Alias in MySql:

Aliases are used to give a table, or a column in a table, a temporary name.

Aliases are often used to make column names more readable.

“As” keyword is used to explain Alias, without as keyword we can mention alias.

Using “As” Keyword is readable , else not readable.

```
mysql> select eid as "Employee Id" , ename "Employee Name" from tbl_employee;
+-------------+---------------+
| Employee Id | Employee Name |
+-------------+---------------+
|         101 | Dharshu       |
|         102 | Minion        |
|         103 | Dharshana     |
|         104 | NULL          |
|         105 | Jenish        |
+-------------+---------------+
5 rows in set (0.00 sec)
```

To display system date with time in mysql.

```
mysql> select now();
+---------------------+
| now()               |
+---------------------+
| 2023-10-03 09:53:54 |
+---------------------+
1 row in set (0.00 sec)
```

MySql Subqueries:

You can write a query within a query in MySql this is known as a subquery or, an inner query or , a Nested query. Usually, a subquery is embedded within the where clause.

A subquery is used to return data that will be used in the main query as a condition to further restrict the data to be retrieved.

Subqueries can be used with the **SELECT, INSERT , UPDATE, and DELETE** statements along with the operators like **=,<,>,<=,>=,IN,BETWEEN,** etc.

The inner query is executed first, based on the result of the inner query the Outer query is executed.

If the inner query is returning a single value then it is called a **Single Row / Value Subquery.**

If the inner query is returning multiple values / more than one value is called a **Multi Row / Value Subquery.**

Edno —> Employee Department Number.

```
mysql> select * from tbl_employee;
+------+-----------+---------+
| eid  | ename     | esalary |
+------+-----------+---------+
|  101 | Dharshu   |    2000 |
|  102 | Minion    |    2000 |
|  103 | Dharshana |    2000 |
|  104 | NULL      |    2000 |
|  105 | Jenish    |    2000 |
+------+-----------+---------+
5 rows in set (0.00 sec)

mysql> alter table tbl_employee add edno int(3);
Query OK, 0 rows affected, 1 warning (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> select * from tbl_employee;
+------+-----------+---------+------+
| eid  | ename     | esalary | edno |
+------+-----------+---------+------+
|  101 | Dharshu   |    2000 | NULL |
|  102 | Minion    |    2000 | NULL |
|  103 | Dharshana |    2000 | NULL |
|  104 | NULL      |    2000 | NULL |
|  105 | Jenish    |    2000 | NULL |
+------+-----------+---------+------+
5 rows in set (0.00 sec)

mysql> update tbl_employee set edno =10 where eid in (101,102);
Query OK, 2 rows affected (0.00 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> update tbl_employee set edno =20 where eid in (103,104);
Query OK, 2 rows affected (0.00 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select * from tbl_employee;
+------+-----------+---------+------+
| eid  | ename     | esalary | edno |
+------+-----------+---------+------+
|  101 | Dharshu   |    2000 |   10 |
|  102 | Minion    |    2000 |   10 |
|  103 | Dharshana |    2000 |   20 |
|  104 | NULL      |    2000 |   20 |
|  105 | Jenish    |    2000 | NULL |
+------+-----------+---------+------+
5 rows in set (0.00 sec)
```

```
mysql> create table tbl_dept (dno int(3), dname varchar(20));
Query OK, 0 rows affected, 1 warning (0.02 sec)

mysql> insert into tbl_dept values ( 10,"LD");
Query OK, 1 row affected (0.00 sec)

mysql> insert into tbl_dept values ( 20,"HR");
Query OK, 1 row affected (0.01 sec)

mysql> select * from tbl-dept;
ERROR 1064 (42000): You have an error in your SQL syntax; check th
L server version for the right syntax to use near '-dept' at line
mysql> select * from tbl_dept;
+------+-------+
| dno  | dname |
+------+-------+
|   10 | LD    |
|   20 | HR    |
+------+-------+
2 rows in set (0.00 sec)

mysql> select dno from tbl_dept where dname ="LD";
+------+
| dno  |
+------+
|   10 |
+------+
1 row in set (0.00 sec)
```

1) Write a query to display the Department name is LD.

