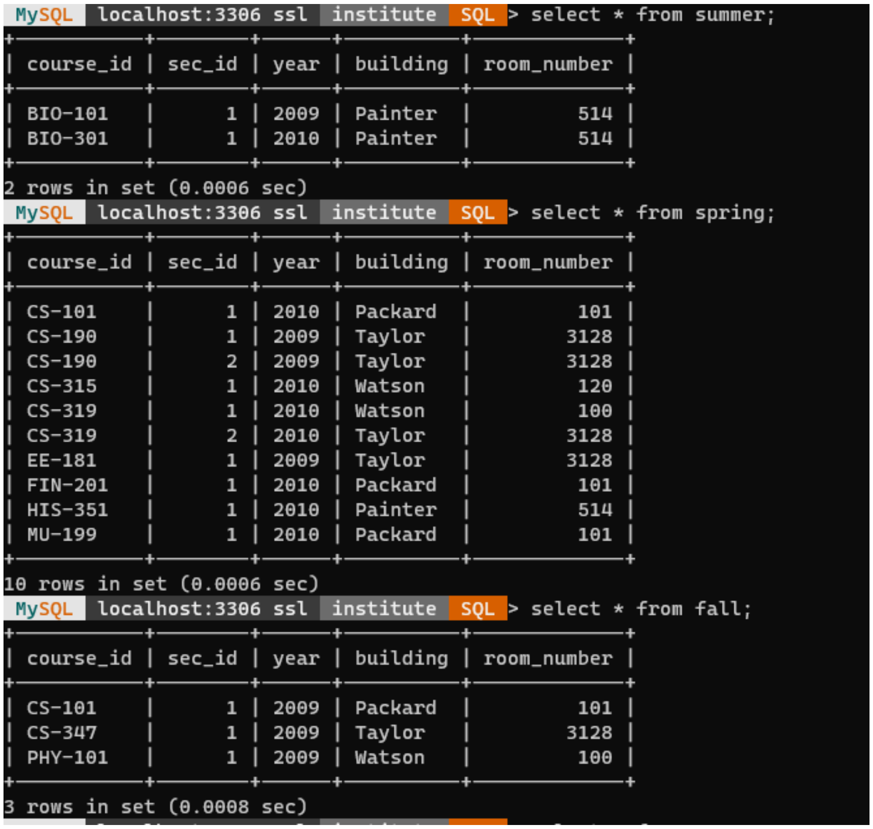
```
 MySQL  localhost:3306 ssl  institute  SQL > insert into fall (course_id, sec_id, year, building, room_number)
                                          -> values
                                          -> ("PUL-073", 1, 2019, 'Egret', 121),
                                          -> ("VAN-200", 2, 2019, 'Egret', 119);
Query OK, 2 rows affected (0.0147 sec)

Records: 2  Duplicates: 0  Warnings: 0
 MySQL  localhost:3306 ssl  institute  SQL > insert into spring (course_id, sec_id, year, building, room_number)
                                          -> values
                                          -> ("DHI-199", 1, 2019, 'Egret', 119),
                                          -> ("PRV-111", 2, 2019, 'Egret', 121);
Query OK, 2 rows affected (0.0115 sec)

Records: 2  Duplicates: 0  Warnings: 0
 MySQL  localhost:3306 ssl  institute  SQL > insert into summer (course_id, sec_id, year, building, room_number)
                                          -> values
                                          -> ("PAN-180", 1, 2019, 'Canary', 000),
                                          -> ("SHV-201", 2, 2019, 'Egret', 122);
Query OK, 2 rows affected (0.0120 sec)

Records: 2  Duplicates: 0  Warnings: 0
```

