Practical - 4
MySQL Alter table & Select Query

MySQL ALTER TABLE To Change Table Structure
MySQL ALTER TABLE statement that changes existing table structure such as adding or removing columns, changing column attributes.
Syntax : ALTER TABLE table_name action1[,action2,…]

Alter table is used to

- Change existing schema
- Add/Remove column
- Add / Remove Constraint

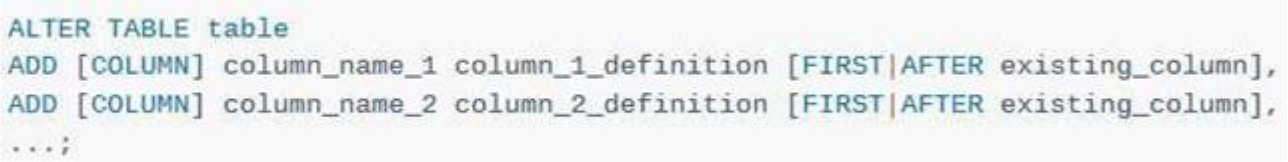
- ALTER TABLE FOR CHANGING COLUMN

Syntax : ALTER TABLE table_name
CHANGE COLUMN col_name col_name datatype [constraint]

e.g
mysql> **alter table per_tab1 change name name varchar(20) DEFAULT 'xxx' ;**

- ALTER TABLE FOR ADD COLUMN

It will create a new column.
Syntax :



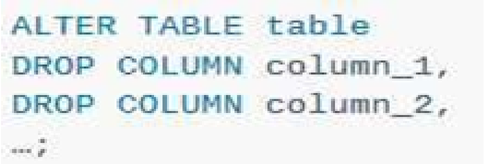
```
ALTER TABLE table
ADD [COLUMN] column_name_1 column_1_definition [FIRST|AFTER existing_column],
ADD [COLUMN] column_name_2 column_2_definition [FIRST|AFTER existing_column],
...;
```

Add a new column called salary in per_tab1 at the end

E.g mysql> **alter table per_tab1 add column salary decimal(10,2) ;**

mysql> describe per_tab1;
mysql > **alter table per_tab1**
add column state varchar(10) after city ;
it will add the new column start after the column city.

- ALTER TABLE FOR DELETE COLUMN



```
ALTER TABLE table
DROP COLUMN column_1,
DROP COLUMN column_2,
…;
```

Delete two columns state and salary form per_tab1;
e.g mysql> alter table per_tab1
DROP COLUMN state ,
DROP COLUMN salary ;

- **ALTER TABLE FOR ADD CONSTRAINT**

  ```
  Syntax : ALTER TABLE table_name
              ADD CONSTRAINT  constraint_name
              Constraint_defenation;

   ADD Primary Key
   ALTER TABLE table_name
   ADD CONSTRAINT pk_const
   PRIMARY KEY(col_name) ;
  e.g
  ```

  Add the column id at first position in per_tab1

  1. **mysql> alter table per_tab1**
     add column id int(3) first ;
  2. Add primary key constraint to field id.
     mysql> alter table per_tab1
     add constraint pk_const
     primary key(id) ;

- **ADD/Modify constraint for CHECK constraint**

  Add the constraint on salary field that it must be greater than 10000

  ```
  mysql>alter table per_tab1
            add constraint sal_const
            check(salary > 10000) ;
  ```

  sal_const is name of the constraint

- **ALTER TABLE for FOREIGN KEY**

  ```
  Syntax : ALTER TABLE table_name
              ADD Constraint const_name
              Foreign key (col_name)
              References  ref_table_name(ref_col_name)
  ```

  ```
  mysql>create table category(cat_id int(4) primary key, name varchar(50)
  );
  mysql>insert into category
  values(1,'science'),(2,'spritual'),(3,'business'),(4,'food'),(5,'health');

  mysql> create table post (id int(4) , title varchar(50), content TEXT ,
  createdon date);
  ```

  Table category which have cat_id as primary key.
  Table post contains information about post. Add the constraint of foreignkey in post table

  ```
  mysql>alter table post
     add constraint fk_const
  ```

```
 foreign key(id)
references category(cat_id) ;
```

```
describe post;
```

Don’t allowed to drop column as id contain the foreign key constraint.

```
Mysql> alter table post
   drop column id;
ERROR 1828 (HY000): Cannot drop column 'id': needed in a foreign key
constraint 'fk_const'
```

Column id is foreign key so it don’t allowed to delete

- **DROP the CONSTRAINT**
    - It allowed to drop existing constraint.

