

LAB03: Subquery

Submission:

- Submit a lab file named “int205_lab03_XXXXXXXXXX.docx/.pdf” into the LEB2 system. XXXXXXXXXXXX = your student id

Due Date & Time:

- Lecturer will inform the LAB02 due date and time in lab class.
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Guideline for writing sub-query

- The subquery (inner query) executes once before the main query (outer query).
- The result of the subquery is used by the main query.
- Enclose subqueries in parentheses.
- Place subqueries on the right side of the comparison condition.
- Use single-row operators (>, <, =, <=, >=, <>) with single-row subqueries (return ONLY one value), and use multiple-row operators (IN, >ANY, >ALL, <ANY, <ALL) with multiple-row subqueries (return one or more values).
- A common problem with subqueries occurs when no rows are returned by the subquery. So, the main query also returns no rows.
- The ORDER BY clause in the subquery is NOT needed unless you are performing Top-N analysis.

Type 1 – Nested Subquery

- Database evaluates the whole query in two steps:
 - First, execute the subquery (inner query).
 - Second, use the result of the subquery in the parent statement (outer query).

```
select customername
from customers
where creditlimit > ( select creditlimit
                     from customers
                     where customername = 'Land of Toys Inc.')
```

Type 2 - Correlated Subquery

- Database evaluated once for each row processed by the parent statement.
 - This operation is used when a subquery refers to a column from a table in an outer query.
 - The unqualified columns in the subquery are resolved by looking in the tables named in the inner query and then in the tables named in the outer query.

```
select lastname
from employees e
where exists (select *
              from offices
              where officecode = e.officecode)
```

The Syntax of SELECT statement:

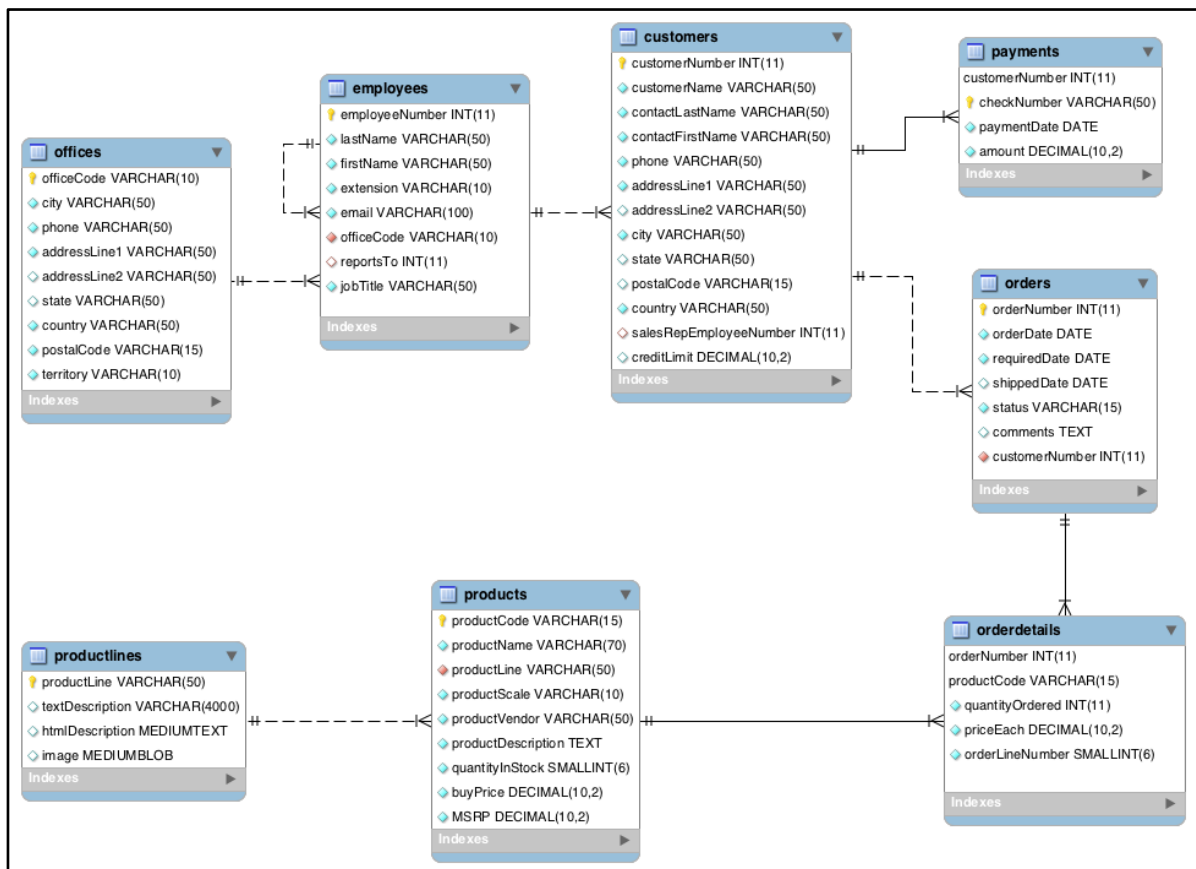
Documentation: <https://dev.mysql.com/doc/refman/8.0/en/select.html>

