INT205 – Database Management System
1/2564

LAB04: View

Submission:

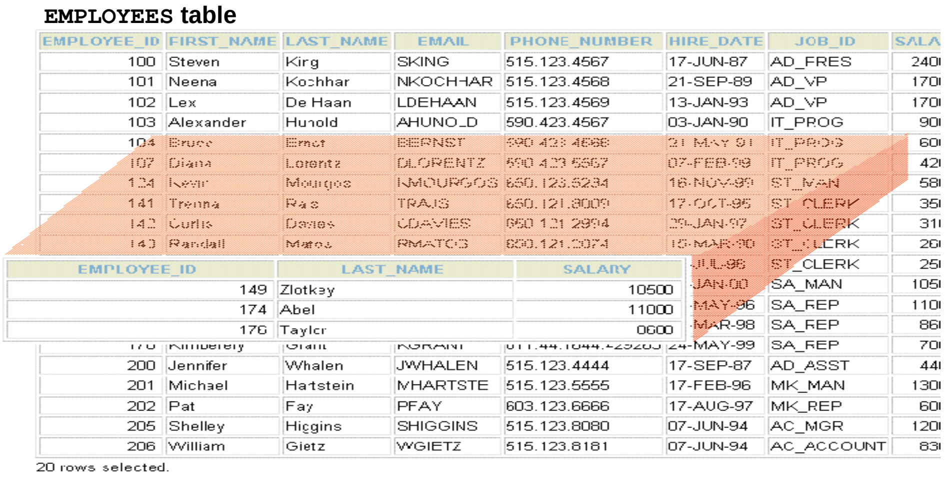
- Submit a lab file named "int205_lab04_xxxxxxxxxxx.docx/.pdf" into the LEB2 system. xxxxxxxxxxx = your student id

Due Date & Time:

- Lecturer will inform the LAB04 due date and time in lab class.

What is a View?

A view is a logical table based on a table or another view. A view contains no data of its own but is like a window through which data from tables can be viewed or changed. The tables on which a view is based are called ***base tables***. The view is stored as a SELECT statement in the data dictionary.



EMPLOYEES table

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALA
100	Steven	Kirg	SKING	515.123.4567	17-JUN-87	AD_FRES	240
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-89	AD_VP	170
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-93	AD_VP	170
103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-90	IT_PROG	90
104	Bruce	Ernst	BERNST	590.423.4568	21-MAY-91	IT_PROG	60
107	Diana	Lorentz	DLORENTZ	590.423.5567	07-FEB-99	IT_PROG	42
124	Kevin	Mourgos	KMOURGOS	650.123.5234	16-NOV-99	ST_MAN	58
141	Trenna	Rajs	TRAJS	650.121.8009	17-OCT-95	ST_CLERK	35
142	Curtis	Davies	CDAVIES	650.121.2994	29-JAN-97	ST_CLERK	31
143	Randall	Matos	RMATOS	650.121.2874	15-MAR-98	ST_CLERK	26
					JUL-98	ST_CLERK	25
					JAN-00	SA_MAN	105
					MAY-96	SA_REP	110
					MAR-98	SA_REP	86
178	Kimberely	Grant	KGRANT	011.44.1644.429263	24-MAY-99	SA_REP	70
200	Jennifer	Whalen	JWHALEN	515.123.4444	17-SEP-87	AD_ASST	44
201	Michael	Hartstein	MHARTSTE	515.123.5555	17-FEB-96	MK_MAN	130
202	Pat	Fay	PFAY	603.123.6666	17-AUG-97	MK_REP	60
205	Shelley	Higgins	SHIGGINS	515.123.8080	07-JUN-94	AC_MGR	120
206	William	Gietz	WGIETZ	515.123.8181	07-JUN-94	AC_ACCOUNT	83

20 rows selected.

EMPLOYEE_ID	LAST_NAME	SALARY
149	Zlotkey	10500
174	Abel	11000
176	Taylor	0600

Syntax for creating a view

```
CREATE [OR REPLACE]
    VIEW view_name [(column_list)]
    AS select_statement ;
```

Updatable Views:

- A simple view is one that:
  - Derives data from only one table
  - Contains no functions or groups of data
  - Can perform DML operations through the view

Non-updatable Views:

- A complex view is one that:
    - Derives data from many tables
    - Contains functions or groups of data
    - Does not always allow DML operations through the view

The Syntax of CREATE VIEW statement:
Documentation: https://dev.mysql.com/doc/refman/8.0/en/create-view.html

Note: The MySQL error code 1064 is a syntax error. This means the reason there's a problem is because MySQL doesn't understand what you're asking it to do.