  Syntax : ALTER TABLE table_name
  DROP Constraint <constraint_name>

  e.g **alter table post drop constraint fk_const**;

- DROP TABLE
  It deletes the table with its all content.
  Syntax : DROP TABLE tablename.

SELECT STATEMENT

- SELECT Query
  The SELECT statement allows you to get the data from tables or views. A table consists of rows and columns.
  Syntax :

```
            SELECT
            Column1,column2,...
        FROM  table_name
            [INNER|LEFT|RIGT  JOIN  table 2 ON condition]
          [  Where
             conditions ]
        [ GROUP BY column1 ]
        [ HAVING  groupby condition ]
            [ ORDER BY column1 ]
         [ LIMIT offset, length; ]
```

- Column1 , column2.. : are the columns whose values to be displayed. * indicates all columns of the table
- Table_name : Name of the table
- JOIN : gets related data from other tables[table2,table3..] based on specific join
- Conditions
- WHERE clause filters row in the result set.
- GROUP BY clause groups a set of rows into groups and applies aggregate functions on each group.
- HAVING clause filters group based on groups defined by GROUP BY clause.

- ORDER BY clause specifies a list of columns for sorting.
- LIMIT constrains the number of returned rows.

1. Select all the record from table.
e.g mysql> select * from employee;

2. select field from table
Eg mysql > select name,age,designation from employee;

- DISTINCT to eliminate duplicates

In order to remove these duplicate rows, you use the DISTINCT clause in the SELECT statement.

Syntax : SELECT **DISTINCT**
Column   FROM tablename
[Where condition]

e.g select department available to employee table

mysql> select distinct department from employee;

e.g select distinct department and city of employee table.

mysql> select distinct department,city from employee;

it will check combinedly unique values for department and city together and display the result

```
+------------+--------+
| department | city   |
+------------+--------+
| sales      | NULL   |
| admin      | NULL   |
| production | baroda |
| production | pune   |
| sales      | surat  |
| admin      | surat  |
| sales      | pune   |
+------------+--------+
```

- DISTINCT for NULL values

mysql> select distinct city from employee;

```
+--------+
| city   |
+--------+
| NULL   |        -> NULL repeated only one time even multiple records with city NULL values
| baroda |
| pune   |
| surat  |
+--------+
```

- Display records in sorted order

Syntax : SELECT column
FROM tablename
ORDER BY col_name [desc];

Col_name : name of column according to which the data will be displayed in sorted order

Desc : for sort into descending order

e.g display the name and age of the employee according to the age.

```
mysql> select name, age from employee order by age;
+--------------+------+
| name         | age  |
+--------------+------+
| Hares        |   24 |
| sunit        |   24 |
| suresh       |   25 |
| Rohan patel  |   26 |
| reema        |   26 |
| virat        |   32 |
```

e.g

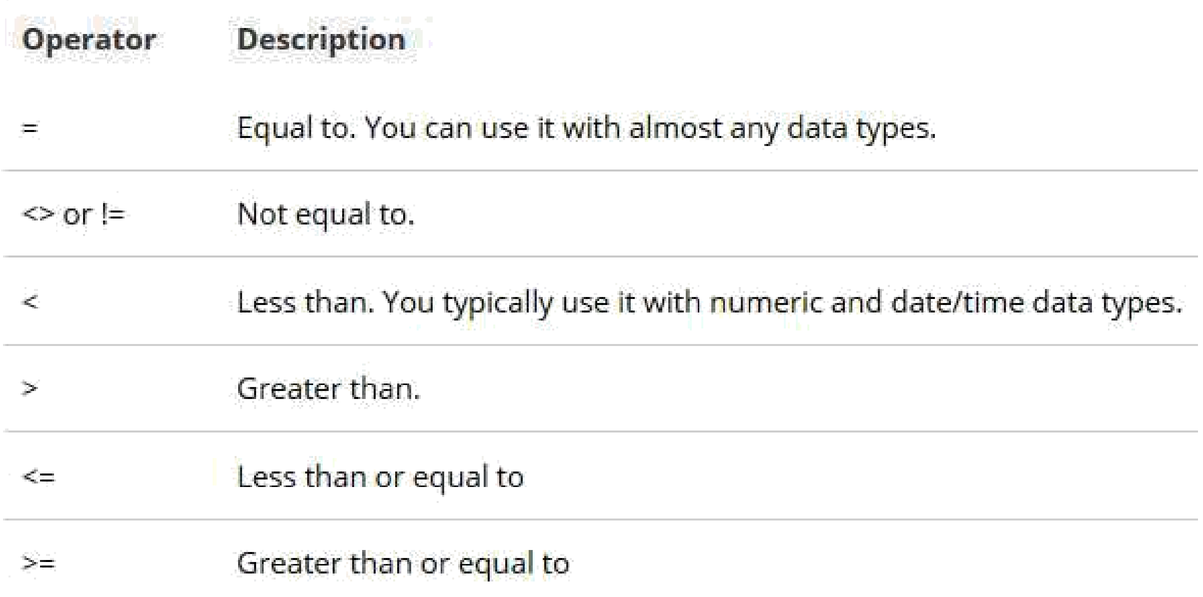
```
mysql> select name,age from employee order by age desc;
virat        |   32 |
| sameer       |   32 |
| Rohan patel  |   26 |
| reema        |   26 |
| suresh       |   25 |
| Hares        |   24 |
| sunit        |   24 |
+--------------+------+
```