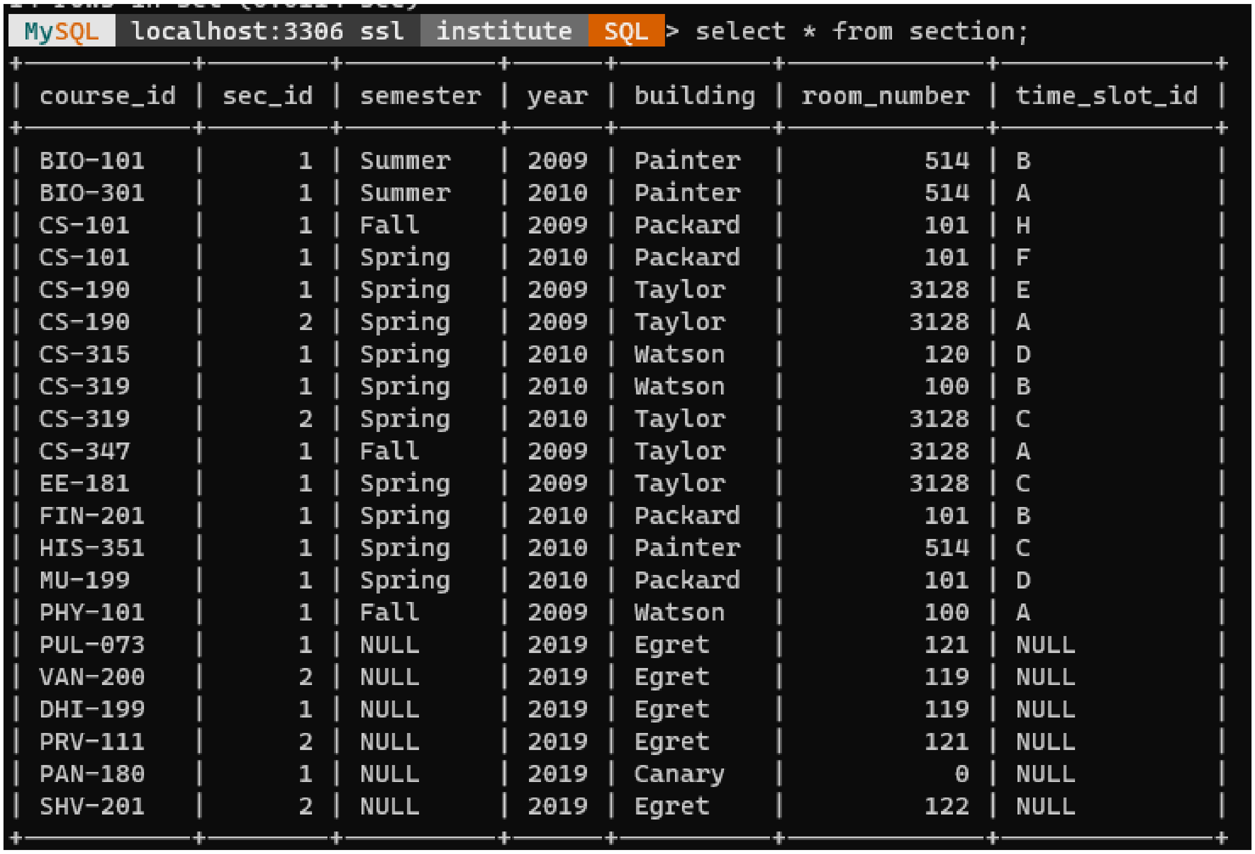
After insertion into views: Note that the views remain the same even after the insertion queries. The change appears in the base table Section where all the six new values have been inserted with some of their fields marked as NULL, which can be clearly seen the next picture attached.



```
MySQL  localhost:3306 ssl  institute  SQL > select * from summer;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| BIO-101   |      1 | 2009 | Painter  |         514 |
| BIO-301   |      1 | 2010 | Painter  |         514 |
+-----------+--------+------+----------+-------------+
2 rows in set (0.0006 sec)
MySQL  localhost:3306 ssl  institute  SQL > select * from spring;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2010 | Packard  |         101 |
| CS-190    |      1 | 2009 | Taylor   |        3128 |
| CS-190    |      2 | 2009 | Taylor   |        3128 |
| CS-315    |      1 | 2010 | Watson   |         120 |
| CS-319    |      1 | 2010 | Watson   |         100 |
| CS-319    |      2 | 2010 | Taylor   |        3128 |
| EE-181    |      1 | 2009 | Taylor   |        3128 |
| FIN-201   |      1 | 2010 | Packard  |         101 |
| HIS-351   |      1 | 2010 | Painter  |         514 |
| MU-199    |      1 | 2010 | Packard  |         101 |
+-----------+--------+------+----------+-------------+
10 rows in set (0.0006 sec)
MySQL  localhost:3306 ssl  institute  SQL > select * from fall;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2009 | Packard  |         101 |
| CS-347    |      1 | 2009 | Taylor   |        3128 |
| PHY-101   |      1 | 2009 | Watson   |         100 |
+-----------+--------+------+----------+-------------+
3 rows in set (0.0008 sec)
```

what happens is that when we insert anything into views, the values are actually inserted into the base table. When we query the views after insertions, the values do not show up in the views, because they did not satisfy the criterion semester = “Spring” or semester = “Fall” or semester = “Summer”, as we did not give any values to the semester while inserting.

