

Ex.No. 3

SQL DCL and TCL commands

Aim:

To perform manipulate records of table using Select command, Data Control Language (DCL) and Transaction Control Language (TCL) Commands

3 A BASIC SELECT STATEMENTS

Arithmetic Operators

+ Addition

- Subtraction

* Multiplication

/ Division

Comparison Operators

= Equal to

<> Not Equal to

< Less than

> Greater than

<= Less than or equal to

>= Greater than or equal to

IN (List) Match any of list of values

LIKE Match a character pattern (% ‡ any no. of characters, - ‡ One Character)

IS NULL Is a null value

BETWEEN...AND... Between two values

Logical Operators

AND Returns TRUE if *both* component conditions are TRUE

OR Returns TRUE if *either* component condition is TRUE

NOT Returns TRUE if the following condition is FALSE

Concatenation Operator (||)

β Concatenates the Columns of any data type.

β A Resultant column will be a Single column.

Operator Precedence

<i>Order Evaluated</i>	<i>Operators</i>
1	Parenthesis
2	All Arithmetic Operators (Multiplication and Division followed by Addition and subtraction)
3	All Comparison Operators
4	NOT
5	AND
6	OR

Where Clause

- Specify the Selection of rows retrieved by the WHERE Clause

```
SELECT      column1, column2, ...
FROM        table
WHERE       condition;
```

- The WHERE clause follows the FROM clause

Order by Clause

- Sort rows specified by the order ASC / DESC

```
SELECT      column1, column2, ... ..
FROM        table
ORDER BY    sort-column DESC;
```

- Sorts *table* by *sort-column* in descending order
- Omitting the keyword DESC will sort the table in ascending order

Note :

- AS Keyword between the column name and the actual alias name
- Date and character literal values must be enclosed within single quotation marks
- Default date format is 'DD-MON-YY'
- Eliminate duplicate rows by using the DISTINCT keyword

Q1) Update all the records of *manager* table by increasing 10% of their salary as bonus.
SQL>

Q2) Delete the records from *manager* table where the salary less than 2750.
SQL>

Q3) Display each name of the employee as “Name” and annual salary as “Annual Salary” (Note: Salary in *emp* table is the monthly salary)
SQL>

Q4) List concatenated value of name and designation of each employee.
SQL>

- Q5)** List the names of Clerks from *emp* table.
SQL>
- Q6)** List the Details of Employees who have joined before 30 Sept 81.
SQL>
- Q7)** List names of employees who's employee numbers are 7369,7839,7934,7788.
SQL>
- Q8)** List the names of employee who are not Managers.
SQL>
- Q9)** List the names of employees not belonging to dept no 30,40 & 10
SQL>
- Q10)** List names of those employees joined between 30 June 81 and 31 Dec 81.
SQL>
- Q11)** List different designations in the company.
SQL>
- Q12)** List the names of employees not eligible for commission.
SQL>
- Q13)** List names and designations of employee who does not report to anybody
SQL>
- Q14)** List all employees not assigned to any department.
SQL>

- Q15)** List names of employee who are eligible for commission.
SQL>
- Q16)** List employees whose name either start or end with 's'.
SQL>
- Q17)** List names of employees whose names have 'i' as the second character.
SQL>
- Q18)** Sort *emp* table in ascending order by *hire-date* and list *ename*, *job*, *deptno* and *hire-date*.
SQL>
- Q19)** Sort *emp* table in descending order by annual salary and list *empno*, *ename*, *job* and *annual-salary*. (Note : Salary in *emp* table is the monthly salary)
SQL>
- Q20)** List *ename*, *deptno* and *sal* after sorting *emp* table in ascending order by *deptno* and then descending order by *sal*. (Note : Sorting by multiple columns)
SQL>

3 B DCL and TCL Commands

DCL is Data Control Language statements. Some examples:

GRANT - gives user's access privileges to database

REVOKE - withdraw access privileges given with the GRANT command

DATABASE TRANSACTIONS

- Begin when the first executable SQL statement is executed
- End with one of the following events:
 - COMMIT or ROLLBACK
 - DDL or DCL statement executes (automatic commit)
 - User exits
 - System crashes

TCL (Transaction Control Language)

- TCL Statements are COMMIT, ROLLBACK & SAVE POINT.
- State of Data Before COMMIT or ROLLBACK
 - The previous state of the data can be recovered.
 - The current user can review the results of the DML operations by using the SELECT statement.
 - Other users *cannot* view the results of the DML statements by the current user.
 - The affected rows are *locked*; other users cannot change the data within the affected rows.
- State of Data After COMMIT
 - Data changes are made permanent in the database.
 - The previous state of the data is permanently lost.
 - All users can view the results.
 - Locks on the affected rows are released; those rows are available for other users to manipulate.
 - All savepoints are erased.

Q1) Change LOC='CHICAGO' for deptno=30 in DEPT table and COMMIT the transaction

State of Data After ROLLBACK

- Discard all pending changes by using the ROLLBACK statement.
- Data changes are undone.
- Previous state of the data is restored.
- Locks on the affected rows are released.

Q2) Delete all the rows from EMP table and ROLLBACK the transaction.

Rolling Back to a Marker

- Create a marker within a current transaction by using <SAVEPOINT savepoint-name>
- Roll back to that marker by using <ROLLBACK TO savepoint-name>

Q3) Do the following operations one after another

a) Change LOC='BOSTON' for deptno=40 in DEPT table

b) Create SAVEPOINT in the name 'update_over'

SQL>

c) Insert another row in DEPT table with your won values

SQL>

d) Rollback the transaction upto the point 'update_over'

SQL>