- **SELECT WITH WHERE CLAUSE**

  Where clause is used to filter the records

  Syntax : SELECT columns FROM tablename WHERE conditions;

  Operators used in conditions



Operator	Description
=	Equal to. You can use it with almost any data types.
<> or !=	Not equal to.
<	Less than. You typically use it with numeric and date/time data types.
>	Greater than.
<=	Less than or equal to
>=	Greater than or equal to

1. display record which having department sales

```
mysql> select *from employee where department='sales';
+-------------+------+-------+------------+------------+----------+------------+
| name        | age  | city  | designation | department | salary   | joindate   |
+-------------+------+-------+------------+------------+----------+------------+
| Rohan patel |   26 | NULL  | salesman    | sales      |  9000.00 | NULL       |
| Hares       |   24 | NULL  | salesman    | sales      | 11000.00 | NULL       |
| reema       |   26 | surat | worker      | sales      |  8800.00 | 2007-08-29 |
| suhana      |   34 | pune  | manager     | sales      | 30000.00 | 2014-08-23 |
+-------------+------+-------+------------+------------+----------+------------+
```

2 . select the name and city of employee who are not from baroda

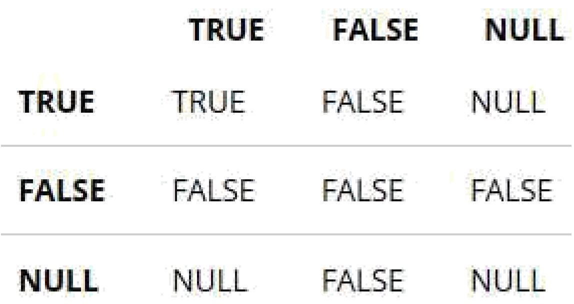
```
mysql> select name,age,city from employee where city <> 'baroda';

| name         | age  | city  |
+--------------+------+-------+
| Vimal khatri |   38 | pune  |
| reema        |   26 | surat |
| ruhan        |   33 | surat |
| suhana       |   34 | pune  |
+--------------+------+-------+
```

3 . display the employee details whose age is greater than 30

```
    mysql> select * from employee where age >=30
    +--------------+------+--------+-------------+------------+----------+------------+
    | name         | age  | city   | designation | department | salary   | joindate   |
    +--------------+------+--------+-------------+------------+----------+------------+
    | virat        |   32 | NULL   | admin       | admin      | 10000.00 | NULL       |
    | sameer       |   32 | NULL   | accountant  | admin      | 12000.00 | NULL       |
    | Hema trivedi |   36 | baroda | cleark      | production | 18000.00 | 1997-03-14 |
    | Vimal khatri |   38 | pune   | manager     | production | 25000.00 | 2001-07-23 |
    | ruhan        |   33 | surat  | cleark      | admin      | 22000.00 | 2008-05-22 |
    | suhana       |   34 | pune   | manager     | sales      | 30000.00 | 2014-08-23 |
    +--------------+------+--------+-------------+------------+----------+------------+
```

- **WHERE CLAUSE with AND OPERATOR**

  The AND operator is a logical operator that combines two or more Boolean expressions and returns true only if both expressions evaluate to true.