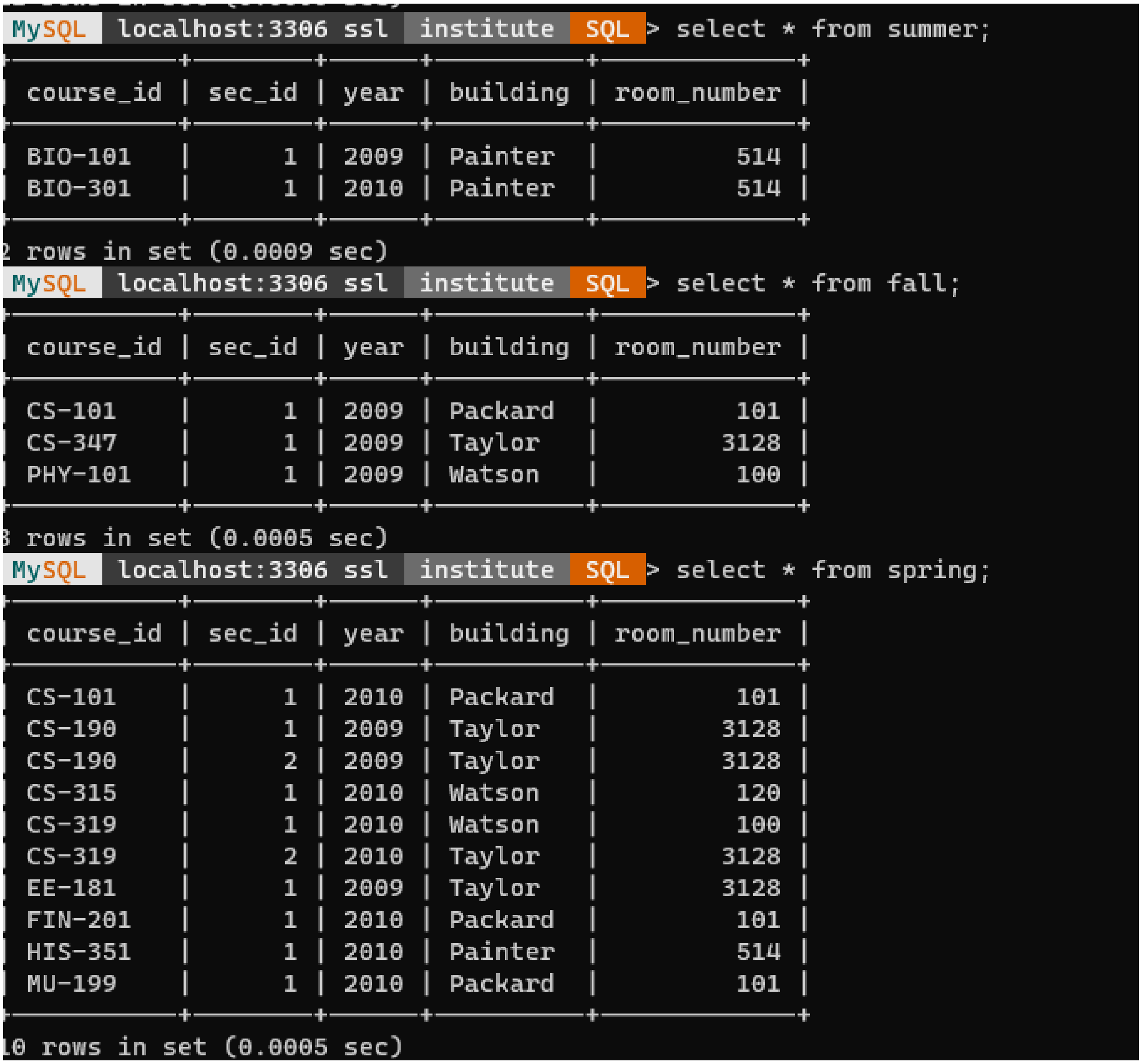
the following figure shows where the insertion actually has an effect.



```
 MySQL  localhost:3306 ssl  institute  SQL > select * from section;
+-----------+--------+----------+------+----------+-------------+--------------+
| course_id | sec_id | semester | year | building | room_number | time_slot_id |
+-----------+--------+----------+------+----------+-------------+--------------+
| BIO-101   |      1 | Summer   | 2009 | Painter  |         514 | B            |
| BIO-301   |      1 | Summer   | 2010 | Painter  |         514 | A            |
| CS-101    |      1 | Fall     | 2009 | Packard  |         101 | H            |
| CS-101    |      1 | Spring   | 2010 | Packard  |         101 | F            |
| CS-190    |      1 | Spring   | 2009 | Taylor   |        3128 | E            |
| CS-190    |      2 | Spring   | 2009 | Taylor   |        3128 | A            |
| CS-315    |      1 | Spring   | 2010 | Watson   |         120 | D            |
| CS-319    |      1 | Spring   | 2010 | Watson   |         100 | B            |
| CS-319    |      2 | Spring   | 2010 | Taylor   |        3128 | C            |
| CS-347    |      1 | Fall     | 2009 | Taylor   |        3128 | A            |
| EE-181    |      1 | Spring   | 2009 | Taylor   |        3128 | C            |
| FIN-201   |      1 | Spring   | 2010 | Packard  |         101 | B            |
| HIS-351   |      1 | Spring   | 2010 | Painter  |         514 | C            |
| MU-199    |      1 | Spring   | 2010 | Packard  |         101 | D            |
| PHY-101   |      1 | Fall     | 2009 | Watson   |         100 | A            |
| PUL-073   |      1 | NULL     | 2019 | Egret    |         121 | NULL         |
| VAN-200   |      2 | NULL     | 2019 | Egret    |         119 | NULL         |
| DHI-199   |      1 | NULL     | 2019 | Egret    |         119 | NULL         |
| PRV-111   |      2 | NULL     | 2019 | Egret    |         121 | NULL         |
| PAN-180   |      1 | NULL     | 2019 | Canary   |           0 | NULL         |
| SHV-201   |      2 | NULL     | 2019 | Egret    |         122 | NULL         |
+-----------+--------+----------+------+----------+-------------+--------------+
```

