

LAB04: View

Submission:

- Submit a lab file named “int205_lab04_XXXXXXXXXX.docx/.pdf” into the LEB2 system. XXXXXXXXXXXX = 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	SALARY
100	Steven	King	SKING	515.123.4567	17-JUN-87	AD_FRES	2400
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-89	AD_VP	1700
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-93	AD_VP	1700
103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-90	IT_PROG	900
104	Bruce	Ernst	BERNST	590.423.4568	21-MAY-91	IT_PROG	600
107	Diana	Lorentz	DLORENTZ	590.423.5567	07-FEB-98	IT_PROG	420
124	Kevin	Mourgos	KMOURGOS	650.123.5234	16-NOV-99	ST_MAN	580
141	Trenna	Ras	TRAS	650.121.8009	17-OCT-95	ST_CLERK	350
142	Curtis	Davies	CDAVIES	650.121.2984	29-JAN-97	ST_CLERK	310
143	Randall	Mateo	RMATEO	650.121.3074	15-MAR-90	ST_CLERK	260
149	Zlotkey			10500	JUL-96	ST_CLERK	250
174	Abel			11000	JAN-00	SA_MAN	1050
176	Taylor			0600	MAY-96	SA_REP	1100
176	Kimberely	Grant	KGRANT	011.44.1044.429205	MAR-98	SA_REP	860
176	Kimberely	Grant	KGRANT	011.44.1044.429205	24-MAY-99	SA_REP	700
200	Jennifer	Whalen	JWHALEN	515.123.4444	17-SEP-87	AD_ASST	440
201	Michael	Hartstein	MHARTSTE	515.123.5555	17-FEB-96	MK_MAN	1300
202	Pat	Fay	PFAY	603.123.6666	17-AUG-97	MK_REP	600
205	Shelley	Higgins	SHIGGINS	515.123.8080	07-JUN-94	AC_MGR	1200
206	William	Gietz	WGIEZT	515.123.8181	07-JUN-94	AC_ACCOUNT	830

20 rows selected.

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>

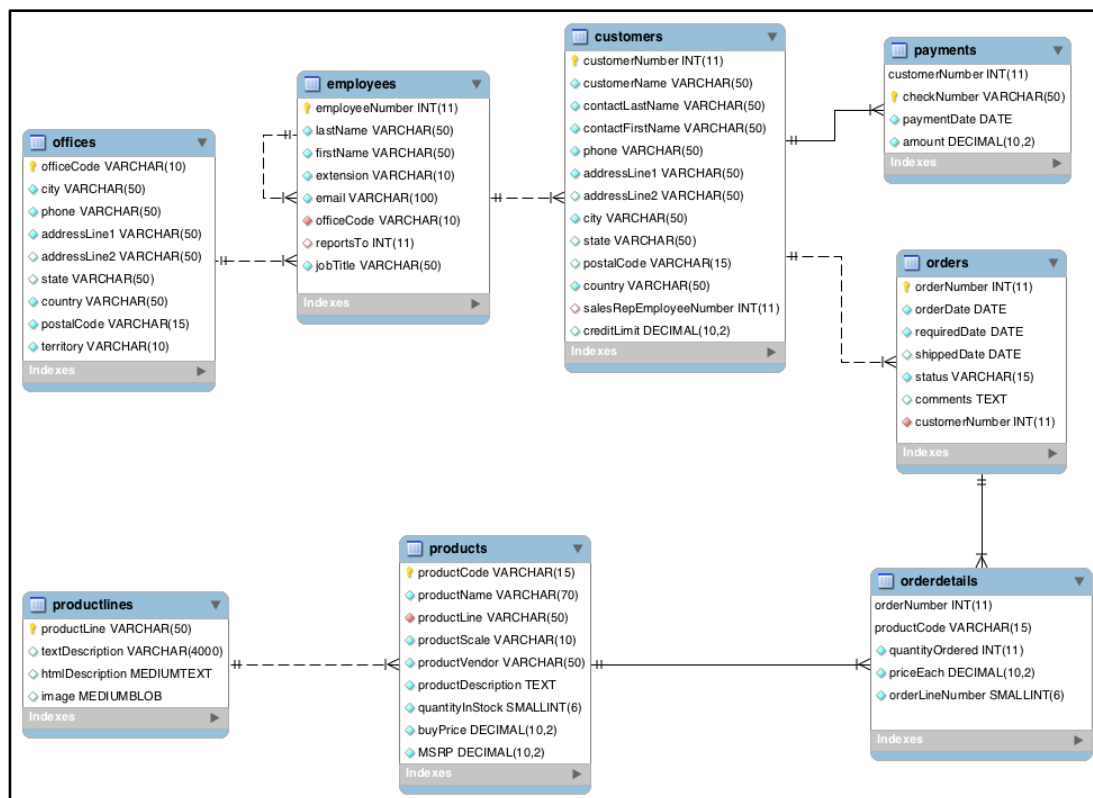
Note: The MySQL error code 1064 is a syntax error. This means the reason there's a problem is because MySQL doesn't understand what you're asking it to do.