	TRUE	FALSE	NULL
TRUE	TRUE	FALSE	NULL
FALSE	FALSE	FALSE	FALSE
NULL	NULL	FALSE	NULL

it is normally used when two conditions on different fields are checking at the same time

1. select employee who are manager and work in production department

mysql> select * from employee where designation='manager' and department='production';

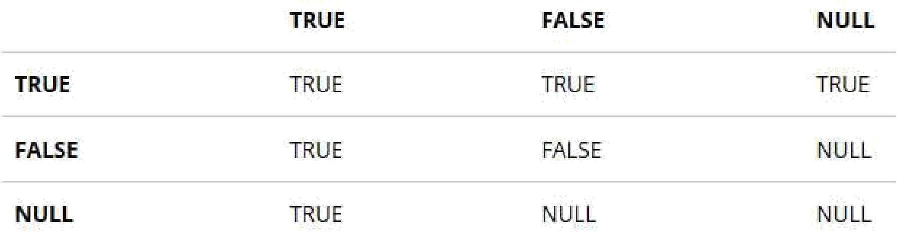
```
| Vimal khatri |   38 | pune | manager    | production | 25000.00 | 2001-07-23 |
```

2. display employee those are working in sales department and age is less than or equal to 30

mysql> select *from employee where department='sales' and age<=30;

```
Rohan patel |   26 | NULL  | salesman   | sales     |  9000.00 | NULL       |
| Hares       |  24 | NULL  | salesman   | sales     | 11000.00 | NULL       |
| reema       |  26 | surat | worker     | sales     |  8800.00 | 2007-08-29|
```

- **WHERE CLAUSE with OR operator**
  The MySQL OR operator combines two Boolean expressions and returns true when either condition is true.



	TRUE	FALSE	NULL
TRUE	TRUE	TRUE	TRUE
FALSE	TRUE	FALSE	NULL
NULL	TRUE	NULL	NULL

Display employee who are living in surat,baroda or nadiad
mysql> select *from employee where city='surat' or city='pune' or city='nadiad' ;

```
Vimal khatri |   38 | pune  | manager    | production | 25000.00 | 2001-07-23 |
| reema       |  26 | surat | worker     | sales     |  8800.00 | 2007-08-29 |
| ruhan       |  33 | surat | cleark     | admin     | 22000.00 | 2008-05-22 |
| suhana      |  34 | pune  | manager    | sales     | 30000.00 | 2014-08-23
```

Display employee who are living in surat or having salary greater than 25000
mysql> select *from employee where city='surat' or salary>25000 ;

```
|reema  |   26 | surat | worker     | sales     |  8800.00 | 2007-08-29 |
| ruhan  |  33 | surat | cleark     | admin     | 22000.00 | 2008-05-22 |
| suhana |   34 | pune  | manager    | sales     | 30000.00 | 2014-08-23 |
```

- **WHERE CLAUSE with IN operator**
  The IN operator allows you to determine if a specified value matches any value in a set of values or returned by a subquery.

```
Syntax : SELECT  column1,column2..
         FROM tablename
         WHERE
         (exp|column1) IN ( value1,value2,...);
```

Display employee who are living in nadiad,Mumbai,surat, or pune

```
Mysql>select *from employee where city
in('nadiad','mumbai','surat','pune');
|Vimal khatri |   38 | pune  | manager     | production | 25000.00 | 2001-07-23 |
| reema       |   26 | surat | worker      | sales      |  8800.00 | 2007-08-29 |
| ruhan       |   33 | surat | cleark      | admin      | 22000.00 | 2008-05-22 |
| suhana      |   34 | pune  | manager     | sales      | 30000.00 | 2014-08-23|
```

Display employee who are NOT living in nadiad,Mumbai,surat, or pune

```
Mysql>select *from employee where city NOT
in('nadiad','mumbai','surat','pune');
```

WHERE CLAUSE with BETWEEN operator

The BETWEEN operator allows you to specify a range to test. You often use the BETWEEN operator in the WHERE clause of the SELECT, UPDATE, and DELETE statements.

```
Syntax  SELECT column1,column1,...
        FROM table name
        WHERE
       Expr|column [NOT] BETWEEN begin_expr AND end_expr;
```

Display the employee details who join from 2006 to 2012.

```
mysql>select * from employee where joindate between '2006-01-01' and '2012-
12-30';
|reema  |   26 | surat  | worker     | sales      |  8800.00 | 2007-08-29 |
| ruhan |   33 | surat  | cleark     | admin      | 22000.00 | 2008-05-22 |
| suresh |  25 | baroda | peon       | production |  5000.00 | 2012-02-14|
```

- **WHERE CLAUSE with LIKE operator**

The LIKE operator is commonly used to select data based on patterns.
Using the LIKE operator in the right way is essential to increase the query performance.
MySQL provides two wildcard characters for using with the LIKE operator, the percentage % and underscore _ .