Here, select * from tbl_employee where edno —> is an outer query.
Select dno from tbl_dept where dname =”LD” —> is an inner query (OR) Subquery.

```
mysql> select * from tbl_employee where edno= (select dno from tbl_dept where dname ="LD");
+------+---------+---------+------+
| eid  | ename   | esalary | edno |
+------+---------+---------+------+
|  101 | Dharshu |    2000 |   10 |
|  102 | Minion  |    2000 |   10 |
+------+---------+---------+------+
2 rows in set (0.00 sec)
```

2) Write a query to display the department name of Minion.

```
mysql> select dname from tbl_dept where dno = (select edno from tbl_employee where ename ="Minion");
+-------+
| dname |
+-------+
| LD    |
+-------+
1 row in set (0.00 sec)
```

3) write a query to display the department name of all the employees those names are NULL.

```
mysql> select dname from tbl_dept where dno =(select edno from tbl_employee where ename is null);
+-------+
| dname |
+-------+
| HR    |
+-------+
1 row in set (0.00 sec)
```

4) Write a query to increment the salary 200 for all the employees who are from the LD department.

```
mysql> update tbl_employee set esalary= esalary +200 where edno=(select dno from tbl_dept where dname ="LD");
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select * from tbl_employee;
+------+-----------+---------+------+
| eid  | ename     | esalary | edno |
+------+-----------+---------+------+
|  101 | Dharshu   |    2200 |   10 |
|  102 | Minion    |    2200 |   10 |
|  103 | Dharshana |    2000 |   20 |
|  104 | NULL      |    2000 |   20 |
|  105 | Jenish    |    2000 | NULL |
+------+-----------+---------+------+
5 rows in set (0.00 sec)
```

<u>Multi Row / Value Subquery.</u>

We cannot use the Relational operators like =,<,>,<=,>= in a multi Subquery.

```
mysql> select dname from tbl_dept where dno in (select edno from tbl_employee where eid in (101,103));
+-------+
| dname |
+-------+
| LD    |
| HR    |
+-------+
2 rows in set (0.00 sec)
```

5) Write a query to display the department name, Those employees got increment.

```
mysql> select dname from tbl_dept where dno in (select edno from tbl_employee where esalary >2000);
+-------+
| dname |
+-------+
| LD    |
+-------+
1 row in set (0.00 sec)
```

MySql Constraints:

The constraint in MySQL is used to specify the rule that allows or restricts what values/data will be stored in the table.

They provide a suitable method to ensure data accuracy and integrity inside the table.

It also helps to limit the type of data that will be inserted inside the table. If any interruption occurs between the constraint and data action , the action is failed.

Constraints used in MySQL

The following are the most common constraints used in the MySQL:

- NOT NULL
- CHECK
- DEFAULT
- PRIMARY KEY
- AUTO_INCREMENT
- UNIQUE

Default Constraint . Here the age is assigned by the default value.

```
mysql> create table tbl_student ( rno int (5) primary key, sname varchar (20) not null, smarks int(3)
check (smarks > 0),smno int(10) unique, sage int(3) default 15);
Query OK, 0 rows affected, 4 warnings (0.03 sec)

mysql> insert into tbl_student (rno,sname,smarks,smno) values (101,"Jeni", 60, 123);
Query OK, 1 row affected (0.01 sec)

mysql> select * from tbl_student;
+-----+-------+--------+------+------+
| rno | sname | smarks | smno | sage |
+-----+-------+--------+------+------+
| 101 | Jeni  |     60 |  123 |   15 |
+-----+-------+--------+------+------+
1 row in set (0.00 sec)
```

Check Constraint

```
mysql> insert into tbl_student (rno,sname,smarks,smno) values (101,"Dma", -60, 123);
ERROR 3819 (HY000): Check constraint 'tbl_student_chk_1' is violated.
mysql>
```

Duplicate Constraint

```
mysql> insert into tbl_student (rno,sname,smarks,smno) values (101,"Dma", 70, 123);
ERROR 1062 (23000): Duplicate entry '101' for key 'tbl_student.PRIMARY'
mysql>
```

Primary Constraint

```
mysql> insert into tbl_student (rno,sname,smarks,smno) values (101,"Dma", 70, 123);
ERROR 1062 (23000): Duplicate entry '101' for key 'tbl_student.PRIMARY'
mysql>
```

Auto_Increment Constraint

```
mysql> drop table tbl_student;
Query OK, 0 rows affected (0.01 sec)

mysql> create table tbl_student(sno int(5) primary key auto-increment,sname varchar(20),smarks int (3));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL
er version for the right syntax to use near 'auto-increment,sname varchar(20),smarks int (3))' at line 1
mysql> create table tbl_student(sno int(5) primary key auto_increment,sname varchar(20),smarks int (3));
Query OK, 0 rows affected, 2 warnings (0.02 sec)

mysql> insert into tbl_student (sname ,smarks) values ("DharshuMinion",50);
Query OK, 1 row affected (0.01 sec)

mysql> select * from tbl_student;
+-----+---------------+--------+
| sno | sname         | smarks |
+-----+---------------+--------+
|   1 | DharshuMinion |     50 |
+-----+---------------+--------+
1 row in set (0.00 sec)
```