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.

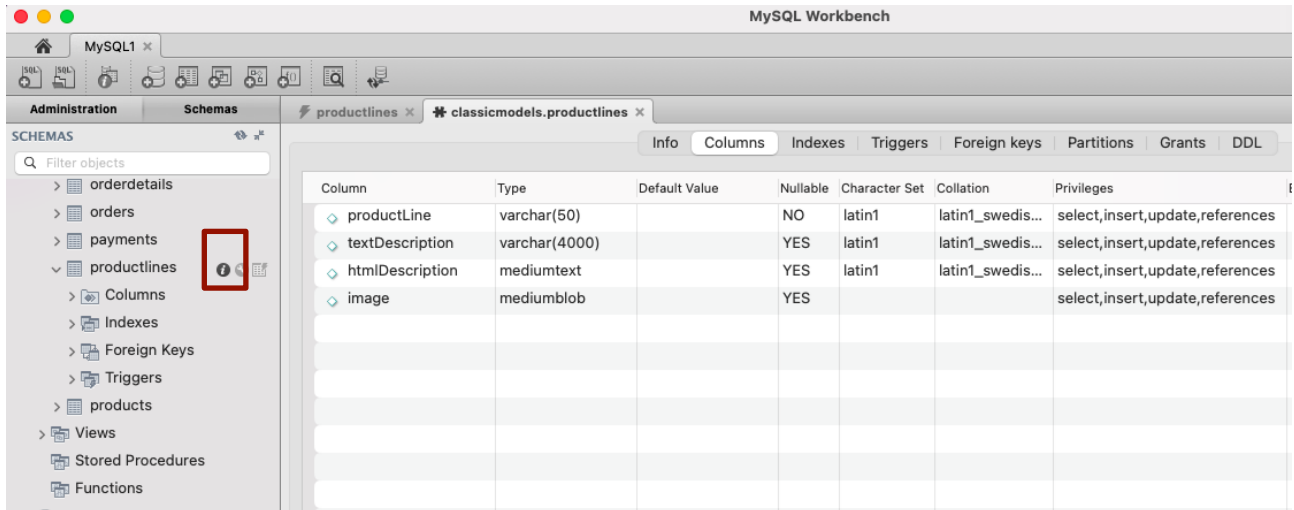
The ER diagram for the classicmodels.



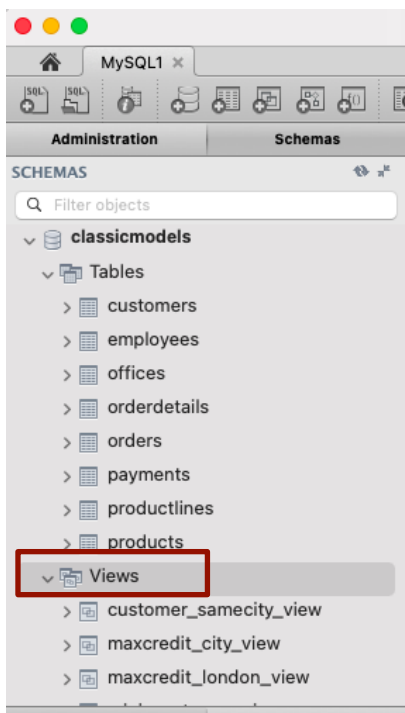
Note: The MSRP is “Manufacturer's suggested retail price” (ราคาขายปลีกแนะนำของผู้ผลิต).

MySQL Workbench:

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



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

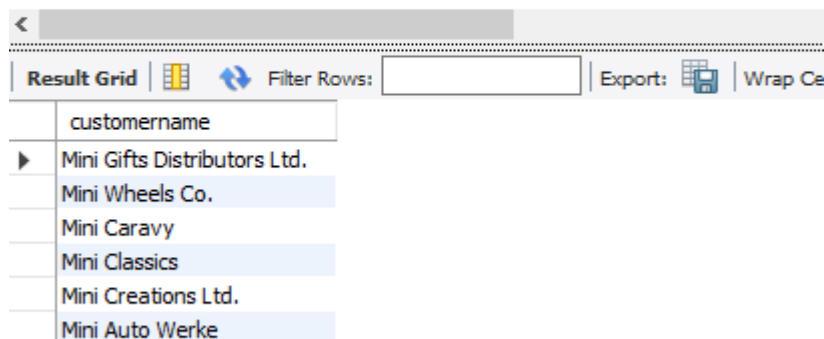


Task 1: Using the “classicmodels” database and write SQL statements to answer the following questions.

