# Assignment No. A3

**Title:** Design at Least 10 SQL queries for suitable database applications using SQL DML statement: Insert, Select, Update, Delete with operators, functions, and set operators.

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

1. Insert data into database tables
2. Updating data into tables
3. Deleting data from tables
4. Use of aggregate functions in SQL
5. Use of operators in SQL

**Theory:**

#### Data Manipulation Language (DML)

The data manipulation language (DML) is used for accessing and manipulating data in a database. It allows users to access, insert, update and delete data from the database.

To insert record into the table-INSERT

To access or read records from table –SELECT Update the record in table- UPDATE

Delete the records from the table- DELETE

#### Problem Statement:

Create a table Employee( emp\_no, emp\_name,joining\_date, salary) product\_details(product\_id,product\_name,quantity,prices)

sales\_details(sale\_no,product\_id,quantity,price,customer\_name) and execute the following queries on Employee Table:

* 1. Insert 5 record into Employee Table
  2. Retrieve all the record from Table Employee
  3. Retrieve all records from column emp\_no and emp\_name only
  4. Retrieve the salary from Employee where salary >8000;
  5. Retrieve the salary using distinct clause from Employee
  6. Update the Salary to 50000 of Employee whose emp\_no =101
  7. Delete the Employee record from table whose emp\_no =106
  8. Retrieve the records of Employee whose salary is in between 8000 to 30000
  9. Retrieve the records of Employee whose salary is 8000 and 30000
  10. Display the records of Employee who join in 2015
  11. Retrieve the minimum salary of Employee
  12. Retrieve the highest salary of the Employee
  13. Retrieve the count of Employee who join in 1999
  14. Find the total salary amount paid to the employee
  15. Display only joining year of the employee
  16. Retrieve the ids of all product even if they were sold or present in the storage room(use union Operator)
  17. Retrieve the ids of all the sold product even if they were sold or present in the storage room(use union all operator)
  18. Retrieve all the ids of all the sold products(use interest operator)
  19. Retrieve all the ids of all the sold products(use minus operator)

#### Theory:-

1. **Inserting a Single row of data into a table**

Syntax:

Insert into table\_name values(value1,valu2……);

#### Inserting data into a table from another table

Syntax:

Insert into table\_name select Column1,Column2 from table\_name;

#### Retrieve data from tables SELECT Query

SELECT query is used to retrieve the data from database.SELECT query never make any change in database.

Syntax:

SELECT Column\_name1,column\_name2…..from table\_name;

If we want to retrieve data from all the column of a table then instead of writing all the column name use

‘\*’ . The ‘\*’ symbol represent all the column.

SELECT \* from table\_name;

With SELECT statement different clauses can be used to display the data as per our requirement.

1. WHERE Clause

WHERE clause is used to specify condition in SELECT statement while fetching records from the database. The records satisfying the condition given by where clause are retrieved.

SELECT Column\_name1,column\_name2…..from table\_name WHERE condition;

1. DISTINCT Clause

This clause is used to avoid selection of duplicate rows.

SELECT distinct (Column\_name) from Employee;

1. ORDERBY Clause

To arrange the displayed rows in ascending or descending order of a given column, ORDERBY Clause is used.

SELECT \* from table\_name orderby Column\_name desc/asc;

ASC or DESC words are used to maintaining ascending or descending order.

#### Modifying Data in Tables

To make changes in the database update command is used.The update command consists of ‘set’ Clause and optional ‘where’ clause. ‘WHERE’ clause is used to make changes in specific records.

Syntax:

Update table\_name set Column\_name=new\_value[where condition];

#### Remove records from table

Delete

As per requirement , the records from existing table can be removed using delete command.Delete command can have ‘Where clause optionally.

Syntax:

SELECT Column\_name1,column\_name2…..from table\_name [WHERE condition];

#### BETWEEN ,IN, LIKE Predicate

1. BETWEEN predicate

Between predicate is used to specify certain range of values. The AND keyword is used in this predicate. Syntax:

Test\_expression [NOT] Between begin\_expression AND end\_expression For example:

Select \* from Employee where salary between 10000 and 20000;

#### IN predicate

IN Predicate particularly determines where the value of expression to test matches any value in specified the list.

For example

Manager wants to view records of employees whose salary is 8000 and 30000 The query will be

Select \* from Employee where salary in(8000,30000);

Manager wants to view records of employee whose salary is not 8000 and 30000 Select \* from Employee where salary NOT IN(8000,30000);

#### LIKE Predicate

LIKE operator determines whether a specific character string matches the given pattern or not. For Example

Display the records of employee who join in 2015

Select \* from Employee where joining\_date LIKE ‘2015%’; Disply records of Employee who didn’t join in 2015

Select \* from Employee where joining\_date not like ‘2015%’;

#### Aggregate Functions:

* 1. Min( ) –This function returns smallest value from specified column of the table For example

Query to retrieve record of employee who gets least salary as compare to other employee Select \* from Employee where Salary=(select min(salary) from Employee;

* 1. Max( )- This function return greatest value from specified column of the table.

Query to retrieve record of employee who gets maximum salary as compare to other employee Select \* from Employee where Salary=(select max(salary) from Employee;

* 1. Count( )- This function return total number of values of specified column of the table For example

Query to retrieve count of employee who join in 2015 year

Select count(Employee\_no) from Employee where joining\_date like’2015%’;

* 1. Sum( )- This function returns the sum of all the values of specified column of the table. For example

Query to find total salary amount paid to all the employee Select Sum(Salary) from Employee;

Scalar Functions in SQL to Perform DML operations on table Data.

1. MID( )- This functions is used to extract substrings from column values of string type in a table Syntax:

Select MID(Column\_name,start,length) from table\_name;

For example

Select MID(joining\_date,1,4)from Employee;

1. LCASE( )- This functions is used to convert value of string column in Lowercase characters.

Select LCASE(Column\_name) from table\_name;

1. UCASE( )- This functions is used to convert value of string column in Uppercase characters.

Select UCASE(Column\_name) from table\_name;

1. ROUND( ) – This function is used to round a numeric field to number of nearest integer. It is used on Decimal point values.

Select round(Column\_name) from table\_name;

SET operations in SQL queries to perform DML operations on table data. The Different set operations are as follows.

1. UNION- The union operator returns all distinct rows selected by either query; Syntax:

Select column\_name from table1 Union

Select Column\_name from table2;

1. UNION ALL- This returns all rows selected by either query including duplicates. Syntax:

Select column\_name from table1 Union all

Select Column\_name from table2;

1. INTERSECT- This operator returns only those rows which are common to both the queries.

Select column\_name from table1 intersect

Select Column\_name from table2;

1. MINUS- Minus operator displays the rows which are present in the first query but absent in the second query with no duplicates and data is arranged in ascending order by default.

Select column\_name from table1 minus

Select Column\_name from table2;