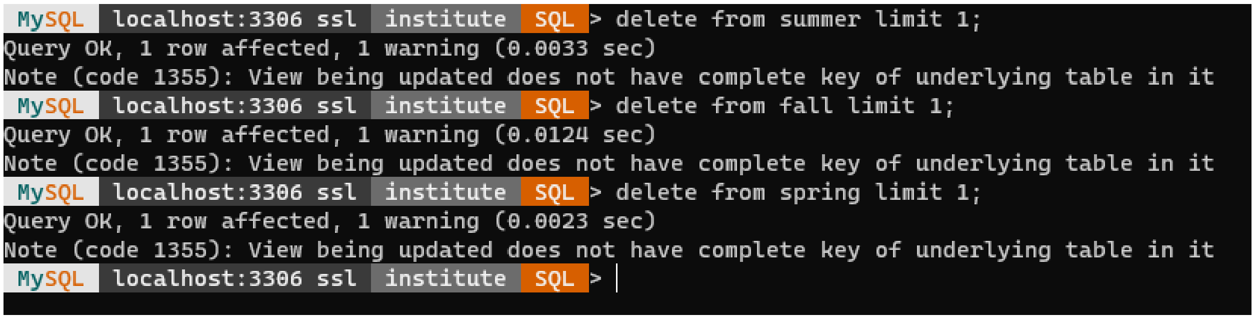
c)

Before deletion:



