

1) what is the difference in Between and IN condition operators  
Between Select a range of data b/w two values. the value can be numbers.

Syntax: Select \* from table-name  
where col-name Between V1 AND V2

Ex: Select \* from Akash  
where marks Between 50 AND 80

IN it allows you to specify multiple values.

Syntax: Select \* from table-name  
where col-name IN (V1, V2, V3)

Ex: where marks in (89, 81, 90)

O/P = id fname lname Addr city marks

1	Akash	larry	Pune	89
2	pradip	pali	Delhi	90
3	Sonu	Nigam	Mumbai	81

2) what is the difference b/w Having and where clause.

where: where clause use to filter records from table  
only those records will be extracted.  
→ it can be used with select, update, delete  
Ex: Select \* from table  
where Age >= 18

Having: filter the records from the group based on the given condition.

this clause is used with only select statement

Select Age, No-of-Students

From Student Group by Age

Having count(No-of-Students) > 1

Age	No-of-Students
17	3
20	2
21	1

Having cannot be used without group.  
it contains aggregate fn.

3) what is the difference b/w Delete, truncate ,Drop. ?

- Delete: is Data manipulation language command
- it is used to delete one or more tuples of a table.
  - either we can delete the rows in one go or can delete row one by one
  - Syntax:

Delete from table1 where age=25;

Truncate:

- it is DDL command
- it is used to delete all the rows of table in one go , but it keeps structure of table.
- ⇒ truncate table customer;
- ⇒ it delete content of a table , not table

Drop: → it is command delete table in database

- ⇒ it is a DDL command
- ⇒ we can delete whole structure and data of table

Q: Drop table customer;

4) what are different clauses used in SQL ?

Clauses: are built in functions available to us in SQL . with the help of clauses , we can deal with data easily stored in the table

where , and , or , like , top . etc ; limit , order by

where clause:

to specify conditionals in SQL query  
→ it also used in update and delete statement, to perform operations on desired data.

Ex: select \* from emp where age > 25 AND sal > 2500;

AND clause: it helps to specify multiple conditions together in a query

OR: where we specify multiple condition and (the result will be atleast one of specified conditions).

like: it used to find specific patterns in the data.

(Y.) → -

% → it represents zero, one, or multiple characters.

\_ → " one single character.

Ex: details of employees whose name starts with A.

Select \* from employee where name.emp LIKE 'A%';

limit clause:

it is used when there is a large data in table with limit clause, we can restrict number rows our query returns.

Select \* from ~~table~~ emp limit 5;

order by used to Sort data ascending or descending order, by default data sorted in Ascending order.

Select \* from table

order by salary Desc;

Group By Summary of data in rows used with Aggregation

Select count(age) ~~by~~, age

from employee Group by age;

→ what are different SQL constraints ?

Ans: Used to specify rules for data in a table  
→ it will apply to column.

- ① NOT NULL: it ensures that column cannot have null value
- ② unique: ensures that values in column are different
- ③ primary key: A combination of not null and unique to identify each row in a table
- ④ Foreign key: prevents actions that would destroy links between tables.
- ⑤ check: Ensures that the values in a column satisfies a specific condition.
- ⑥ Default: set a Default value for a column if no value is defined.
- ⑦ Create Index: used to create and retrieve data from the database quickly.

```
create table persons (
    id int Not Null Unique,
    lastName varchar(255) N
    Age int Primary key
```

Q) what is the difference between UNIQUE, PRIMARY KEY, FOREIGN KEY constraints?

Ans: Primary key:

- it cannot have a NULL value.
- Each table can have only one primary key.
- Primary key can be related to another table as foreign key.
- we can't delete primary key value from the parent table which is used as a foreign key in child table. To delete we first need to delete that primary key value from the child table.

Unique Key:

- Unique constraint may have null value.
- each table can have more than one unique constraints.
- Unique constraints cannot be related with another tables as a foreign key.

Foreign Key:

- Foreign key is a field in table that is primary key in another table.
- Foreign key can accept null values.
- we can have more than one foreign key in a table.

Q) what are the different joins used in SQL?

Ans: Join clause is used to combine rows from two or more tables, based on a related column between them.

Table1: Orders

OrderID	CustomerID	OrderDate
10308	2	1996-09-18
10309	37	1996-09-19
10310	77	1996-09-20

CustomerID	customerName	contactName	country
1	Urmila	Dilip	India
2	Nirmala	Rajpal	Germany
3	Nikhil	Anita	Mexico
37	Kiran	Kira	India
77	Manoj	Manu	India

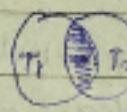
"CustomerID" column in "Orders" table refers to the "CustomerID" in the "Customers" table. The relation between two tables above is the "CustomerID" column.

INNER JOIN: That selects records that have matching values in both tables.

Ex: Select Orders.OrderID, customers.CustomerName,  
Orders.OrderDate  
FROM Orders INNER JOIN Customers  
ON Orders.CustomerID = Customers.CustomerID;

O/P

OrderID	CustomerName	OrderDate
10308	Nirmala	1996-09-18
10309	Kiran	1996-09-19
10310	Manoj	1996-09-20

Inner join  Selects records that have matching values in both tables.

Select column name(s)

From table1

Inner join table2

ON table1.column\_name = table2.column\_name;

Left join 

Syntax:

Select table1.col1, table2.col2

From table1

Left join table2

ON table1.col1 = table2.col1

### Customer

ID	Name	Age	Salary
1	Nimmi	28	44000
2	Urmila	29	46000
3	Nikhil	20	42000
4	Shivam	20	25000
5	Dilip	30	35000

### ORDER

O-ID	Date	CustomerID	Amount
001	20-01-2012	2	3000
002	12-02-2012	2	2000
003	22-03-2012	3	4000
004	11-04-2012	4	5000

Select ID, Name, Amount Date

From Customer

Left Join ORDER

On Customer.ID = ORDER.CustomerID;

ID	Name	Amount	Date
2	Urmila	3000	20-01-2012
2	Urmila	2000	12-02-2012
3	Nikhil	4000	22-03-2012
4	Shivam	5000	11-04-2012
1	Nimmi	NULL	NULL
5	Dilip	NULL	NULL

### Right Join:

It returns all the values from the rows of right table. It also includes the matched values from left table. But if no matching in both table it return NULL.

Syntax:

Select T1.CN1, T2.CN2

From table1

Right Join table2

ON T1.C = T2.C ;

Select ID, Name, Amount, Date  
 From customer  
 Right join ORDER  
 ON customer.ID = ORDER.customerID;

ID	Name	Amount	Date
2	Urmila	3000	20-01-2012
2	Urmila	2000	12-02-2012
3	Nikhil	4000	22-03-2012
4	Shivam	5000	11-04-2012

### Fulljoin:

→ it is a result of combination of left join & right join(outer), this join table have all the records from the table. if match not found value will be null

T2		T1	
A	N	A	M
2	P	1	m
3	q	2	n
5	r	4	o

T2		T1	
A	M	A	N
2	n	2	p
3	m	-	-
4	o	-	-
-	-	3	q
-	-	5	r

Because this is a full outer join so all rows (both matching & non-matching) from both tables are included in the output.

### Q) what is Group By Statement.

Group by statement is used for organizing similar Data into Groups.

- Select statement is used with this clause
- where clause is placed before the Group By Clause
- Order by clause is placed after the Group by Clause
- Aggregate fn will be used

Select col1, fun-name(col2)

From table-name

where conditions

Group By column1, col2

Order By " "

### Employee (T1)

S.No	Name	Age	Sal
1	John	24	25000
2	Nick	22	22000
3	Amara	25	15000
4	Nick	22	22000
5	John	24	25000

### Student (T2)

Subject	Year	Name
Clanguage	2	John
Clanguage	2	Ginnu
Java	3	Nick
Java	3	Amara

Select Name, Sum(Sal) From employee

Group By Name.

Name	Sal
John	50000
Nick	44000
Amara	15000

from Singletable

Group Based on one or two tables and one or two columns

Select Subject, year, count(\*)

From Student

Output

Group By Subject, year

subject    year    count

clanguage 2 3

clanguage 3 2

Java 1 2

Select name, sum(sal) From Employee

Group by name

Having sum(sal) > 23000;

Output:

Name	sum(sal)
John	50000
Nick	44000

Q) How to write a query to show the details of student from students table whose name start with K?

Select ~~Name~~ \* from Student

~~from Students~~

where Name like 'K%'

Q) what is the syntax to add / Insert record to table

1) insert into ~~values~~ Student values (v1, v2, v3 ...);

2) insert into Student (fname, lname, age) values (nick, donald, 20);

Q) Define the SQL Delete Statement

→ Used to delete existing records or particular row of table.

→ Delete from table-name  
where (condition);

→ if where clause in the delete statement is not used (it specify which records should be deleted.) if we omit that clause, all records in the table will be deleted

Delete from table-name.

→ it delete all rows in the table. keeping table structure, attribute & indexes will be intact.

Q) write a SQL Select query that only returns each name only once from table ?

Select Distinct name From  
tablename;

S) write the SQL query to get the third maximum salary of an employee from a table name @employee.

1) Select salary from employees  
order by sal DESC  
limit 2,1;

2) Select salary from employees  
order by sal DESC  
(Select sal from employees  
order by salary DESC  
limit 3) AS Temp  
order by salary limit 1;

3) Using top keyword  
Select TOP1 salary  
From

(Select Distinct TOP3 salary  
from employees  
order by salary DESC) AS Temp  
order by sal ASC;

8) " " " , 1st max salary  
Select max(sal) from employee;

9) " " " 2nd highest salary  
Select max(sal) from employee  
where sal < (Select max(sal) from employee)  
or

Select Distinct TOP 2 salary  
from employee  
order by salary Desc

Note: if you want to find Nth highest salary then by using  
Dense\_rank function

Ex: Select salary,

Dense\_rank() over (order by sal DESC) AS Sal\_rnk  
From employee;