Assignment No. A4

Title: Design at Least 10 SQL queries for suitable database applications using SQL DML statement: All types of joins and sub-queries.

Problem Statement / Aim: Upon Completion of this assignment students should able to learn

1. Concept of joins in SQL

2. Working of Inner join

3. Operations of Outer join

3. Operation of Left Outer Join

4. Operation of Right Outer Join

5. Sub queries in SQL

Theory:

SQL Join

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

Let's look at a selection from the "Orders" table:

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

Then, look at a selection from the "Customers" table:

CustomerID	CustomerName	ContactName	Country
1	Alfreds Futterkiste	Maria Anders	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mexico

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

Then, we can create the following SQL statement (that contains an INNER JOIN), that selects records that have matching values in both tables:

Example

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
INNER JOIN Customers ON Orders.CustomerID=Customers.CustomerID;
```

and it will produce something like this:

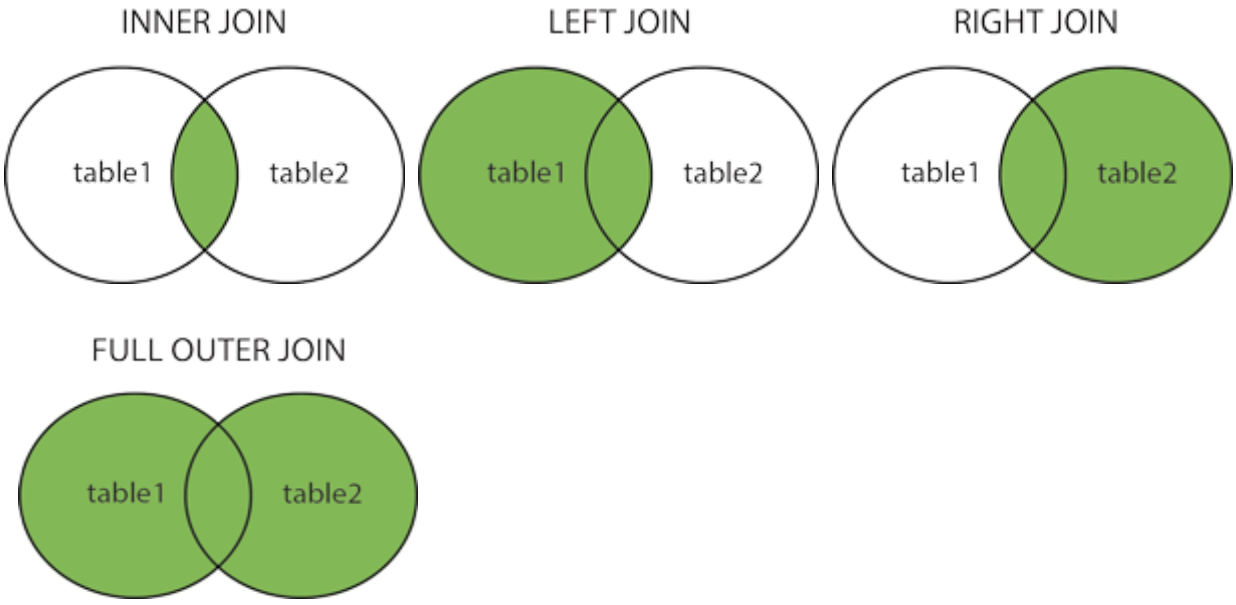
OrderID	CustomerName	OrderDate
10308	Ana Trujillo Emparedados y helados	9/18/1996
10365	Antonio Moreno Taquería	11/27/1996
10383	Around the Horn	12/16/1996

10355	Around the Horn	11/15/1996
10278	Berglunds snabbköp	8/12/1996

Different Types of SQL JOINs

Here are the different types of the JOINs in SQL:

- **(INNER) JOIN**: Returns records that have matching values in both tables
- **LEFT (OUTER) JOIN**: Return all records from the left table, and the matched records from the right table
- **RIGHT (OUTER) JOIN**: Return all records from the right table, and the matched records from the left table
- **FULL (OUTER) JOIN**: Return all records when there is a match in either left or right table



SQL INNER JOIN Keyword

The INNER JOIN keyword selects records that have matching values in both tables.

INNER JOIN Syntax

```
SELECT column_name(s)
FROM table1
INNER JOIN table2 ON table1.column_name = table2.column_name;
```

SQL LEFT JOIN Keyword

The LEFT JOIN keyword returns all records from the left table (table1), and the matched records from theright table (table2). The result is NULL from the right side, if there is no match.

LEFT JOIN Syntax

```
SELE
CT
colum
n_na
me(s)
FRO
M
table1
LEFT JOIN table2 ON table1.column_name = table2.column_name;
```

SQL RIGHT JOIN Keyword

The RIGHT JOIN keyword returns all records from the right table (table2), and the matched records fromthe left table (table1). The result is NULL from the left side, when there is no match.

RIGHT JOIN Syntax

```
SELE
CT
colum
n_na
me(s)
FRO
M
table1
RIGHT JOIN table2 ON table1.column_name = table2.column_name;
```

SQL FULL OUTER JOIN Keyword

The FULL OUTER JOIN keyword return all records when there is a match in either left (table1) or right(table2) table records.

Note: FULL OUTER JOIN can potentially return very large result-sets.

FULL OUTER JOIN Syntax

```
SELE
CT
colum
n_na
me(s)
FRO
M
```

```
table1
FULL OUTER JOIN table2 ON table1.column_name = table2.column_name;
```