Does not set more than one column as primary key constraint.

```
mysql> create table tbl_test(id1 int(3) primary key,id2 int(3) primary key);
ERROR 1068 (42000): Multiple primary key defined
mysql>
```

```
mysql> desc tbl_student;
+--------+-------------+------+-----+---------+----------------+
| Field  | Type        | Null | Key | Default | Extra          |
+--------+-------------+------+-----+---------+----------------+
| sno    | int         | NO   | PRI | NULL    | auto_increment |
| sname  | varchar(20) | YES  |     | NULL    |                |
| smarks | int         | YES  |     | NULL    |                |
+--------+-------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

Checking Range (Eg: id int(3)):

```
mysql> insert into tbl_student values(10123,"Summa",70);
Query OK, 1 row affected (0.00 sec)

mysql> select * from tbl_student;
+-------+--------------+--------+
| sno   | sname        | smarks |
+-------+--------------+--------+
|     1 | DharshuMinion |     50 |
| 10123 | Summa        |     70 |
+-------+--------------+--------+
2 rows in set (0.00 sec)
```

Primary Key And Foreign Key:

```
mysql> drop table tbl_employee;
Query OK, 0 rows affected (0.01 sec)

mysql> drop table tbl_dept;
Query OK, 0 rows affected (0.01 sec)

mysql> create table tbl_dept (dno int primary key, dname varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> create table tbl_employee (id int primary key, name varchar(20), salary int , dno int, foreign key(dno)references tbl_dept(dno));
Query OK, 0 rows affected (0.03 sec)

mysql>
```

Describing the Department

```
mysql> desc tbl_dept;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| dno   | int         | NO   | PRI | NULL    |       |
| dname | varchar(20) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

Describing the Employee Table:

```
mysql> desc tbl_employee;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| id     | int         | NO   | PRI | NULL    |       |
| name   | varchar(20) | YES  |     | NULL    |       |
| salary | int         | YES  |     | NULL    |       |
| dno    | int         | YES  | MUL | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Inserting the Records:

Here, Parent table —> tbl_employee.
Child Table —--> tbl_dept;

We have to insert the records in the child table and then we have to insert the records in the parent table.

```
mysql> insert into tbl_employee values(101, "Dharsh",3000,10);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`mydb`.`tbl_employee`,
 CONSTRAINT `tbl_employee_ibfk_1` FOREIGN KEY (`dno`) REFERENCES `tbl_dept` (`dno`))
```

Here , we are inserting the record in the parent table (employee) so that the error is occuring.

```
mysql> insert into tbl_dept values(10, "LD");
Query OK, 1 row affected (0.00 sec)

mysql> insert into tbl_employee values(101, "Dharsh",3000,10);
Query OK, 1 row affected (0.00 sec)
```

Here, first we are inserting the record in the child table (department) and then we are inserting the records in the parent table(Employee).

Creating the table same as the parent table (tbl_employee) in a simple way:

Copy along with structure and record:

```
mysql> select * from tbl_employee;
+-----+--------+--------+------+
| id  | name   | salary | dno  |
+-----+--------+--------+------+
| 101 | Dharsh |   3000 |   10 |
+-----+--------+--------+------+
1 row in set (0.00 sec)

mysql> create table tbl_employee1 as select * from tbl_employee;
Query OK, 1 row affected (0.02 sec)
Records: 1  Duplicates: 0  Warnings: 0

mysql> select * from tbl_employee1;
+-----+--------+--------+------+
| id  | name   | salary | dno  |
+-----+--------+--------+------+
| 101 | Dharsh |   3000 |   10 |
+-----+--------+--------+------+
1 row in set (0.00 sec)
```

Creating the copy of the parent table(tbl_employee) only the structure without the record:

Select * from tbl_employee2; ——-> The table is empty because there is no record inserted.

```
mysql> create table tbl_employee2 as select * from tbl_employee where 1=2;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc tbl_employee2;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| id     | int         | NO   |     | NULL    |       |
| name   | varchar(20) | YES  |     | NULL    |       |
| salary | int         | YES  |     | NULL    |       |
| dno    | int         | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> select * from tbl_employee2;
Empty set (0.00 sec)
```