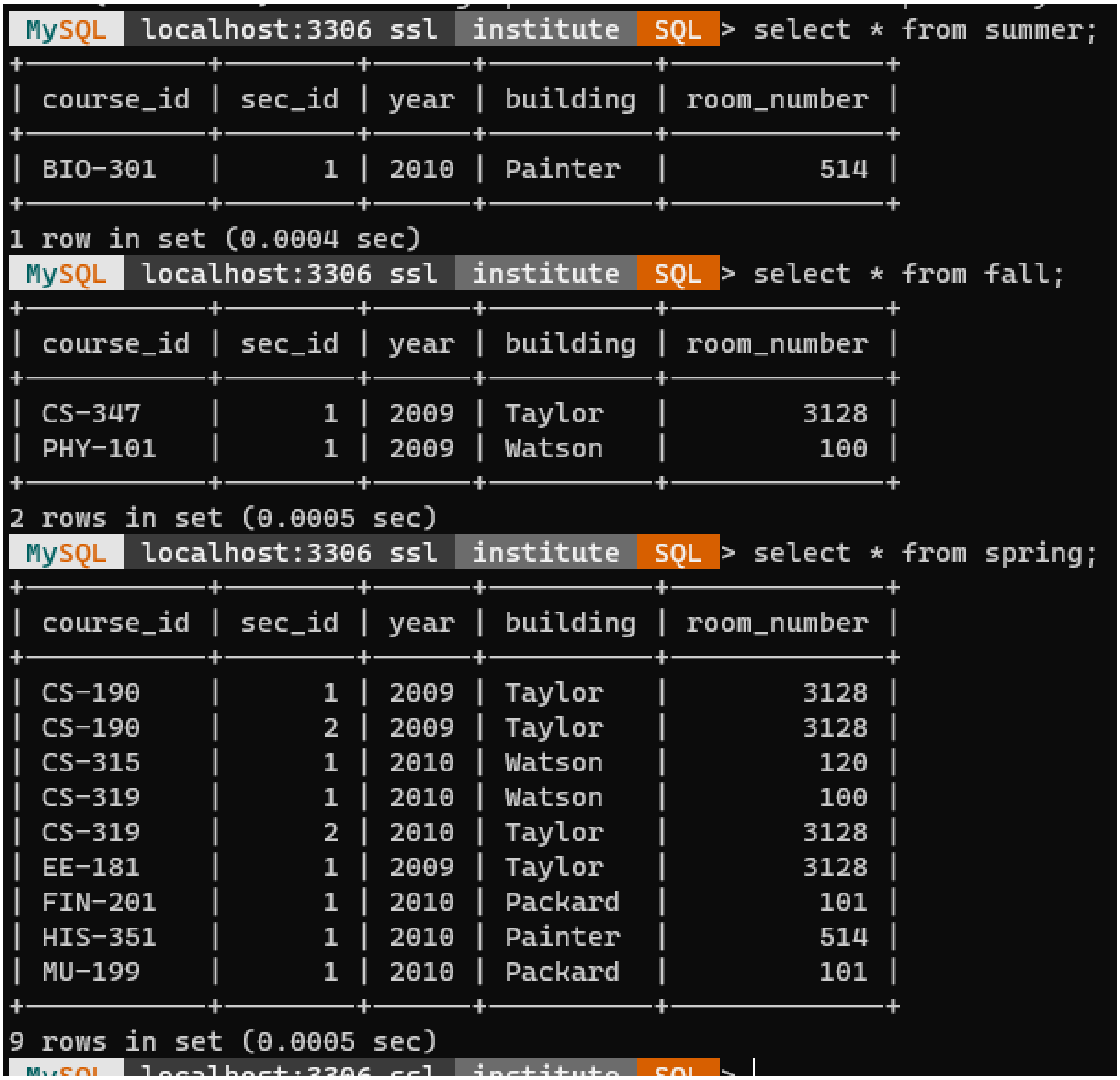
```
MySQL  localhost:3306 ssl  institute  SQL > select * from summer;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| BIO-101   |      1 | 2009 | Painter  |         514 |
| BIO-301   |      1 | 2010 | Painter  |         514 |
+-----------+--------+------+----------+-------------+
2 rows in set (0.0009 sec)
MySQL  localhost:3306 ssl  institute  SQL > select * from fall;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2009 | Packard  |         101 |
| CS-347    |      1 | 2009 | Taylor   |        3128 |
| PHY-101   |      1 | 2009 | Watson   |         100 |
+-----------+--------+------+----------+-------------+
3 rows in set (0.0005 sec)
MySQL  localhost:3306 ssl  institute  SQL > select * from spring;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-101    |      1 | 2010 | Packard  |         101 |
| CS-190    |      1 | 2009 | Taylor   |        3128 |
| CS-190    |      2 | 2009 | Taylor   |        3128 |
| CS-315    |      1 | 2010 | Watson   |         120 |
| CS-319    |      1 | 2010 | Watson   |         100 |
| CS-319    |      2 | 2010 | Taylor   |        3128 |
| EE-181    |      1 | 2009 | Taylor   |        3128 |
| FIN-201   |      1 | 2010 | Packard  |         101 |
| HIS-351   |      1 | 2010 | Painter  |         514 |
| MU-199    |      1 | 2010 | Packard  |         101 |
+-----------+--------+------+----------+-------------+
10 rows in set (0.0005 sec)
```

:Deletion queries;



```
MySQL  localhost:3306 ssl  institute  SQL > delete from summer limit 1;
Query OK, 1 row affected, 1 warning (0.0033 sec)
Note (code 1355): View being updated does not have complete key of underlying table in it
MySQL  localhost:3306 ssl  institute  SQL > delete from fall limit 1;
Query OK, 1 row affected, 1 warning (0.0124 sec)
Note (code 1355): View being updated does not have complete key of underlying table in it
MySQL  localhost:3306 ssl  institute  SQL > delete from spring limit 1;
Query OK, 1 row affected, 1 warning (0.0023 sec)
Note (code 1355): View being updated does not have complete key of underlying table in it
MySQL  localhost:3306 ssl  institute  SQL >
```