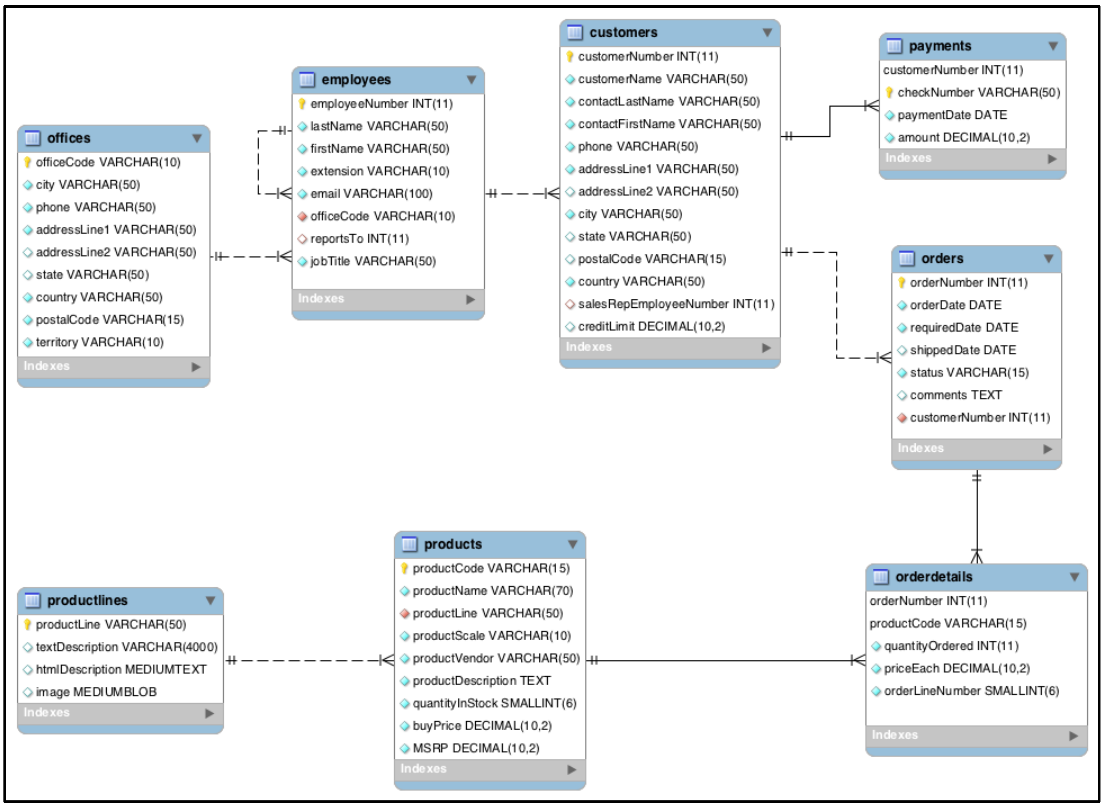
Switch to SQL Editor

- You should specify the classicmodels database before writing SQL statements using the following command:

```
USE db_name;
```

The USE statement tells MySQL to use the named database as the default (current) database for subsequent statements. This statement requires some privilege for the database or some object within it.

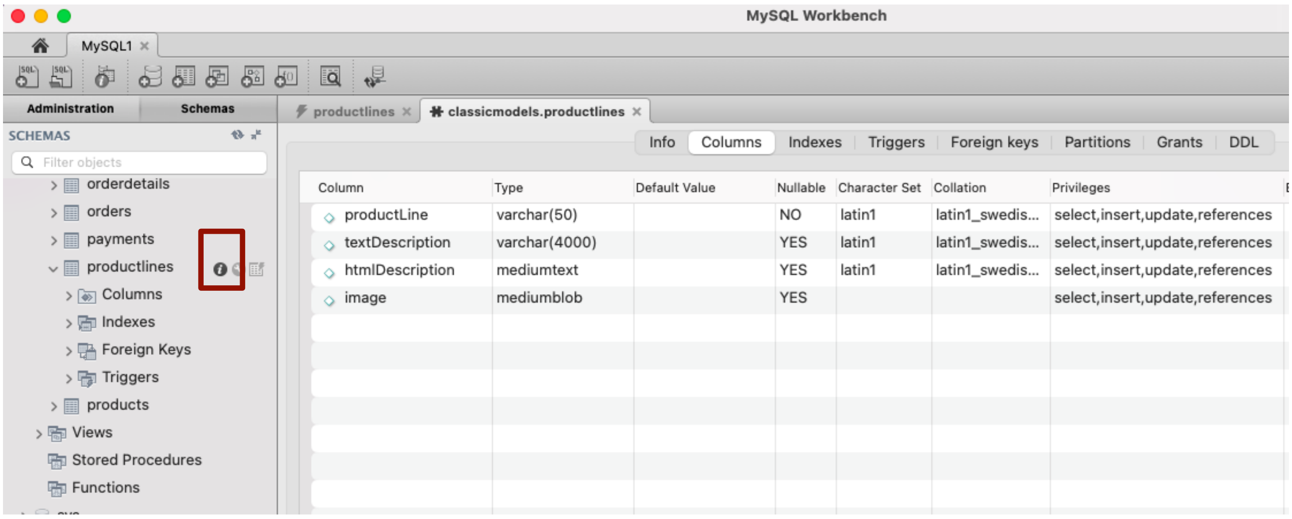
The ER diagram for the classicmodels.



Note: The MSRP is "Manufacturer's suggested retail price" (ราคาขายปลีกแนะนำของผู้ผลิต).

