Experiment No. : 5

Title: Write a program to show the use of SQL clauses (group by, having, order by between).

Objectives:

1. To learn SQL clause group by, having
2. To learn SQL clause order by
3. To learn SQL clause between.

Key Concepts: Group by, having, order by, between.

Theory:

GROUP BY, HAVING

It specifies how to report the output of the query. It allows one to define a subset of the values of a particular field and to apply an aggregate function to the subsets. Normally a GROUP BY clause is used in conjunction with an aggregate expression (like SUM, COUNT etc). It is used in select statements to divide a table into groups and to return only groups that match conditions in the having clause.

The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.

The SQL GROUP BY clause is used in collaboration with the SELECT statement to arrange identical data into groups.

The basic syntax of GROUP BY clause is given below. The GROUP BY clause must follow the conditions in the WHERE clause and must precede the ORDER BY clause if one is used.

Syntax

```
SELECT column1, column2
FROM table_name
WHERE [ conditions ]
GROUP BY column1, column2
Having [condition]
ORDER BY column1, column2
```

Example

```
SELECT Employees.LastName, COUNT(Orders.OrderID) AS NumberOfOrders
FROM (Orders INNER JOIN Employees
ON Orders.EmployeeID=Employees.EmployeeID)
GROUP BY LastName
HAVING COUNT(Orders.OrderID) > 10;
```

ORDER BY

The SQL ORDER BY clause is used to sort the data in ascending or descending order, based on one or more columns. Some database sorts query results in ascending order by default.

Syntax

```
SELECT column-list
FROM table_name
[WHERE condition]
[ORDER BY column1, column2, .. columnN] [ASC | DESC];
```

Example

SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMPLOYEES **ORDER BY** LAST_NAME;

BETWEEN

The SQL BETWEEN Condition is used to retrieve values within a range in a SELECT, INSERT, UPDATE, or DELETE statement.

The BETWEEN conditional operator is used to test to see whether or not a value (stated before the keyword BETWEEN) is "between" the two values stated after the keyword BETWEEN.

Example

```
SELECT employeeid, age, lastname, salary

FROM employee_info

WHERE age BETWEEN 30 AND 40;
```

Algorithm:

1. Start
2. Create table by taking field information from user
3. Insert data into above created table.
4. Write SQL query to demonstrate use of group by, having.
5. Write SQL query to demonstrate use of order by.
6. Write SQL query to demonstrate use of between.
7. Execute SQL queries through java program.
8. Stop.