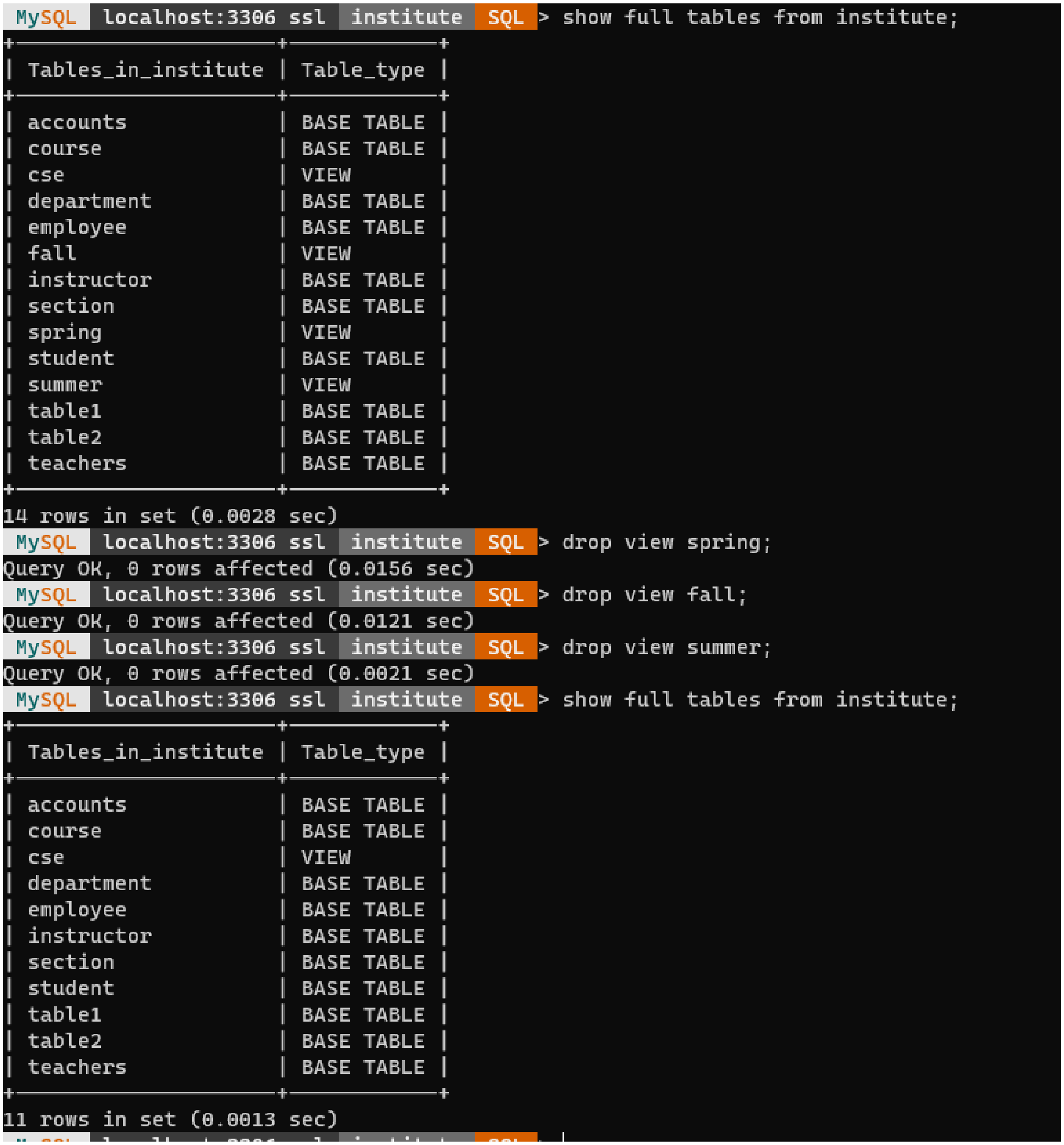
after deletion:



```
 MySQL  localhost:3306 ssl  institute  SQL > select * from summer;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| BIO-301   |      1 | 2010 | Painter  |         514 |
+-----------+--------+------+----------+-------------+
1 row in set (0.0004 sec)
 MySQL  localhost:3306 ssl  institute  SQL > select * from fall;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-347    |      1 | 2009 | Taylor   |        3128 |
| PHY-101   |      1 | 2009 | Watson   |         100 |
+-----------+--------+------+----------+-------------+
2 rows in set (0.0005 sec)
 MySQL  localhost:3306 ssl  institute  SQL > select * from spring;
+-----------+--------+------+----------+-------------+
| course_id | sec_id | year | building | room_number |
+-----------+--------+------+----------+-------------+
| CS-190    |      1 | 2009 | Taylor   |        3128 |
| CS-190    |      2 | 2009 | Taylor   |        3128 |
| CS-315    |      1 | 2010 | Watson   |         120 |
| CS-319    |      1 | 2010 | Watson   |         100 |
| CS-319    |      2 | 2010 | Taylor   |        3128 |
| EE-181    |      1 | 2009 | Taylor   |        3128 |
| FIN-201   |      1 | 2010 | Packard  |         101 |
| HIS-351   |      1 | 2010 | Painter  |         514 |
| MU-199    |      1 | 2010 | Packard  |         101 |
+-----------+--------+------+----------+-------------+
9 rows in set (0.0005 sec)
 MySQL  localhost:3306 ssl  institute  SQL > 
```