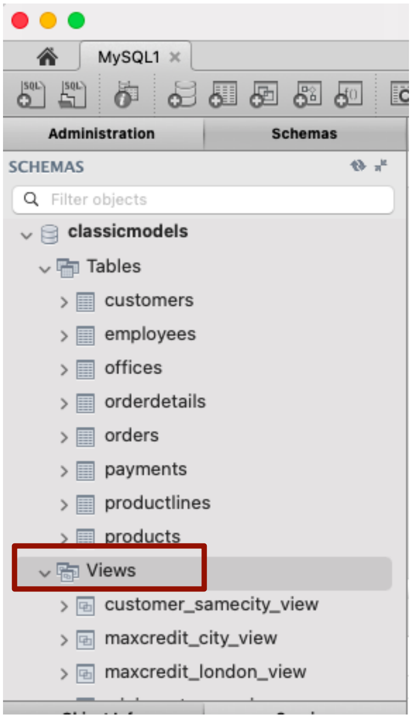
MySQL Workbench:

- You can see details of a table by clicking i button below:



Column	Type	Default Value	Nullable	Character Set	Collation	Privileges
productLine	varchar(50)		NO	latin1	latin1_swedis...	select,insert,update,references
textDescription	varchar(4000)		YES	latin1	latin1_swedis...	select,insert,update,references
htmlDescription	mediumtext		YES	latin1	latin1_swedis...	select,insert,update,references
image	mediumblob		YES			select,insert,update,references

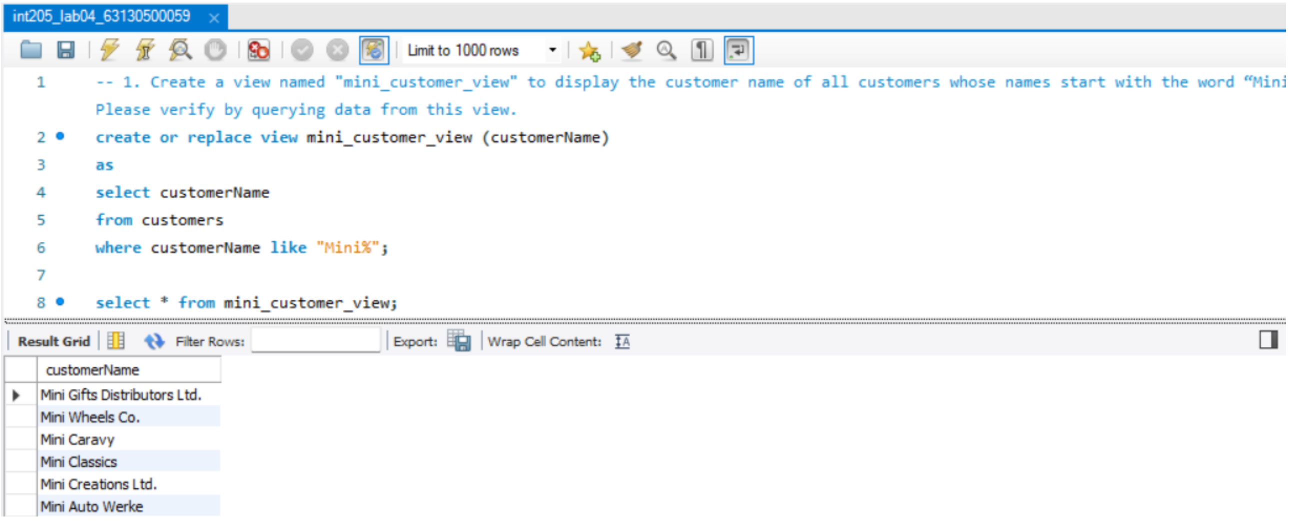
- You can see the existing view by clicking “Views” menu below:



Task 1: Using the “classicmodels” database and write SQL statements to answer the following questions.

use classicmodels;

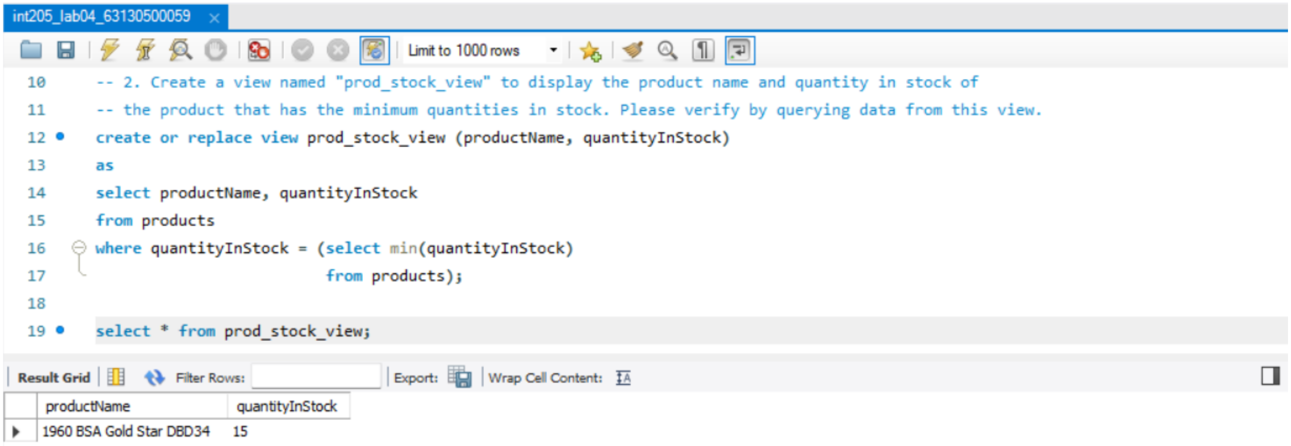
1. Create a view named "mini_customer_view" to display the customer name of all customers whose names start with the word “Mini”. Please verify by querying data from this view.



```
-- 1. Create a view named "mini_customer_view" to display the customer name of all customers whose names start with the word “Mini
Please verify by querying data from this view.
create or replace view mini_customer_view (customerName)
as
select customerName
from customers
where customerName like "Mini%";

select * from mini_customer_view;
```

customerName
Mini Gifts Distributors Ltd.
Mini Wheels Co.
Mini Caravy
Mini Classics
Mini Creations Ltd.
Mini Auto Werke

