

```
mysql> update Client set ClientAddress="Delhi" where ClientID=101;
```

```
mysql> alter table Client change column ClientAddress City varchar(50);
```

Order By

```
mysql> select * from Client order by ClientFname;;
```

```
mysql> select * from Client order by ClientFname desc;;
```

```
mysql> select * from Client order by Age;
```

```
select * from Client order by City, ClientFname;
```

```
mysql> select * from Client order by City Asc, ClientFname desc;
```

**SELECT**

**orderNumber,  
    orderlinenumber,  
    quantityOrdered \* priceEach**

**FROM**

**orderdetails**

**ORDER BY**

**quantityOrdered \* priceEach DESC**

**SELECT**

**orderNumber,  
    orderLineNumber,  
    quantityOrdered \* priceEach AS subtotal**

**FROM**

**orderdetails**

**ORDER BY subtotal DESC;**

```
mysql> select distinct customer_id from orders;
```

```
+-----+  
| customer_id |  
+-----+  
|      1 |  
|      2 |  
|      3 |  
|      4 |  
+-----+
```

Group By

**The GROUP BY statement groups rows that have the same values into summary rows, like "find the number of customers in each country".**

**The GROUP BY statement is often used with aggregate functions (COUNT(), MAX(), MIN(), SUM(), AVG()) to group the result-set by one or more columns.**

```
Activities Terminal
Fri 14:13
faculty@lp-5: ~

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from Client;
+-----+-----+-----+-----+-----+-----+-----+-----+
| ClientID | ClientFname | ClientLname | ClientEmailID | ClientPhoneNo | ClientAddress | EmpID | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | Rahul | Shah | rahul@gmail.com | 9933445532 | Delhi | 1 | 30 |
| 102 | Susan | Smith | susan@gmail.com | 9553456744 | Kolkata | 1 | 30 |
| 103 | Mois | Ali | mois@gmail.com | 9853456744 | Kolkata | 2 | 33 |
| 104 | Soma | Paul | soma@gmail.com | 9553434674 | Delhi | 4 | 38 |
| 105 | Zainab | Daginawala | zainab@gmail.com | 9998734674 | Hyderabad | 5 | 45 |
| 106 | Bhaskar | Reddy | bhaskar@gmail.com | 8898734674 | Mumbai | 6 | 22 |
+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)

mysql> select count(ClientID), ClientAddress from Client group by(ClientAddress);
+-----+-----+
| count(ClientID) | ClientAddress |
+-----+-----+
| 2 | Delhi |
| 1 | Hyderabad |
| 2 | Kolkata |
| 1 | Mumbai |
+-----+-----+
4 rows in set (0.05 sec)
```

```
Activities Terminal
Fri 14:13
faculty@lp-5: ~

6 rows in set (0.01 sec)

mysql> select count(ClientID), ClientAddress from Client group by(ClientAddress);
+-----+-----+
| count(ClientID) | ClientAddress |
+-----+-----+
| 2 | Delhi |
| 1 | Hyderabad |
| 2 | Kolkata |
| 1 | Mumbai |
+-----+-----+
4 rows in set (0.05 sec)

mysql> select count(EmpID), ClientAddress from Client group by(ClientAddress);
+-----+-----+
| count(EmpID) | ClientAddress |
+-----+-----+
| 2 | Delhi |
| 1 | Hyderabad |
| 2 | Kolkata |
| 1 | Mumbai |
+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

```
mysql> select count(order_id), customer_id from orders group by customer_id;
```

```
mysql> select count(ClientID), City from Client group by(City) order by count(ClientID);
```

```
mysql> select count(ClientID), City from Client group by(City) order by count(ClientID) desc;
```

```
mysql> select count(orders.order_id), customer.customer_id from customer inner join orders on
customer.customer_id=orders.customer_id group by customer.customer_id;
```

```
select customer.customer_name, count(orders.order_id) from customer inner join orders on  
customer.customer_id=orders.customer_id group by customer.customer_id order by  
customer.customer_name desc,count(orders.order_id) desc;
```

select count(orders.order\_id), customer.customer\_name from customer inner join orders on customer.customer\_id=orders.customer\_id group by customer.customer\_name;

```
mysql> select count(orders.order_id), customer.customer_name from customer inner join orders on customer.customer_id=orders.customer_id group by customer.customer_name;
```

count(orders.order_id)	customer_name
1	alfred
2	Eric
1	Mark
3	Roy

4 rows in set (0.00 sec)

```
mysql>
```

```
mysql> select * from customer where country in("india","usa");
```

customer_id	customer_name	address	country
1	Roy	abcdef	india
3	Eric	cdef	usa
4	alfred	def	usa
6	Amit	dsdfs	india

4 rows in set (0.00 sec)

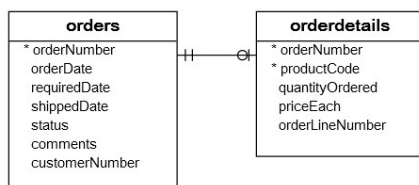
```
mysql> select count(orders.order_id), customer.customer_name from customer inner join orders on customer.customer_id=orders.customer_id where customer.country in ("india","usa") group by customer.customer_name;
```

count(orders.order_id)	customer_name
1	alfred
2	Eric
3	Roy

3 rows in set (0.00 sec)

```
mysql>
```

See the following `orders` and `orderdetails` table.