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).

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

3.1 List the customer name of all customers who live in the same country of customer named “Mini Classics”. Sort the results in ascending order by customer name.

The screenshot shows a SQL IDE window titled "Lab2_63130500126". The query editor contains the following SQL statement:

```
1 • select customerName from customers
2   where country = (
3       select country from customers
4       where customerName = "Mini Classics"
5   )
6   order by customername asc;
```

Below the query editor, the "Result Grid" tab is active, displaying a list of customer names. The results are sorted in ascending order by customer name.

customerName
American Souvenirs Inc.
Auto-Moto Classics Inc.
Boards & Toys Co.
Cambridge Collectables Co.
Classic Gift Ideas, Inc.
Classic Legends Inc.
Collectable Mini Designs Co.
Collectables For Less Inc.
Corporate Gift Ideas Co.
Diecast Classics Inc.
Diecast Collectables
FunGiftIdeas.com
Gift Depot Inc.
Gift Ideas Corp.
Gifts4AllAges.com
Land of Toys Inc.
Marta's Replicas Co.
Men 'R' US Retailers, Ltd.
Microscale Inc.
Mini Classics
Mini Creations Ltd.
Mini Gifts Distributors Ltd.
Mini Wheels Co.
Motor Mint Distributors Inc.
Muscle Machine Inc.
Online Diecast Creations Co.
Online Mini Collectables
Signal Collectables Ltd.
Signal Gift Stores
Super Scale Inc.
Technics Stores Inc.
Tekni Collectables Inc.
The Sharp Gifts Warehouse
Toys4GrownUps.com
Vitachrome Inc.
West Coast Collectables Co.

3.2 List the customer name of all customers who live in the same country of customer named “Mini Classics” and their customer names start with “Mini”.

The screenshot shows a SQL IDE window titled "Lab2_63130500126". The query editor contains the following SQL statement:

```
8 • select customerName from customers
9   where country = (
10       select country from customers
11       where customerName = "Mini Classics"
12   )
13   and customerName like "Mini%";
```

Below the query editor, the "Result Grid" tab is active, displaying a list of customer names. The results are sorted in ascending order by customer name.

customerName
Mini Gifts Distributors Ltd.
Mini Wheels Co.
Mini Classics
Mini Creations Ltd.

3.3 List the product name and quantity in stock of the product that has the maximum quantities in stock.

```
16 • select productName,quantityInStock from products
17   where quantityInStock = (
18       select max(quantityInStock)
19       from products
20   );
21
```

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

productName	quantityInStock
2002 Suzuki XREO	9997

3.4 List the order number and the total amount of sales of all orders that their total amount of sales is more than the total amount of sales order number 10103. Name the total amount of sales column to "total_amount".

```
26 • select orderNumber,sum(quantityOrdered*priceEach)
27       as 'total_amount'
28       from orderdetails
29       group by orderNumber
30       having sum(quantityOrdered*priceEach) > (
31           select sum(quantityOrdered*priceEach)
32           from orderdetails
33           where orderNumber = '10103'
34       );
```