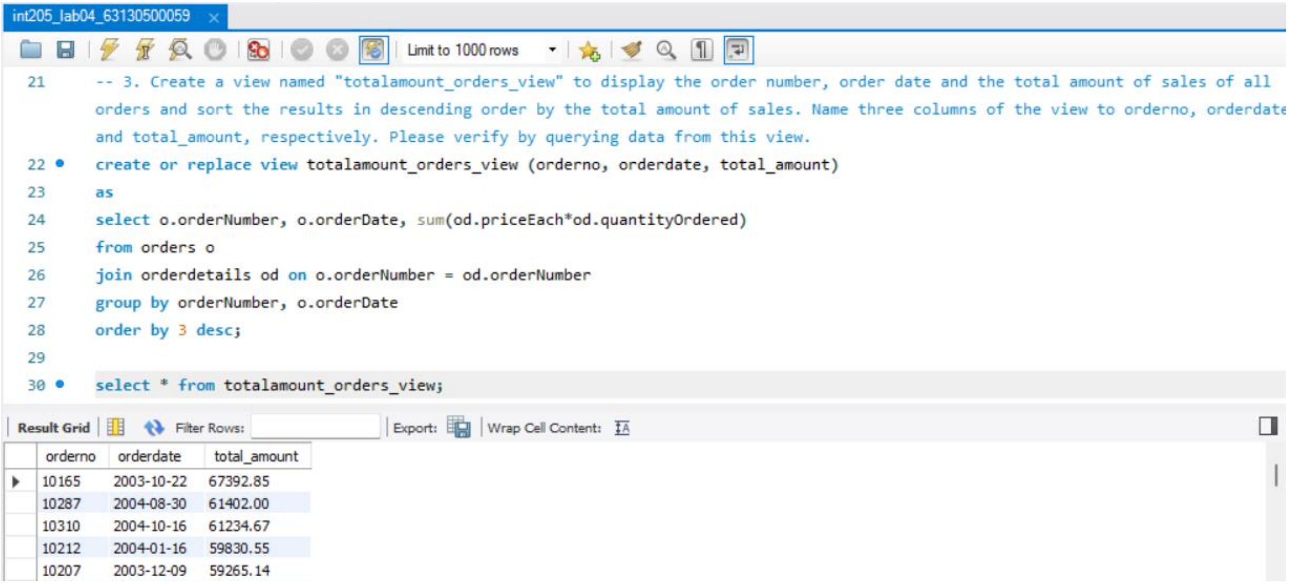
2. Create a view named "prod_stock_view" to display the product name and quantity in stock of the product that has the minimum quantities in stock. Please verify by querying data from this view.



```
-- 2. Create a view named "prod_stock_view" to display the product name and quantity in stock of
-- the product that has the minimum quantities in stock. Please verify by querying data from this view.
create or replace view prod_stock_view (productName, quantityInStock)
as
select productName, quantityInStock
from products
where quantityInStock = (select min(quantityInStock)
                         from products);

select * from prod_stock_view;
```

