SYIT Sem III
Database Management System
Practical #4

Revision of Practical 1,2 and 3

- Practical 1: DDL Commands(Create, Rename, Delete, Truncate and Drop)
- Practical 2: DML Commands(Select, Insert, Update and Delete)
- Practical 3: Types of Constraints(Not Null, Unique, Primary Key, Foreign key, Check and Default)

Contents of Practical 4

- Restricting and Sorting Data
- Single Row Functions

Restricting and Sorting Data

Aim: Displaying data with restricted row and sorted order.

1. **Comparison Test (<,>, <=, >=, <>):** It is used to compare data values.

Syntax:

SELECT column_name(s) FROM table_name WHERE column_name (>, <, >=, <=, <>,=) value

Example:

Qn. Display details of help whose seq is 7.

Syntax: Select * from help where seq=7;

2. **Range Test (Between):** It is used to search value in given range.

Syntax:

SELECT column_name(s) FROM table_name
WHERE column_name BETWEEN value1 AND value2;

Example:

Qn. Display details of help whose seq between 4 to 9.

Syntax: Select * from help where seq between 4 and 9;

3. **Set Membership Test (IN):** It is used to search value in specified set.

Syntax:

SELECT column_name(s) FROM table_name WHERE column_name IN (value1, value2, ...);

Example:

Qn. Display details of help whose topic is break or change or attribute.

Syntax: Select * from help where topic IN('BREAK','CHANGE','ATTRIBUTE');

4. **Pattern Matching (LIKE):** It is used to search specified pattern.
   - % : The percent sign represents zero, one, or multiple characters
   - _ : The underscore represents a single character

Syntax:

SELECT column1, column2, ...FROM <table_name> WHERE column LIKE pattern;

Example:

Qn. Display details of help table whose info starts with R.

Syntax: Select * from help where info like 'R%';

Qn. Display details of help table whose info ends with e.

Syntax: Select * from help where info like '%e';

Qn. Display details of help table whose info contains second letter as e.

Syntax: Select * from help where info like '_e%';

5. **Null Value Test (Is Null):** It is used to search null value.

Syntax:

SELECT column_names FROM <table_name> WHERE column_name IS NULL;

Example:

Qn. Display details of help table whose info is NULL.

Syntax: Select * from help where info is NULL;

Qn. Display details of help table whose info is NOT NULL.

Syntax: Select * from help where info is NOT NULL;

6. **Compound Search Condition(AND,OR,NOT):** The AND and OR operators are used to filter records based on more than one condition and The NOT operator displays a record if the condition(s) is NOT TRUE.

Example:

Qn. Display details of help whose topic is BREAK and seq is 4.

Syntax: Select * from help where topic='BREAK' and seq=4;

Qn. Display details of help whose topic is BREAK or seq is 4.

Syntax: Select * from help where topic='BREAK' or seq=4;

Qn. Display details of help whose topic is BREAK and seq is not 4.

Syntax: Select * from help where topic='BREAK' and NOT seq=4;

7. **Concatenating Data Columns:** “||” is used to combine columns of select statement.

Syntax:

SELECT column1||column2 , ... ,column n FROM <table_name>
WHERE <condition>;

Example:

1. Select topic || seq from help where topic='BREAK';

8. **Order By [ASC|DESC]:** it is used to sort result set in ascending order or descending order.

Syntax:

SELECT column1, column2, ... ,column n FROM <table_name> WHERE <condition> Order by [ASC|DESC];

Example:

Qn. Display details of help and set the data of seq in ascending order.

Syntax: Select * from help order by seq asc;

Qn. Display details of help and set the data of seq in descending order.

Syntax: Select * from help order by seq desc;

Single Row Functions:

Aim: Using of single row function in Select statement.

Description:

Single Row functions - Single row functions are the one who work on single row and return one output per row.

Single row function has following types:

1. Character
2. Numeric
3. Date

Character function:

- CONCAT() -- select concat('Avirat','Nimit') from dual
- INITCAP() -- select INITCAP(INFO) from help
- LOWER() -- select LOWER(INFO) from help
- UPPER() -- select UPPER(INFO) from help
- SUBSTR() -- select substr('Avirat',1,3) from dual

Numeric Function:

- ABS()-- select abs(-3) from dual
- CEIL()--select ceil(-4.9) from dual
- FLOOR()--select floor(-4.9) from dual
- ROUND()--select round(3/2) from dual
- TRUNC()--select trunc(16.738,1) from dual

Date Function:

- SYSDATE() -- select SYSDATE from dual

- ADD_MONTHS() -- select SYSDATE,ADD_MONTHS(SYSDATE,1) from dual
  --select SYSDATE,ADD_MONTHS(SYSDATE,-1) from dual

- CURRENT_DATE()-- select CURRENT_DATE from dual;
- LAST_DAY() -- select SYSDATE,LAST_DAY(SYSDATE) from dual

- MONTHS_BETWEEN() -- select MONTHS_BETWEEN ('01-JUL-2017','01-JUN-2017')from dual

- NEXT_DAY() -- select SYSDATE,NEXT_DAY(SYSDATE,'Monday') from dual

Aggregate Functions

Functions that act on a set of values are called **Group Functions or Aggregate functions.** A group function returns a single result row for a group of queried rows.

They are as follows:

AVG() - Returns the average value.

MAX() - Returns the largest value.

MIN() - Returns the smallest value.

SUM() - Returns the sum.

COUNT() - Returns the number of rows.

Emp Table

EMPNO	ENAME	JOB	DEPTNO	SAL
101	King	President	10	20000
102	Blake	Manager	10	12000
103	Clark	Manager	10	11000
104	Jones	Manager	20	10000
105	Scott	Analyst	20	5000
106	Ford	Analyst	30	6000
107	Allen	Salesman	40	950
110	Jimmy	President	30	25000
109	James	Salesman	10	1500
108	Turner	Salesman	20	1100
112	Killer	Developer	50	450
113	Jones	Leader	70	450
111	Menon	Developer	50	1200

Queries- Aggregate Functions

- Display minimum salary of employee.
- Select min(sal) from Emp

- Display maximum salary of employee.
- Select max(sal) from Emp

- Display average salary of employee who is working as Analyst.
- Select avg(sal) from Emp where job='Analyst’

- Calculates sum of salary for each department.
- Select sum(sal), job from Emp group by job;

- Lists the maximum salary drawn under each job category.
- Select max(sal), job from Emp group by job;

Queries- Aggregate Functions

- Display total number of employees from Employee table.
- Select count(empno) from Emp;

- Display the total number of employees in each job category.
- Select count(empno), job from Emp group by job;

- Display maximum salary of employee having job President.
- Select max(sal) from Emp group by job having job='President'

- Display the details of employees in their ascending order of names.
- Select * from Emp order by ename;

- Display the details of employees in their descending order of their salary.
- Select * from Emp order by sal desc;

Exercise Questions:

1) Display details of help table.
2) Display info from help table.
3) Display seq and info of help whose topic is append.
4) Display details of help whose topic is attribute.
5) Display details of help whose topic is accept and seq is 5.
6) Display details of help whose topic is change or clear.
7) Display details of help whose topic is copy or define or del.
8) Display details of help whose seq between 3 to 12.
9) Display details of help whose seq between 1 to 5 of topic @.
10) Display details of help in ascending order.
11) Display details of help in desencding order.
12) Display details of help table whose info starts with L.
13) Display details of help table whose info ends with s.

Exercise Questions Contd..

14) Display details of help table whose topic is NULL.

15) Display details of help whose topic is CLEAR and seq is not 5.


Thank
you