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 view mini_customer_view (customername)
2 as select customerName from customers
3 where customerName like "Mini%";
4 • select * from mini_customer_view;
5
```

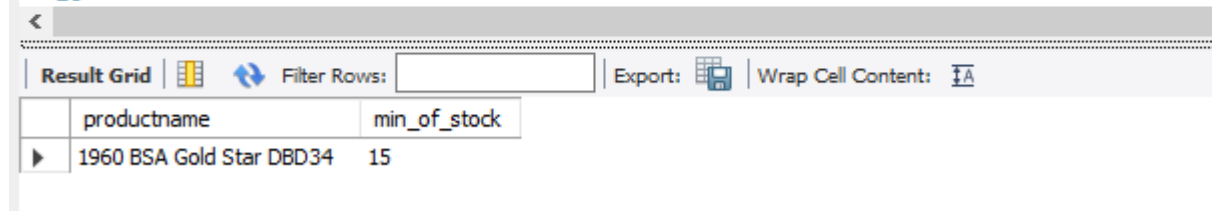


The screenshot shows a SQL query result grid. The toolbar includes 'Result Grid', 'Filter Rows', 'Export', and 'Wrap Cell Content'. The result table has one column, 'customername', and six rows of data.

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.

```
6 • create or replace view prod_stock_view (productname,min_of_stock)
7 as select productName,quantityInStock as min_of_stock from products
8 where quantityInStock = (select min(quantityInStock) from products);
9 • select * from prod_stock_view;
10
```



The screenshot shows a SQL query result grid. The toolbar includes 'Result Grid', 'Filter Rows', 'Export', and 'Wrap Cell Content'. The result table has two columns, 'productname' and 'min_of_stock', and one row of data.

productname	min_of_stock
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.

```

10 • create view totalamount_orders_view
11 (ordernumber ,orderdate,total_amount)
12 as select o.orderNumber as orderno,
13 o.orderDate as orderdate,
14 sum(od.quantityOrdered*priceEach) as total_amount
15 from orders o join orderdetails od
16 on o.ordernumber = od.ordernumber
17 group by o.orderNumber
18 order by total_amount desc;
19 • select * from totalamount_orders_view;

```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
ordernumber	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	
10127	2003-06-03	58841.35	
10204	2003-12-02	58793.53	
10126	2003-05-28	57131.92	
10222	2004-02-19	56822.65	
10142	2003-08-08	56052.56	
10390	2005-03-04	55902.50	
10312	2004-10-21	55639.66	
10135	2003-07-02	55601.84	
10192	2003-11-20	55425.77	
10181	2003-11-12	55069.55	

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.

```

21 • create view customer_same_view (cust_name,cust_city)
22 as select c.customername as cust_name,c.city as cust_city
23 from customers c join employees e
24 on c.salesRepEmployeeNumber = e.employeeNumber
25 join offices o on e.officeCode = o.officeCode
26 where c.city = o.city;
27 • select * from customer_same_view;

```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
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		
Vitachrome Inc.	NYC		
Classic Legends Inc.	NYC		
Microscale Inc.	NYC		
Land of Toys Inc.	NYC		
La Corne D'abondance, Co.	Paris		
Lyon Souvenirs	Paris		
Auto Canal+ Petit	Paris		
Stylish Desk Decors, Co.	London		
Double Decker Gift Stores,...	London		

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.

```

29 • create view maxcredit_city_veiw (city,creditlimit)
30 as select city, max(creditlimit) as creditlimit from customers
31 group by city;
32 • select * from maxcredit_city_veiw;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

city	creditlimit
Nantes	118200.00
Las Vegas	71800.00
Melbourne	117300.00
Stavern	81700.00
San Rafael	210500.00
Warszawa	0.00
Frankfurt	59700.00
San Francisco	105000.00
NYC	138500.00
Madrid	227600.00
Luleå	53100.00
Kobenhavn	83400.00
Lyon	123900.00
Singapore	103800.00
Allentown	100600.00
Burlingame	84600.00
Bergen	96800.00
New Haven	95400.00
Lisboa	0.00
Lille	82900.00
Paris	95000.00
Cambridge	123700.00
Bridgewater	84300.00
Kita-ku	81200.00
Helsinki	96500.00
Manchester	136800.00
Dublin	69400.00
Brickhaven	70700.00

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.

```

33
34 • create view maxcredit_london_view (city,creditlimit)
35 as select city,creditlimit from maxcredit_city_veiw
36 where city = "London" ;
37 • select * from maxcredit_london_view;
38

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

city	creditlimit
London	77000.00

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.