productName	quantityInStock
1960 BSA Gold Star DBD34	15

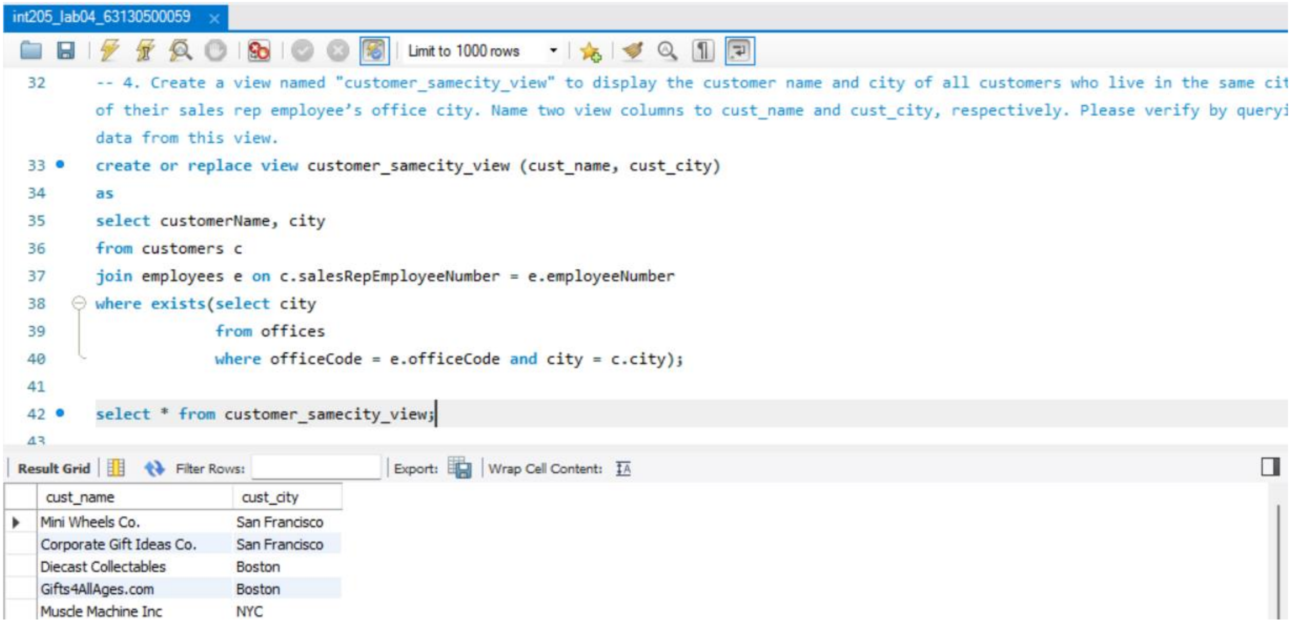
3. Create a view named "totalamount_orders_view" to display the order number, order date and the total amount of sales of all orders and sort the results in descending order by the total amount of sales. Name three columns of the view to orderno, orderdate and total_amount, respectively. Please verify by querying data from this view.



```
-- 3. Create a view named "totalamount_orders_view" to display the order number, order date and the total amount of sales of all
orders and sort the results in descending order by the total amount of sales. Name three columns of the view to orderno, orderdate
and total_amount, respectively. Please verify by querying data from this view.
create or replace view totalamount_orders_view (orderno, orderdate, total_amount)
as
select o.orderNumber, o.orderDate, sum(od.priceEach*od.quantityOrdered)
from orders o
join orderdetails od on o.orderNumber = od.orderNumber
group by orderNumber, o.orderDate
order by 3 desc;

select * from totalamount_orders_view;
```

orderno	orderdate	total_amount
10165	2003-10-22	67392.85
10287	2004-08-30	61402.00
10310	2004-10-16	61234.67
10212	2004-01-16	59830.55
10207	2003-12-09	59265.14

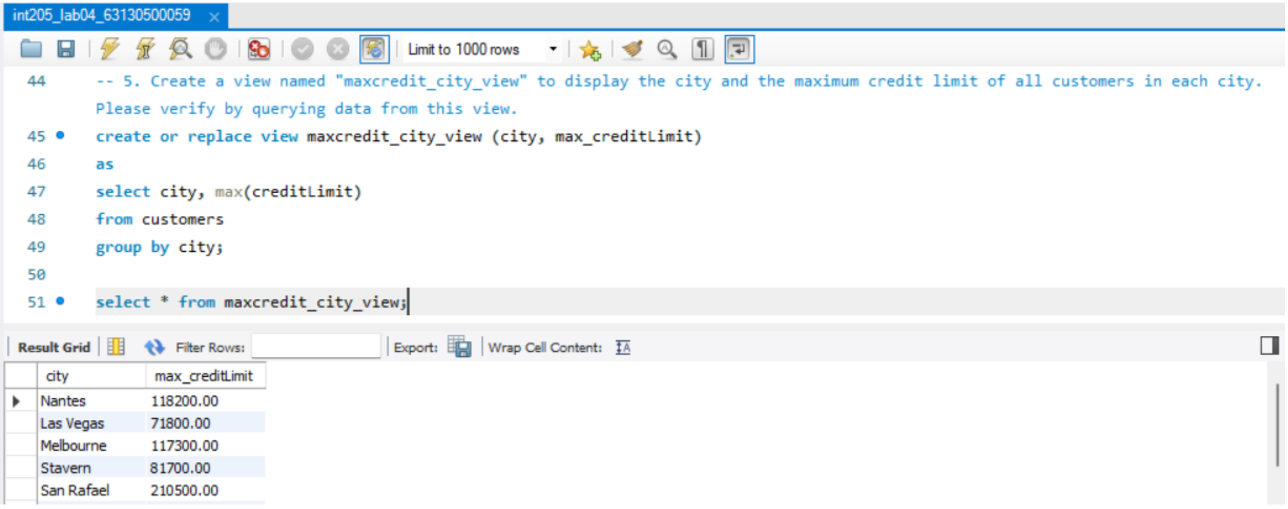
4. Create a view named "customer_samecity_view" to display the customer name and city of all customers who live in the same city of their sales rep employee's office city. Name two view columns to cust_name and cust_city, respectively. Please verify by querying data from this view.



```
-- 4. Create a view named "customer_samecity_view" to display the customer name and city of all customers who live in the same cit
of their sales rep employee’s office city. Name two view columns to cust_name and cust_city, respectively. Please verify by queryi
data from this view.
create or replace view customer_samecity_view (cust_name, cust_city)
as
select customerName, city
from customers c
join employees e on c.salesRepEmployeeNumber = e.employeeNumber
where exists(select city
             from offices
             where officeCode = e.officeCode and city = c.city);

select * from customer_samecity_view;
```

cust_name	cust_city
Mini Wheels Co.	San Francisco
Corporate Gift Ideas Co.	San Francisco
Diecast Collectables	Boston
Gifts4AllAges.com	Boston
Muscle Machine Inc	NYC

