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Join:- It is the mechanism that allow the table to be linked together, i.e., join is used to combine rows from multiple table. It is used whenever we have to select data from two or more tables. The rows retrieve after joining the two table based on specific condition in which one table act as primary table and other act as foreign table.

For example:- If user want to select data of two column from table 1 and data of three column from table 2, then join can be used by specifying the condition.

• Syntax:-

select <table 1. columns> <table 2. columns> from table 1, table 2 Equi join,
where table 1. column = table 2. column ...;

full
left
right

types of join:- Equi, Cartesian join / cross product, outer join, self join.

(i) Equi join:- • It is also known as inner join. The inner join require each record in both table to have matching record.

• The equi join should contain equal operator

• You should use the inner join when you only want to records where there is atleast one row in both table that meets the join condition

for example:- let us suppose we have two table P and S

A	B	C
4	5	6
7	8	7
1	9	8

R table

C	D	E
6	7	8
8	4	5
4	2	3
2	2	4

S table

• Syntax :-

select < table 1, column > < table 2, column > from
table 1, table 2, ...
where table 1, column = table 2, column ;

OR

select < table column >
from table 1
Inner join table 2
ON table 1, column = table 2, column

C is name
of column.

As R & S
is join
table

Query :-

select * from R, S or select * from R
where R.C = S.C ; Inner Join S
ON R.C = S.C

select * from R
where R.C = S.C
O/P ->

A	B
4	5

A	B	C	C	D	E
4	5	6	6	7	8
7	9	8	8	4	5

② Natural join :- natural join is basically a type of
inner join. A natural join of a further
specialisation of equi join.

Query :- select * from R,
natural join S;

O/P →

A	B	C	D	E
4	5	6	7	8
4	9	8	4	5

Q123

⊕ Cartesian join / cross product :- It is used when you join each row of table 1 to every row of another table. When the join condition is more specified. It is known as cross join and cartesian join.

• Syntax :-

select < table columns > from table 1
cross join table 2;

Query →

select * from R cross join S;

O/P →

A	B	C	C	D	E
4	5	6	6	7	8
4	5	6	8	4	5
4	5	6	4	2	3
4	5	6	3	2	4
7	8	7	6	7	8
7	8	7	8	4	5
7	8	7	4	2	3

here we have 12 rows.

④

Outer join :- In the inner join only returns the data or records where match is found. When using inner join we have seen that if there exist certain records in table 1 with doesn't have correspondingly values in

second table and those records will not be selected. The records which do not have values with another table could be forcefully selected by using outer join. The corresponding values for such rows will have null values.

* Left outer join :-

Syntax :- $\text{select } * \text{ from } R \text{ left outer join } S$
ON $R.C = S.C;$

O/P →

A	B	C	C	D	E
4	5	6	6	7	8
4	9	8	8	4	5
7	8	7	Null	Null	Null

* Right outer join :-

Syntax :- $\text{select } * \text{ from } R \text{ right outer join } S$
ON $R.C = S.C;$

O/P →

A	B	C	C	D	E
4	5	6	6	7	8
4	9	8	8	4	5
Null	Null	Null	4	2	3
Null	Null	Null	3	2	4

* Full outer join :- It is collection of both right outer join and left outer join.

Syntax → $\text{select } * \text{ from } R \text{ full outer join } S$
ON $R.C = S.C;$

O/p →

A	B	C	C	D	E
4	5	6	6	7	8
4	9	8	8	4	5
Null	Null	Null	4	2	3
Null	Null	Null	3	2	4
7	8	7	Null	Null	Null

* self join :- It is a query in which join is applied to the table itself

Syntax → select R1.A, R1.B, R2.A, R2.C
 from R, R1, R2
 where R1.A = R2.A;

R1			R2		
A	B	C	A	B	C
4	5	6	4	5	6
7	8	7	7	8	7
4	9	8	4	9	8

O/p →

A	B	A	C
4	5	4	6
4	5	4	8
4	8	7	7
4	9	4	6
4	9	4	8

Q- What is the null value

Q- What is the uses of null values and when are they used or not used.

Syntax → select R1.A, R1.C, R2.A, R2.C
 from R, R1, R2
 where R1.B = R2.B;

R1			R2		
A	B	C	A	B	C
4	5	6	4	5	6
7	8	7	7	8	7
4	9	8	4	9	8

O/P →

A	C	A	C
4	6	4	6
7	7	7	7
4	8	4	8

SET operator

no duplicate record
↙
duplicate record
↘

- Union ←
- Union all ←
- minus ←
- intersect ←

Join operator

- equi ←
 - outer ←
 - self ←
 - ~~Cartesian/inner~~ ←
- no condition is applied in this

- ① no. of columns should be same
- ② datatype should be same but their name can be different

- ① it does not matter how many columns are there. A datatype also does not matter

A	B	C

R

C	D	E

S

- minimum column → 2
- maximum column → 6

A	B	C

R

C	D	E

S

O/P

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Result

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