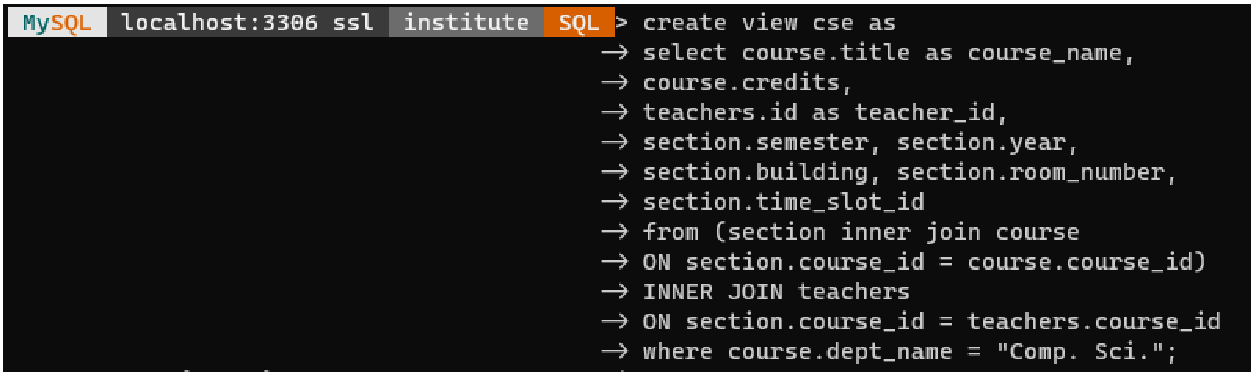
d)

please note that after dropping a table called cse is visible in the picture attached. That is because I was trying to attempt question 2 before question 1. I shall recreate the cse view in question 2 again.

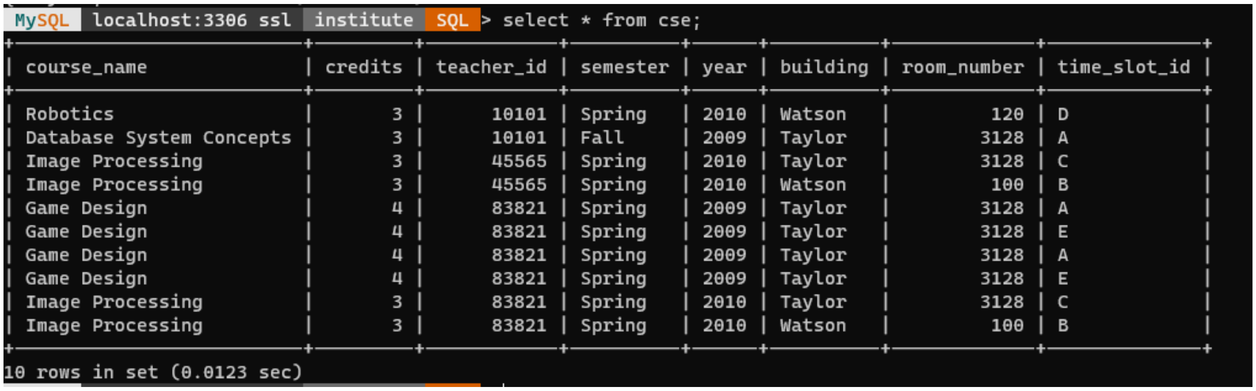


```
 MySQL  localhost:3306 ssl  institute  SQL > show full tables from institute;
+----------------------+------------+
| Tables_in_institute  | Table_type |
+----------------------+------------+
| accounts             | BASE TABLE |
| course               | BASE TABLE |
| cse                  | VIEW       |
| department           | BASE TABLE |
| employee             | BASE TABLE |
| fall                 | VIEW       |
| instructor           | BASE TABLE |
| section              | BASE TABLE |
| spring               | VIEW       |
| student              | BASE TABLE |
| summer               | VIEW       |
| table1               | BASE TABLE |
| table2               | BASE TABLE |
| teachers             | BASE TABLE |
+----------------------+------------+
14 rows in set (0.0028 sec)
 MySQL  localhost:3306 ssl  institute  SQL > drop view spring;
Query OK, 0 rows affected (0.0156 sec)
 MySQL  localhost:3306 ssl  institute  SQL > drop view fall;
Query OK, 0 rows affected (0.0121 sec)
 MySQL  localhost:3306 ssl  institute  SQL > drop view summer;
Query OK, 0 rows affected (0.0021 sec)
 MySQL  localhost:3306 ssl  institute  SQL > show full tables from institute;
+----------------------+------------+
| Tables_in_institute  | Table_type |
+----------------------+------------+
| accounts             | BASE TABLE |
| course               | BASE TABLE |
| cse                  | VIEW       |
| department           | BASE TABLE |
| employee             | BASE TABLE |
| instructor           | BASE TABLE |
| section              | BASE TABLE |
| student              | BASE TABLE |
| table1               | BASE TABLE |
| table2               | BASE TABLE |
| teachers             | BASE TABLE |
+----------------------+------------+
11 rows in set (0.0013 sec)
```