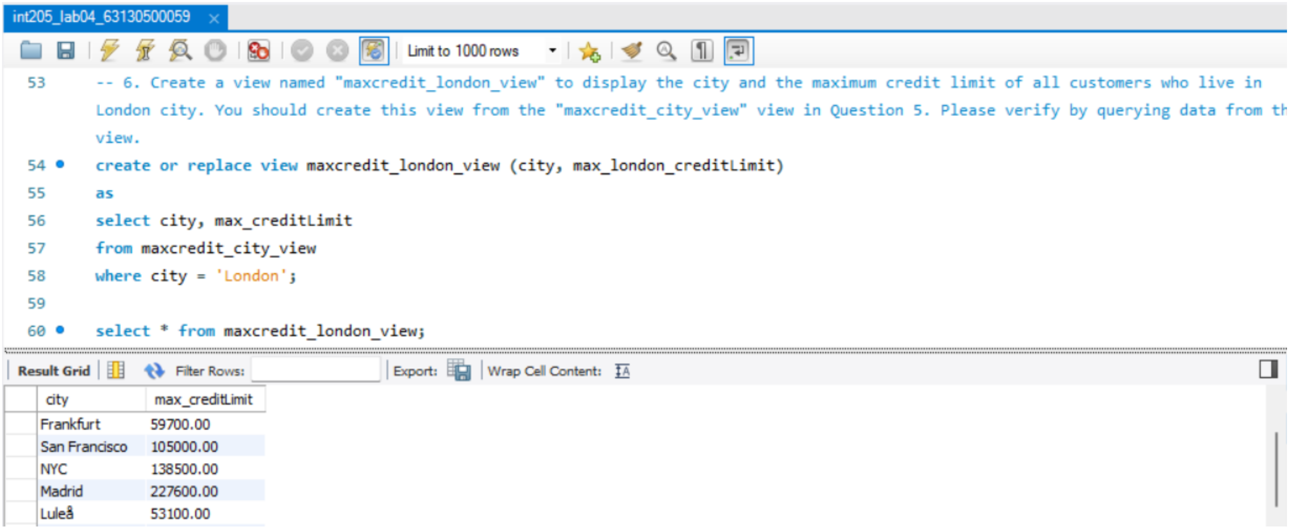
5. Create a view named "maxcredit_city_view" to display the city and the maximum credit limit of all customers in each city. Please verify by querying data from this view.



```sql
-- 5. Create a view named "maxcredit_city_view" to display the city and the maximum credit limit of all customers in each city.
Please verify by querying data from this view.
create or replace view maxcredit_city_view (city, max_creditLimit)
as
select city, max(creditLimit)
from customers
group by city;

select * from maxcredit_city_view;
```

city	max_creditLimit
Nantes	118200.00
Las Vegas	71800.00
Melbourne	117300.00
Stavern	81700.00
San Rafael	210500.00

6. Create a view named "maxcredit_london_view" to display the city and the maximum credit limit of all customers who live in London city. You should create this view from the "maxcredit_city_view" view in Question 5. Please verify by querying data from this view.



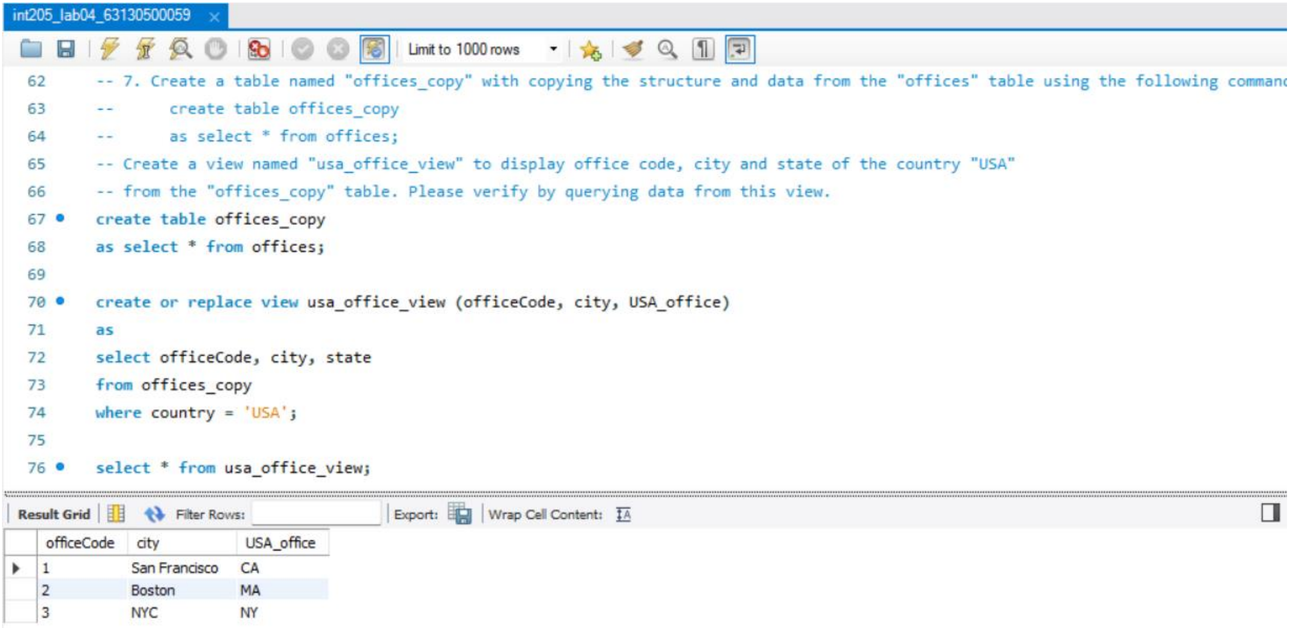
```sql
-- 6. Create a view named "maxcredit_london_view" to display the city and the maximum credit limit of all customers who live in
London city. You should create this view from the "maxcredit_city_view" view in Question 5. Please verify by querying data from th
view.
create or replace view maxcredit_london_view (city, max_london_creditLimit)
as
select city, max_creditLimit
from maxcredit_city_view
where city = 'London';

select * from maxcredit_london_view;
```

