**Session 4:**

1. **Grouping Things Together (Group by, Having)**

* **GROUP BY**

The GROUP BY Statement in SQL is used to arrange identical data into groups with the help of some functions. GROUP BY clause is used with the SELECT statement.

**Syntax:**

SELECT column1, function\_name(column2)

FROM table\_name

WHERE condition

GROUP BY column1, column2

**Example:**

SELECT ADDRESS, AGE, max(SALARY) FROM CUSTOMERS

**GROUP BY** ADDRESS, AGE HAVING AGE > 25;

* **Having:**

***Syntax:***SELECT column1, function\_name(column2)

FROM table\_name

WHERE condition

GROUP BY column1, column2

HAVING condition

ORDER BY column1, column2;

**Example:** SELECT NAME, SUM (salary) FROM CUSTOMERS

GROUP BY name

**HAVING** SUM (salary)>2400;

1. **Sorting Data (Order By)**

ORDER BY keyword is used to sort the result-set in ascending or descending order.

**Syntax: SELECT column1, column2, ...**

**FROM table\_name**

**ORDER BY column1, column2, ... ASC|DESC;**

**Example: SELECT \* FROM** CUSTOMERS

**ORDER BY** SALARY**;**

**Note: The ORDER BY keyword sorts the records in ascending order by default. To sort the records in descending order, use the DESC keyword.**

**Example: SELECT \* FROM Customers**

**ORDER BY** SALARY **DESC;**

* **ORDER BY Multiple Columns**

**Example:** SELECT \* FROM Customers

ORDER BY Name, SALARY;

Example2: SELECT Name

FROM Customers

WHERE ID = ANY

(SELECT ID FROM Customers

WHERE SALARY >= 3000);

1. **Correlated Sub query, Outer Joins**

Correlated subqueries are used for row-by-row processing. The parent statement can be a SELECT, UPDATE, or DELETE statement.

SELECT Name

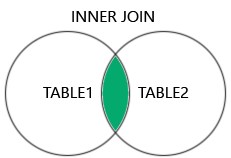
FROM Customers

WHERE ID = ANY

(SELECT ID FROM Customers WHERE SALARY >= 3000);

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

The different types of the JOINs in SQL:

* **(INNER) JOIN**: Returns records that have matching values in both tables.

**Syntax:**

SELECT column\_name(s)  
FROM table1  
INNER JOIN table2ON table1.column\_name = table2.column\_name;

SELECT Name, Address FROM customers

INNER JOIN course1 on customers.Age = course1.ID;

SELECT Name,ADDRESS,Salary

FROM customers

INNER JOIN course1 ON course1.ID = customers.ID;

* **LEFT (OUTER)** JOIN: Returns all records from the left table, and the matched records from the right table
* **RIGHT (OUTER) JOIN**: Returns all records from the right table, and the matched records from the left table
* **FULL (OUTER) JOIN**: Returns all records when there is a match in either left or right table