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Course: DBMS

Assignment: 3

Title: SQL - DML (Insert, Update, Delete) and select statement with where clause and SQL operators.

Aim: Write suitable DML and select command to manipulate and retrieve requested data from tables.

Objective: To study

- DML (Insert, Update, Delete) commands,
- SQL select - logical, IN, Negation, NULL, Comparison operators.
- Where clause, Between AND, exists, ALL, LIKE

Problem statement:

Write the SQL commands to create a COMPANY database for the following relational schema:

Emp Table Fields

Dept Table

Column Name Data Type

Column Name Data Type

EmpNo Number

DeptNo Number

ENAME Varchar

DNAME Varchar

Job Char

Loc Varchar

Mgr Number

Hire Date Date

Sal Number

Comm Number

DeptNo Number

Theory:

- Explain SQL DML commands.

~~Insertion~~ DML commands are used to make modifications of the database like.

Insertion of new tuples into a given relation-

INSERT Query:

Add a new tuple:

insert into emp
values (7405, 'Ahad Shaikh', 'Manager', 74398.21);

or equivalently

insert into emp (SSN, Name, designation, salary)
values (7406, 'Ankur Patel', 'Analyst', 94532.71);

deletion of tuples from a given relation

Delete all ~~tuples~~ employees whose department is research.

> delete from emp

where designation = 'Researcher';

Delete all tuples

delete from emp;

Updation of values in some tuples in a given relation

Increase salaries of employees by 5% whose salary is

less than 50000.

update emp

set sal = sal * 1.05

where sal <= 50000;

→ Explain select query

→ The select statement is used to select data from a database tables.

select . . . } mandatory clause
 from
 where
 group by
 having
 order by } clauses (Use as per need)

Eg: select * from emp;
 - Result is a relation.

- Attribute can be a literal with from clause.

select 'A' from ~~SSN~~ dept
 Result is a table with one column and N rows
 (Number of tuples in ~~SSN~~ dept table), each
 row with value 'A'.

SQL Operators: i) Arithmetic Operators

• select clause can contain arithmetic expression
 (+, -, *, /)

select SSN, name, salary/12
 from emp

ia Rename salary as monthly salary

select SSN, name, salary/12 as monthly_salary
 from emp.

Comparison Operators

Operator	Description
=	Equal to
>	Greater than
<	Less than

Operator	Description
>=	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

eg.

```
select * from emp
where mgr <> 7241
```

Logical Operators :

1) ALL : True if all of the subquery values meet the condition.

```
> select * from products
where Price > ALL (select Price
from products
where price > 500);
```

2) AND : TRUE if all the conditions separated by AND is TRUE.

```
> SELECT * FROM Customers
WHERE City = "London" AND Country = "UK";
```

3) ANY : TRUE if any of the subquery values meet condition.

```
> SELECT * FROM Customers
WHERE Price > ANY (select Price
FROM Products
where Price > 50);
```


- 4) **BETWEEN**: TRUE if operand is within the range of comparisons
 > select * from emp
 where salary between 50,000.00 AND 80,000.00;
- 5) **EXISTS**: TRUE if subquery returns one or more records
 > SELECT * FROM Products
 WHERE EXISTS (select Price from Products
 where Price > 50)
- 6) **IN**: True if the operand is equal to one of a list of expressions.
 > select * from customers
 where city in ('Paris', 'London');
- 7) **LIKE**: True if the operand matches a pattern
 > select * from customers
 where city like 's%';
- 8) **NOT**: Displays a record if the condition (<) is not true.
 > select * from customers
 where city NOT like 's%';
- 9) **OR**: True if any of the conditions separated by Or is True
 > select * from customers
 where city = "London" OR country = "UK";
- 10) **SOME**: True if any of the subquery values meet the condition
 > select * from products
 where price > some (select price from products
 where price > 20);

Input: Database

Output: Data as per request

Platform: MySQL Command Line Client.

Conclusion: Thus, we have learned SQL DML commands, SELECT commands with SQL operators thoroughly.

FAQs:

Q) What is the difference between Truncate table and Drop Table command?

Ans: Truncate Table: Used to delete all the rows from a table while keeping the table structure intact.

- ~~Effects~~: - Releases the storage space using used by the table's data.

⊕ - Can be faster than 'DELETE FROM' for large tables because it doesn't generate as much as transactional log and doesn't log row deletions.

- Requires the 'DELETE' privilege.

Syntax:

TRUNCATE TABLE table-name;

Drop Table: - Deletes the table along with all of its data.

- removes the table's structure, indexes, constraints and any associated triggers.

- cannot be undone; the table structure and its data are permanently removed.

- ~~Requires~~ Requires the 'DROP' privilege on the table.

Syntax:

DROP TABLE table-name;

2. How is the pattern matching done in the SQL?

Ans - Patterns are case sensitive. ~~ie.~~

- To illustrate pattern matching, we consider the following examples.

* Percent (%): The % character matches any substring;

Underscore (_): The character matches any character in the substring

- 'Intro%' matches any ~~character~~ string beginning with "Intro".

'%.Comp%' matches any string containing "Comp" as a substring.

'---' matches any string of exactly three characters.

'---%' matches any string of at least three characters.

3. Write a DELETE command to delete all the records from CUSTOMERS table.

Ans. DELETE FROM customers;