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

orderNumber	total_amount
10105	53959.21
10106	52151.81
10108	51001.22
10122	50824.66
10126	57131.92
10127	58841.35
10135	55601.84
10142	56052.56
10145	50342.74
10159	54682.68
10165	67392.85
10168	50743.65
10181	55069.55

3.5 List the customer name and the employee last name of all customers that their sales rep employee worked in the office located in London city.

```
40 • select distinct c.customerName,e.lastName from employees e
41       join customers c on e.employeeNumber = c.salesRepEmployeeNumber
42       where e.officeCode in (
43           select o.officeCode from offices o
44           where o.city = 'London'
45       );
```

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

customerName	lastName
Toys of Finland, Co.	Bott
AV Stores, Co.	Bott
UK Collectables, Ltd.	Bott
giftsbymail.co.uk	Bott
Oulu Toy Supplies, Inc.	Bott
Stylish Desk Decors, Co.	Bott
Suominen Souvenirs	Bott
Double Decker Gift Stores, Ltd	Bott
Baane Mini Imports	Jones
Blauer See Auto, Co.	Jones
Volvo Model Replicas, Co	Jones
Herkuu Gifts	Jones
Clover Collections, Co.	Jones
Toms Spezialitäten, Ltd	Jones
Norway Gifts By Mail, Co.	Jones
Bavarian Collectables Imports...	Jones
Scandinavian Gift Ideas	Jones

3.6 List all cities that are both an office location and a customer location. Remove the duplicate answer.

```
47 • select distinct city from offices
48   where city in (
49     select city from customers
50   );
51
```

Result Grid | Filter Rows: | Export: | Wra

city
San Francisco
Boston
NYC
Paris
London

3.7 List all cities where customers who do not live in the same city of their sales rep employee's office city. Remove the duplicate answer.

```
62 • select distinct city from customers c
63   where city not in(
64     select o.city from offices o
65   join employees e on e.officeCode = o.officeCode
66   where e.employeeNumber = c.salesRepEmployeeNumber
67 );
```

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

city
Nantes
Las Vegas
Melbourne
Nantes
Stavern
San Rafael
Frankfurt
Madrid
Luleå
Kobenhavn
Lyon
Singapore
Allentown
Burlingame
Singapore
Bergen
New Haven
Lille
Cambridge
Bridgewater
Kita-ku
Helsinki
Manchester

Result Grid
Form Editor
Field Types
Query Stats
Execution Plan

3.8 List the customer name of all customers who have a credit limit greater than all average credit limits of customers in each city.

```
76 • select customerName from customers
77   where creditLimit > all(
78     select avg(creditLimit) from customers
79     group by city);
```

Result Grid | Filter Rows: | Export: | Wrap Ce

customerName
Euro+ Shopping Channel

3.9 List the customer name of all customers who have a credit limit greater than their average credit limits of customers in their cities.

```
81 • select customerName from customers c
82   where creditLimit > (
83     select avg(creditLimit) from customers
84     where city = c.city
85   );
```

Result Grid

customerName
La Rochelle Gifts
Blauer See Auto, Co.
Land of Toys Inc.
Euro+ Shopping Channel
Dragon Souvenirs, Ltd.
Muscle Machine Inc
Handji Gifts& Co
La Corne D'abondance, Co.
Online Mini Collectables
Marta's Replicas Co.
Mini Creations Ltd.
Corporate Gift Ideas Co.
Stylish Desk Decors, Co.
Classic Gift Ideas, Inc
Collectables For Less Inc.
Auto Canal+ Petit
Gift Ideas Corp.
Super Scale Inc.
Corrida Auto Replicas, Ltd
Diecast Collectables
Kelly's Gift Shop

3.10 List the products that were never ordered by any customers.

```
87 • select * from products p
88   where not exists(
89     select * from orderdetails
90     where productCode = p.productCode
91   );
92
```

Result Grid

productCode	productName	productLine	productScale	productVendor	productDescription	quantityInStock	buyPrice	MSRP
S18_3233	1985 Toyota Supra	Classic Cars	1:18	Highway 66 Mini Classics	This model features soft rubber tires, working s...	7733	57.01	107.57
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL