SQL Joins

1.Joins

DEFINITION/WHAT

SQL **Joins** clause is used to combine records from two or more tables in a database. A JOIN is a means for combining fields from two tables by using values common to each

NEED/WHY

- ✓ Need 1: SQL JOIN is performed whenever two or more tables are listed in a SQL statement

IMPLEMENTATION/HOW IT WORKS

Using Join keyword

REAL TIME EXAMPLE

To fetch some data from Employees and Departments table

ADDITIONAL INFORMATION

When performing joins, it's easiest to give your table names aliases. You can give a table an alias by adding a space after the table name and typing the intended name of the alias

2. INNER JOIN/SIMPLE JOIN

DEFINITION/WHAT

Returns records that have matching values in both tables

NEED/WHY

- ✓ Need 1: when data is required from both tables

IMPLEMENTATION/HOW IT WORKS

```
SELECT  columns
FROM table1
INNER JOIN table2
ON table1.column=table2.column;
```

REAL TIME EXAMPLE

return all rows from the suppliers and orders tables where there is a matching supplier_id value in both the suppliers and orders tables.

ADDITIONAL INFORMATION

When performing joins, it's easiest to give your table names aliases

3. LEFT OUTER JOIN

DEFINITION/WHAT

This type of join returns all rows from the LEFT-side table specified in the ON condition and **only** those rows from the other table where the joined fields are equal (join condition is met).

IMPLEMENTATION/HOW IT WORKS

```
SELECT columns
FROM table1
LEFT [OUTER] JOIN table2
ON table1.column = table2.column;
```

REAL TIME EXAMPLE

To return all information from employees tables

ADDITIONAL INFORMATION

In some databases, the LEFT OUTER JOIN keywords are replaced with LEFT JOIN. LEFT OUTER JOIN would return the all records from *table1* and only those records from *table2* that intersect with *table1*.

4. RIGHT OUTER JOIN

DEFINITION/WHAT

This type of join returns all rows from the Right-Side table specified in the ON condition and **only** those rows from the other table where the joined fields are equal (join condition is met).

IMPLEMENTATION/HOW IT WORKS

```
SELECT columns
FROM table1
RIGHT [OUTER] JOIN table2
ON table1.column = table2.column;
```

REAL TIME EXAMPLE

To return all information from DEPARTMENTS tables

ADDITIONAL INFORMATION

In some databases, the RIGHT OUTER JOIN keywords are replaced with RIGHT JOIN. RIGHT OUTER JOIN would return the all records from *table2* and only those records from *table1* that intersect with *table1*.

Subquery

1. Subquery

DEFINITION/WHAT

A Subquery can be defined as a query within another query. The outer query is called as main query and inner query is called as subquery.

The subquery generally executes first, and its output is used to complete the query condition for the main or outer query.

NEED/WHY

- ✓ Need 1: To evaluate outer query based on result of inner query
- ✓ Need 2: The subqueries are more readable than complex join or union statements.

IMPLEMENTATION/HOW IT WORKS

```
SELECT column_name
FROM table_name
WHERE column_name expression operator
  ( SELECT COLUMN_NAME  from TABLE_NAME   WHERE ... );
```

REAL TIME EXAMPLE

To find all employees who get salary greater than John

ADDITIONAL INFORMATION

You can place the Subquery in a number of SQL clauses: WHERE clause, HAVING clause, FROM clause.
Subqueries can be used with SELECT, UPDATE, INSERT, DELETE statements along with expression operator.

ORDERBY command **cannot** be used in a Subquery.

2. subquery in the where clause

DEFINITION/WHAT

A subquery in the WHERE clause helps in filtering the rows for the result set, by comparing a column in the main table with the results of the subquery.

NEED/WHY

Need 1: To execute a query based on condition

REAL TIME EXAMPLE

Find the name of departments where the head of the department is from “Manhattan”

ALTERNATIVES/DIFFERENCES BETWEEN WHERE AND HAVING CLAUSE

WHERE Clause	HAVING Clause
WHERE Clause is used to filter the records from the table based on the specified condition.	HAVING Clause is used to filter record from the groups based on the specified condition.
WHERE Clause can be used without GROUP BY Clause	HAVING Clause cannot be used without GROUP BY Clause
WHERE Clause implements in row operations	HAVING Clause implements in column operation
WHERE Clause cannot contain aggregate function	HAVING Clause can contain aggregate function
WHERE Clause can be used with SELECT, UPDATE, DELETE statement.	HAVING Clause can only be used with SELECT statement.
WHERE Clause is used before GROUP BY Clause	HAVING Clause is used after GROUP BY Clause
WHERE Clause is used with single row function like UPPER, LOWER etc.	HAVING Clause is used with multiple row function like SUM, COUNT etc.