```
SELECT
    status,
    SUM(quantityOrdered * priceEach) AS amount
FROM
    orders
INNER JOIN orderdetails
    USING (orderNumber)
GROUP BY
    status;
```

```
MySQL 5.5 Command Line Client
-> (3, 'Milan', '2015-01-25', 9),
-> (1, 'Ajeet', '2015-01-26', 12),
-> (3, 'Milan', '2015-01-26', 9);
Query OK, 10 rows affected (0.06 sec)
Records: 10 Duplicates: 0 Warnings: 0

mysql>
mysql> SELECT * FROM employees;
+-----+-----+-----+-----+
| emp_id | emp_name | working_date | working_hours |
+-----+-----+-----+-----+
| 1 | Ajeet | 2015-01-24 | 12 |
| 2 | Ayan | 2015-01-24 | 10 |
| 3 | Milan | 2015-01-24 | 9 |
| 4 | Ruchi | 2015-01-24 | 6 |
| 1 | Ajeet | 2015-01-25 | 12 |
| 2 | Ayan | 2015-01-25 | 10 |
| 4 | Ruchi | 2015-01-25 | 6 |
| 3 | Milan | 2015-01-25 | 9 |
| 1 | Ajeet | 2015-01-26 | 12 |
| 3 | Milan | 2015-01-26 | 9 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)

mysql>
```

```
SELECT emp_name, SUM(working_hours) AS "Total working hours"
FROM employees
GROUP BY emp_name;
```

Output:

```
MySQL 5.5 Command Line Client
+-----+-----+-----+-----+
| 1 | Ajeet | 2015-01-26 | 12 |
| 3 | Milan | 2015-01-26 | 9 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)

mysql>
mysql> SELECT emp_name, SUM(working_hours) AS "Total working hours"
-> FROM employees
-> GROUP BY name;
ERROR 1054 (42S22): Unknown column 'name' in 'group statement'
mysql>
mysql> SELECT emp_name, SUM(working_hours) AS "Total working hours"
-> FROM employees
-> GROUP BY emp_name;
+-----+-----+
| emp_name | Total working hours |
+-----+-----+
| Ajeet | 36 |
| Ayan | 20 |
| Milan | 27 |
| Ruchi | 12 |
+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

## Where Subqueries

### Sub Queries using where

A MySQL subquery is a query nested within another query such as SELECT, INSERT, UPDATE or DELETE. Also, a subquery can be nested within another subquery.

A MySQL subquery is called an inner query while the query that contains the subquery is called an outer query. A subquery can be used anywhere that expression is used and must be closed in parentheses.

When executing the query, MySQL evaluates the subquery first and uses the result of the subquery for the outer query.

#### Syntax:

SELECT column\_list (s) FROM table\_name

WHERE column\_name OPERATOR

(SELECT column\_list (s) FROM table\_name [WHERE])

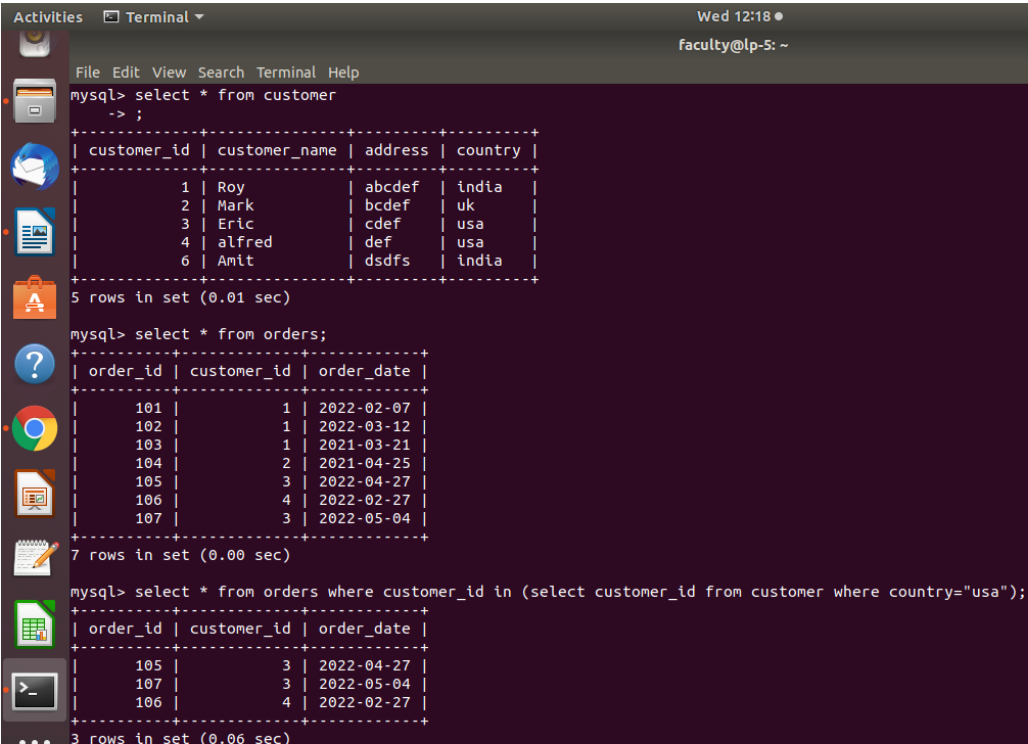
#### Example:

##### Outer Query

```
mysql> select * from orders where customer_id in
```

##### SubQuery or inner Query

```
(select customer_id from customer where  
country="usa");
```



```
Activities  Terminal  Wed 12:18 •  
faculty@lp-5: ~  
File Edit View Search Terminal Help  
mysql> select * from customer  
-> ;  
+-----+-----+-----+-----+  
| customer_id | customer_name | address | country |  
+-----+-----+-----+-----+  
| 1 | Roy | abcdef | india |  
| 2 | Mark | bcdef | uk |  
| 3 | Eric | cdef | usa |  
| 4 | alfred | def | usa |  
| 6 | Amit | dsdfs | india |  
+-----+-----+-----+-----+  
5 rows in set (0.01 sec)  
  
mysql> select * from orders;  
+-----+-----+-----+  
| order_id | customer_id | order_date |  
+-----+-----+-----+  
| 101 | 1 | 2022-02-07 |  
| 102 | 1 | 2022-03-12 |  
| 103 | 1 | 2021-03-21 |  
| 104 | 2 | 2021-04-25 |  
| 105 | 3 | 2022-04-27 |  
| 106 | 4 | 2022-02-27 |  
| 107 | 3 | 2022-05-04 |  
+-----+-----+-----+  
7 rows in set (0.00 sec)  
  
mysql> select * from orders where customer_id in (select customer_id from customer where country="usa");  
+-----+-----+-----+  
| order_id | customer_id | order_date |  
+-----+-----+-----+  
| 105 | 3 | 2022-04-27 |  
| 107 | 3 | 2022-05-04 |  
| 106 | 4 | 2022-02-27 |  
+-----+-----+-----+  
3 rows in set (0.06 sec)
```

```
select * from orders where order_date =(select max(order_date) from orders);
```

```
+-----+-----+-----+  
| order_id | customer_id | order_date |
```

```
+-----+-----+-----+
| 107 | 3 | 2022-05-04 |
+-----+-----+-----+
```

```
ERROR 1146 (42S02): Table 'testDB.Client' doesn't exist
mysql> select * from Client;
+-----+-----+-----+-----+-----+-----+-----+-----+
| ClientID | ClientFname | ClientLname | ClientEmailID | ClientPhoneNo | City | EmpID | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | Rahul | Shah | rahul@gmail.com | 9933445532 | Delhi | 1 | 30 |
| 102 | Susan | Smith | susan@gmail.com | 9553456744 | Kolkata | 1 | 30 |
| 103 | Mois | Ali | mois@gmail.com | 9853456744 | Kolkata | 2 | 33 |
| 104 | Soma | Paul | soma@gmail.com | 9553434674 | Delhi | 4 | 38 |
| 105 | Zainab | Daginawala | zainab@gmail.com | 9998734674 | Hyderabad | 5 | 45 |
| 106 | Bhaskar | Reddy | bhaskar@gmail.com | 8898734674 | Mumbai | 6 | 22 |
+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> select * from Client where Age > (Select avg(Age) from Client);
+-----+-----+-----+-----+-----+-----+-----+-----+
| ClientID | ClientFname | ClientLname | ClientEmailID | ClientPhoneNo | City | EmpID | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 104 | Soma | Paul | soma@gmail.com | 9553434674 | Delhi | 4 | 38 |
| 105 | Zainab | Daginawala | zainab@gmail.com | 9998734674 | Hyderabad | 5 | 45 |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.06 sec)

mysql> select avg(Age) from Client;
+-----+
| avg(Age) |
+-----+
| 33.0000 |
+-----+
1 row in set (0.00 sec)

mysql> 
```

```
mysql> select * from customer where customer_id not in (select distinct customer_id from orders);
+-----+-----+-----+-----+
| customer_id | customer_name | address | country |
+-----+-----+-----+-----+
| 6 | Amit | dsdfs | india |
+-----+-----+-----+-----+
```

```
mysql> select * from Client where Age = (Select Max(Age) from Client);
+-----+-----+-----+-----+-----+-----+-----+-----+
| ClientID | ClientFname | ClientLname | ClientEmailID | ClientPhoneNo | City | EmpID | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 105 | Zainab | Daginawala | zainab@gmail.com | 9998734674 | Hyderabad | 5 | 45 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
mysql> select * from orders where customer_id Not in (select customer_id from customer where country="usa");
```

+-----+-----+-----+		
order_id   customer_id   order_date		
+-----+-----+-----+		
101	1	2022-02-07
102	1	2022-03-12
103	1	2021-03-21
104	2	2021-04-25
+-----+-----+-----+		



IN Subqueries  
Having Subqueries