Question 2



```
MySQL  localhost:3306 ssl  institute  SQL > create view cse as
                                         -> select course.title as course_name,
                                         -> course.credits,
                                         -> teachers.id as teacher_id,
                                         -> section.semester, section.year,
                                         -> section.building, section.room_number,
                                         -> section.time_slot_id
                                         -> from (section inner join course
                                         -> ON section.course_id = course.course_id)
                                         -> INNER JOIN teachers
                                         -> ON section.course_id = teachers.course_id
                                         -> where course.dept_name = "Comp. Sci.";
```



```
MySQL  localhost:3306 ssl  institute  SQL > select * from cse;
+-------------------------+---------+------------+----------+------+----------+-------------+--------------+
| course_name             | credits | teacher_id | semester | year | building | room_number | time_slot_id |
+-------------------------+---------+------------+----------+------+----------+-------------+--------------+
| Robotics                |       3 |      10101 | Spring   | 2010 | Watson   |         120 | D            |
| Database System Concepts |      3 |      10101 | Fall     | 2009 | Taylor   |        3128 | A            |
| Image Processing        |       3 |      45565 | Spring   | 2010 | Taylor   |        3128 | C            |
| Image Processing        |       3 |      45565 | Spring   | 2010 | Watson   |         100 | B            |
| Game Design             |       4 |      83821 | Spring   | 2009 | Taylor   |        3128 | A            |
| Game Design             |       4 |      83821 | Spring   | 2009 | Taylor   |        3128 | E            |
| Game Design             |       4 |      83821 | Spring   | 2009 | Taylor   |        3128 | A            |
| Game Design             |       4 |      83821 | Spring   | 2009 | Taylor   |        3128 | E            |
| Image Processing        |       3 |      83821 | Spring   | 2010 | Taylor   |        3128 | C            |
| Image Processing        |       3 |      83821 | Spring   | 2010 | Watson   |         100 | B            |
+-------------------------+---------+------------+----------+------+----------+-------------+--------------+
10 rows in set (0.0123 sec)
```

Question 3
creating the database:

```
create table salesman(
salesman_id int(4),
name varchar(256),
city varchar(256),
commission int(4),
primary key (salesman_id));

create table customer(
customer_id int(4),
cust_name varchar(256),
city varchar(256),
grade int(4),
primary key (customer_id),
salesman_id references salesman(salesman_id) on delete cascade);

create table orders(
order_no int(4),
purchase_amt int(4),
ord_date date,
primary key(order_no),
customer_id references customer(customer_id) on delete set NULL,
salesman_id references salesman(salesman_id) on delete cascade);
```

a)

```
select count(distinct customer_id)
from customer
where grade > (select avg(grade) from customer
where city = "Bangalore";
```

b)

```
select salesman_id, name
from salesman
where 1<(select count(*) from customer
where salesman_id = salesman.salesman_id);
```

c)

```
select salesman.salesman_id, name, cust_name, commission
from salesman, customer
where salesman.city = customer.city
UNION
select salesman_id, name, "NO MATCH", commission
from salesman
where not city = any (select city from customer) order by 2 desc;
```

d)

```
create view best_salesman as
select salesman s, orders o
where s.salesman_id = o.salesman_id
and o.purchase_amt = (select max(purchase_amt)
from orders c
where c.ord_date = o.ord_date);
```

e)

```
delete from salesman
where salesman_id = 1000;
```