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TE IT- A

**Assignment No. 3**

**Title**: Queries

**Problem Statement**: Execute the aggregate function like count,sum,avge consuitable database.Make use of built in function according to need of the data base choosen.Retrive the data from the database based on time and date function like now(),date(),day(),time()etc.group by clause and having clause

**Requirements**: Mysql 8.0 Command Line Client

**Prerequisites** : Basic knowledge of DML.

**Theory**:

* **Aggregate function**: In database management an aggregate function is a function where the values of multiple rows are grouped together as input on certain criteria to form a single value of more significant meaning

**Various Aggregate Functions:**

* Count() : Returns total number of records.
* Sum(): Sum all Non Null values of Column
* Avg(): Return Average of the column.
* Min():Minimum value in the column
* Max(): Maximum value in the column.

### Group by Clause:The GROUP BY clause is a SQL command that is used to **group rows that have the same values**.

### GROUP BY Syntax:

### SELECT statements... GROUP BY column\_name1[,column\_name2,...] .

* **Having Clause:** It's not always that we will want to perform groupings on all the data in a given table. There will be times when we will want to restrict our results to a certain given criteria.  In such cases , we can use the HAVING clause.

For e.g We want to find average salary from each department.

Query Syntax : select avg(salary), dept\_name from instructor group by(dept\_name);

* **Set Operations** : SQL supports few Set operations which can be performed on the table data. These are used to get meaningful results from data stored in the table, under different special conditions.

1. **Union** : SQL UNION operator is used to combine the result sets of 2 or more SELECT statements. It removes duplicate rows between the various SELECT statements.

For eg: Find all courses taught either in sem I or in sem II or both

Query : (select course\_id from teaches where semester='I') union (select course\_id from teaches where semester='II');

1. **Intersect** :  If a record exists in one query and not in the other, it will be omitted from the **I**NTERSECT results.

For eg: Find out set of courses taught in sem I fy and sem II Ty.

Query : select course\_id from teaches where semester='I' and year='FY' and course\_id in (select course\_id from teaches where semester='II' and year='TY');

1. **Minus** : :  If a record exists in first query and not in the other, it will be accepted.

For eg: Find out set of courses taught in sem I fy but not in sem II Ty

Query : select course\_id from teaches where semester='I' and year='FY' and course\_id not in ( select course\_id from teaches where semester='II' and year='TY');

* **Join Operation** : The 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 byusing values common to each.
* Types of JOIN :-

**1)INNER Join** : This type of JOIN returns rows from all tables in which the join

condition is true

syntax:

SELECT columns FROM table\_1 INNER JOIN table\_2 ON

table\_1.column = table\_2.column

**2)LEFT OUTER JOIN:** This type of join will return all rows from the left-hand table plus

records in the right-hand table with matching values.

Syntax:

SELECT column-name-list FROM table-name1 LEFT OUTER JOIN table-name2 ON table-name1.column-name = table-3name2.column-name;

**3)** **RIGHT OUTER JOIN** : This type of join returns all rows from the right-hand table and

only those with matching values in the left-hand table.

Syntax:

SELECT column-name-list FROM table-name1 RIGHT OUTER JOIN table-name2 ON table-name1.column-name = table-name2.column-name;

**4) FULL OUTER JOIN :-** This type of join returns all rows from both tables with NULL

values where the JOIN condition is not true.

Syntax:

SELECT column-name-list FROM table-name1 FULL OUTER JOIN table-name2 ON table-name1.column-name = table-name2.column-name;

* **All inbuilt function(Date and Time Function):** Date and Time Functions Function That Return System Date and Time Values. Functions That Return Date and Time Parts. Functions That Return Date and Time Values from Their Parts. Functions That Return Date and Time Difference Values.

1)Date:

SysDate(): Returns the current date and time.

Example: SELECT SysDate();

2)Time:

TIME()

This function displays the time part of a time or date time expression in the form of a string. For example

**Conclusion**: In this assignment we learnt different types of Functions, Clause, Opeartion.