city	max_creditLimit
Frankfurt	59700.00
San Francisco	105000.00
NYC	138500.00
Madrid	227600.00
Luleå	53100.00

7. Create a table named "offices_copy" with copying the structure and data from the "offices" table using the following commands:

```
create table offices_copy
as select * from offices;
```

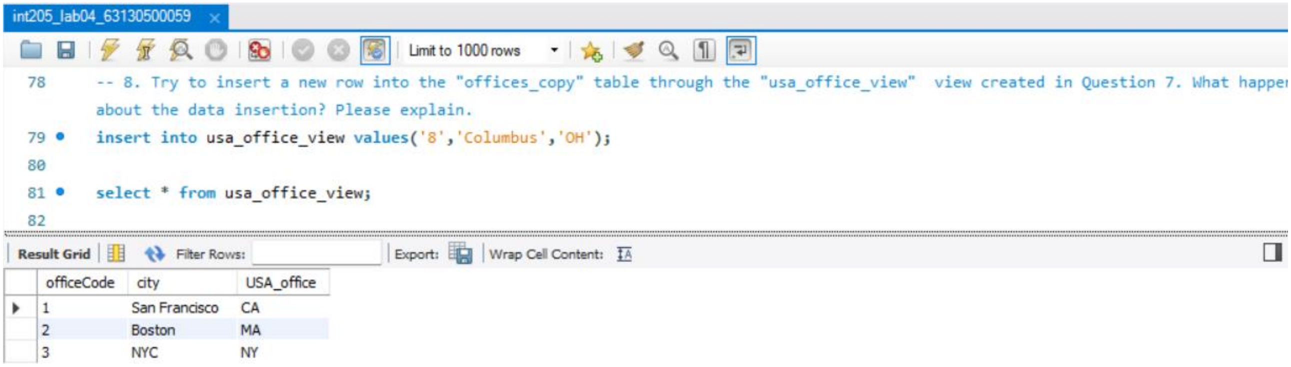
Create a view named "usa_office_view" to display office code, city and state of the country "USA" from the "offices_copy" table. Please verify by querying data from this view.



```
-- 7. Create a table named "offices_copy" with copying the structure and data from the "offices" table using the following commanc
--      create table offices_copy
--      as select * from offices;
-- Create a view named "usa_office_view" to display office code, city and state of the country "USA"
-- from the "offices_copy" table. Please verify by querying data from this view.
create table offices_copy
as select * from offices;

create or replace view usa_office_view (officeCode, city, USA_office)
as
select officeCode, city, state
from offices_copy
where country = 'USA';

select * from usa_office_view;
```

officeCode	city	USA_office
1	San Francisco	CA
2	Boston	MA
3	NYC	NY

8. Try to insert a new row into the "offices_copy" table through the "usa_office_view" view created in <u>Question 7</u>. What happens about the data insertion? Please explain.