```

39 • create table offices_copy
40 as select * from offices;
41 • create view usa_office_view (officecode,city,state)
42 as select officecode,city,state from offices_copy
43 where country = "USA";
44 • select * from usa_office_view;
45

```

Result Grid

	officecode	city	state
1	1	San Francisco	CA
2	2	Boston	MA
3	3	NYC	NY

8. Try to insert a new row through the "usa_office_view" view created in [Question 7](#). What happens about the data insertion into the "offices_copy" table? Please explain.

Hint: You can create data for a new row by yourself.

```

46 • insert into usa_office_view (officecode,city,state)
47 values ('5','BKK','USA');
48
49

```

Output

#	Time	Action	Message	Duration / Fetch
39	16:08:12	Apply changes to offices_copy	Error 1138: Invalid use of NULL value SQL State...	
40	16:08:30	Apply changes to offices_copy	Error 1138: Invalid use of NULL value SQL State...	
41	16:09:11	Apply changes to offices_copy	Error 1138: Invalid use of NULL value SQL State...	
42	16:09:20	Apply changes to offices_copy	Error 1138: Invalid use of NULL value SQL State...	
43	16:10:05	Apply changes to offices_copy	Changes applied	
44	16:10:17	insert into usa	Error Code: 1423. Field of view 'classicmodels.usa_office_view' underlying table doesn't have a default value	

Insert ไม่ได้เพราะใน table offices_copy ไม่มี default value ของบาง column ที่ไม่ได้ใส่ value ที่เป็น not null

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 data for a new row by yourself.

```
48 • create or replace view usa_office_view
49 (officecode,city,phone,addressLine1,state,country,postalCode,territory)
50 as select officecode,city,phone,addressLine1,state,country,postalCode,territory
51 from offices_copy
52 where country = "USA";
53 • insert into usa_office_view
54 (officecode,city,phone,addressLine1,state,country,postalCode,territory)
55 values ('100','BKK','123456789','Non','CA','USA','11150','NA');
```

Output

#	Time	Action	Message	Duration / Fetch
78	17:08:40	create or replace view usa_office_view (office...	0 row(s) affected	0.000 sec
79	17:08:45	insert into usa_office_view (officecode,city,stat...	Error Code: 1136. Column count doesn't match ...	0.000 sec
80	17:09:29	insert into usa_office_view (officecode,city,pho...	Error Code: 1136. Column count doesn't match ...	0.000 sec
81	17:09:50	insert into usa_office_view (officecode,city,pho...	Error Code: 1136. Column count doesn't match ...	0.000 sec
82	17:11:05	select * from usa_office_view LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec
83	17:12:08	insert into usa_office_view (officecode,city,pho...	Error Code: 1062. Duplicate entry '5' for key 'offi...	0.000 sec
84	17:12:24	insert into usa_office_view (officecode,city,pho...	Error Code: 1062. Duplicate entry '6' for key 'offi...	0.000 sec
85	17:13:32	SELECT * FROM classicmodels.offices_copy L...	7 row(s) returned	0.000 sec / 0.000 sec
86	17:13:46	insert into usa_office_view (officecode,city,pho...	1 row(s) affected	0.000 sec

```
58 • select * from usa_office_view;
```

officecode	city	phone	addressLine1	state	country	postalCode	territory
1	San Francisco	+1 650 219 4782	100 Market Street	CA	USA	94080	NA
100	BKK	123456789	Non	CA	USA	11150	NA
2	Boston	+1 215 837 0825	1550 Court Place	MA	USA	02107	NA
3	NYC	+1 212 555 3000	523 East 53rd Street	NY	USA	10022	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.


```
57 • drop table offices_copy;
58 • select * from usa_office_view;
```

Output

Action Output

	#	Time	Action	Message	Duration / Fetch
✓	82	17:11:05	select * from usa_office_view LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec
✗	83	17:12:08	insert into usa_office_view (officecode,city,pho...	Error Code: 1062. Duplicate entry '5' for key 'offi...	0.000 sec
✗	84	17:12:24	insert into usa_office_view (officecode,city,pho...	Error Code: 1062. Duplicate entry '6' for key 'offi...	0.000 sec
✓	85	17:13:32	SELECT * FROM classicmodels.offices_copy L...	7 row(s) returned	0.000 sec / 0.000 sec
✓	86	17:13:46	insert into usa_office_view (officecode,city,pho...	1 row(s) affected	0.000 sec
✓	87	17:14:39	SELECT * FROM classicmodels.offices_copy L...	8 row(s) returned	0.000 sec / 0.000 sec
✓	88	17:15:00	select * from usa_office_view LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
✓	89	17:15:22	drop table offices_copy	0 row(s) affected	0.031 sec
✗	90	17:15:25	select * from usa_office_view LIMIT 0, 1000	Error Code: 1356. View 'classicmodels.usa_offic...	0.000 sec

เพราะtableที่อ้างอิงถึงถูกdropไปแล้ว