- The percentage (%) wildcard allows you to match any string of zero or more characters.
- The underscore (_) wildcard allows you to match any single character.

Display the employee name and age whose name start with h

```
mysql>select name,age from employee where name like 'h%';
```

Display the employee name and age whose name ends with h

```
mysql> select name,age from employee where name like '%h';
+--------+------+
| name   | age  |
+--------+------+
| suresh |   25 |
+--------+------+
```

Display the name , age of employee whose name start with s and 3rd character is r

```
mysql> select name,age from employee where name like 's_r%';
suresh |   25
```

```
mysql> select name,age,joindate from employee where joindate like '2012-__%';
| suresh |   25 | 2012-02-14 |
```

```
mysql> select name,age,joindate from employee where joindate like '20__-__-23';
| Vimal khatri |   38 | 2001-07-23 |
| suhana       |   34 | 2014-08-23 |
```

EXERCISE

1. ADD column totalamount int(5) to sales_order_details after productrate column.
2. change totalamount datatype decimal(10,2) .
3. Add constraint to totalamount that it must be greater than 300.00 .
4. Drop constraint from totalamount.
5. Delete column totalamount from sales_order_details.
6. ADD column emp_id int(3) in employee table at first position.
7. ADD constraint primary key for emp_id in employee table.
8. Drop constraint of primary key from emp_id in employee table.
9. Delete column emp_id from employee table.
10. Delete table book.

FOR EMPLOYEE TABLE
NOTE : insert necessary records in employee table which satisfy query results[atleast 10 records]

Column name	datatype	size	Null	Attr ibute
Name	varchar	50	Not null	
Age	Int	03		
City	Varchar	30		
Designation	varchar	30		
Department	varchar	25	Not Null	
Salary	decimal	10,2		
Joindate	Date			

name	age	city	designation	department	salary	joindate
Rohan patel	26	NULL	salesman	sales	9000	NULL
virat	32	NULL	admin	admin	10000	NULL
sameer	32	NULL	accountant	admin	12000	NULL
Hares	24	NULL	salesman	sales	11000	NULL
Hema trivedi	36	baroda	cleark	production	18000	1997-03-14

Vimal khatri	38	pune	manager	production	25000	2001-07-23
sunit	24	baroda	worker	production	9000	2005-06-19
reema	26	surat	worker	sales	8800	2007-08-29
ruhan	33	surat	cleark	admin	22000	2008-05-22
suresh	25	baroda	peon	production	5000	2012-02-14
suhana	34	pune	manager	sales	30000	2014-08-23

11. Display all details of employee details who are working in sales department
12. Display all details of employee details who are not working in sales department.
13. Display all details of employee whose age is greater than 30
14. Display name, department, designation of employee whose salary is less than 10000
15. Display all employee who are not a clerk or salesman.
16. Display name, age , salary of employee whose joining date after 1-1-2011.
17. Display all details of employee whose age is between 25 to 35.
18. Display all details of employee working in production or sales department.
19. Display name, age, salary, joindate of employee whose salary is between 15000 to 28000
20. Display all details of employee whose living in surat and working in production department.
21. Display all details of employee those are manager in sales department
22. Display name,age,joindate of employee who joins from 1-1-2007 to 31-12-2014.
23. Display names of employee which are strat from s and ends form s.
24. Display name of employee whose name does not start with H
25. Display name of employee who is cleark in admin department or salesman in sales department.
26. Display all the department available in employee table.[each department name must be displayed only onces]
27. Display all worker lives in Surat city.
28. Display all employee who joins before 12-10-2007
29. Display all employee salary wise and name wise.[first salary,second name]
30. Display all employee whose lives in pune with designation manager or lives in Mumbai with designation salesman.

Queries based on practical-3 tables

31. display all product details from product_master where quentyonhand grater than 100 and salesprice is graterthan 300.
32. display all order detail which is placed before orderdate 30-may-2004 from sales_order table.
33. display all orders detail which are fulfilled from sales_order table.
34. display all ordernumber which have Qtyordered and Otydisp is same from sales_order_detail.
35. Display order details of all order which are full and not fulfilled from sale_order table.
36. Display salesman detail who are not from maharastra.