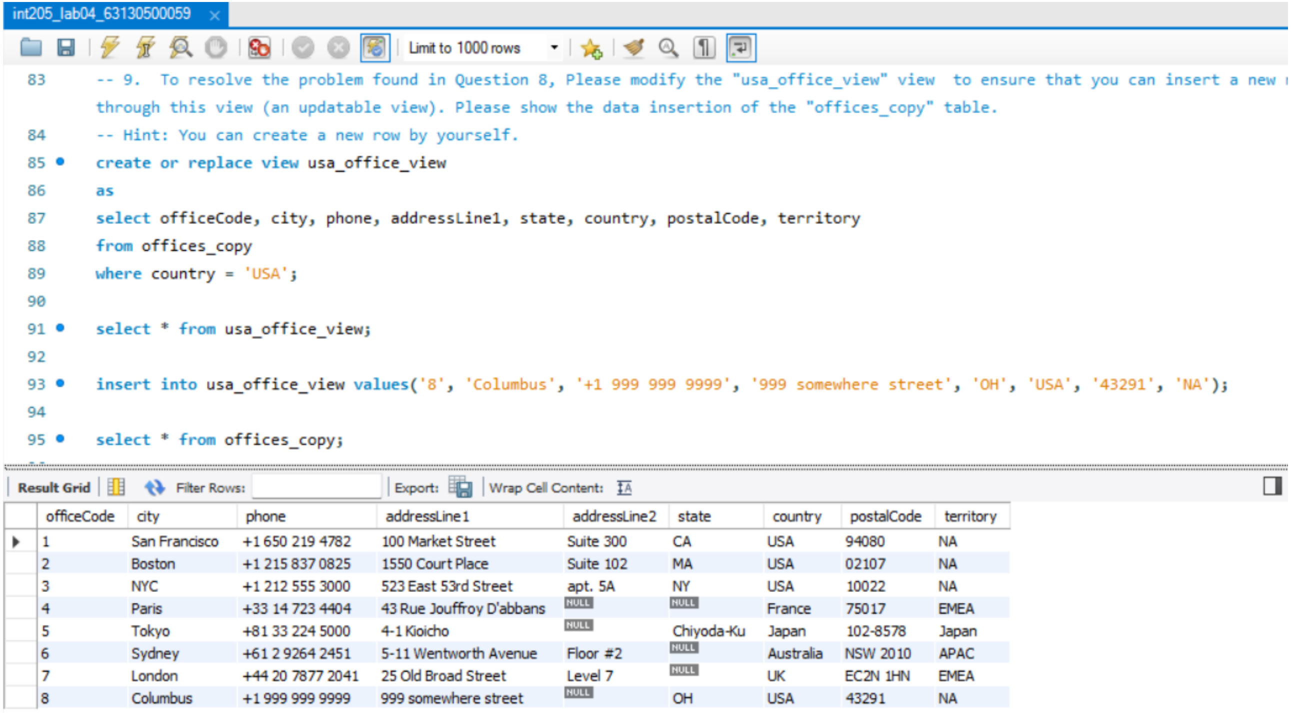
```
-- 8. Try to insert a new row into the "offices_copy" table through the "usa_office_view"  view created in Question 7. What happe
about the data insertion? Please explain.
insert into usa_office_view values('8','Columbus','OH');

select * from usa_office_view;
```

officeCode	city	USA_office
1	San Francisco	CA
2	Boston	MA
3	NYC	NY

insert ไม่ได้ เพราะติด nullable ในตาราง office_copy

9. To resolve the problem found in Question 8, Please modify the "usa_office_view" view to ensure that you can insert a new row through this view (an updatable view). Please show the data insertion of the "offices_copy" table.

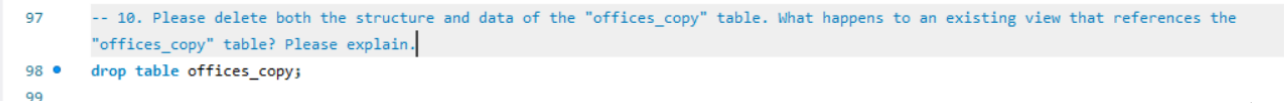
Hint: You can create a new row by yourself.



```
-- 9.  To resolve the problem found in Question 8, Please modify the "usa_office_view" view  to ensure that you can insert a new r
through this view (an updatable view). Please show the data insertion of the "offices_copy" table.
-- Hint: You can create a new row by yourself.
create or replace view usa_office_view
as
select officeCode, city, phone, addressLine1, state, country, postalCode, territory
from offices_copy
where country = 'USA';

select * from usa_office_view;

insert into usa_office_view values('8', 'Columbus', '+1 999 999 9999', '999 somewhere street', 'OH', 'USA', '43291', 'NA');

select * from offices_copy;
```

officeCode	city	phone	addressLine1	addressLine2	state	country	postalCode	territory
1	San Francisco	+1 650 219 4782	100 Market Street	Suite 300	CA	USA	94080	NA
2	Boston	+1 215 837 0825	1550 Court Place	Suite 102	MA	USA	02107	NA
3	NYC	+1 212 555 3000	523 East 53rd Street	apt. 5A	NY	USA	10022	NA
4	Paris	+33 14 723 4404	43 Rue Jouffroy D'abbans	NULL	NULL	France	75017	EMEA
5	Tokyo	+81 33 224 5000	4-1 Kioicho	NULL	Chiyoda-Ku	Japan	102-8578	Japan
6	Sydney	+61 2 9264 2451	5-11 Wentworth Avenue	Floor #2	NULL	Australia	NSW 2010	APAC
7	London	+44 20 7877 2041	25 Old Broad Street	Level 7	NULL	UK	EC2N 1HN	EMEA
8	Columbus	+1 999 999 9999	999 somewhere street	NULL	OH	USA	43291	NA

10. Please delete both the structure and data of the "offices_copy" table. What happens to an existing view that references the "offices_copy" table? Please explain.



```
-- 10. Please delete both the structure and data of the "offices_copy" table. What happens to an existing view that references the
"offices_copy" table? Please explain.
drop table offices_copy;
```

จะไม่สามารถเรียกดู view ได้ เนื่องจาก view ไม่ได้บันทึกข้อมูลในตัวเอง ทำหน้าที่เพียงดึงข้อมูลเท่านั้น ทำให้เมื่อตารางที่เป็น reference หายไปทำให้ view ไม่สามารถดึงข้อมูลมาได้