Government College of Engineering, Jalgaon
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Class : T. Y. B.Tech Computer **Academic Year :** 2023-24 **Subject :** CO307U
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Practical no. 3

Aim : Design SQL queries that involve SQL feature such as aggregate function GROUP BY clause, HAVING clause, ORDER BY clause.

Requirements:
1. Computer System with Open Source Operating System.
2. Mysql

Theory:
Aggregate functions in SQL

In database management an aggregate function is a function where the values of multiple rows are grouped together as input on certain criteria to form a single value of more significant meaning.

Various Aggregate Functions
1) Count()
2) Sum()
3) Avg()
4) Min()
5) Max()

SQL GROUP BY Statement:

The GROUP BY statement groups rows that have the same values into summary rows, like "find the number of customers in each country".

The GROUP BY statement is often used with aggregate functions
(COUNT(), MAX(), MIN(), SUM(), AVG()) to group the result-set by one or more columns.

GROUP BY Syntax:

SELECT *column_name(s)*
FROM *table_name*
WHERE *condition*
GROUP BY *column_name(s)*
ORDER BY *column_name(s);*

SQL HAVING Clause:

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

HAVING Syntax:

SELECT *column_name(s)*
FROM *table_name*
WHERE *condition*
GROUP BY *column_name(s)*
HAVING *condition*
ORDER BY *column_name(s);*

The SQL ORDER BY:

The ORDER BY keyword is used to sort the result-set in ascending or descending order.

Syntax:

SELECT *column1*, *column2, ...*
FROM *table_name*
ORDER BY *column1, column2, ...* ASC|DESC;

Conclusion:
Design SQL queries that involve SQL feature such as aggregate function GROUP BY clause, HAVING clause, ORDER BY clause.

Questions:

1. What is the purpose of the GROUP BY clause in SQL?

Answer: The GROUP BY clause is used in SQL to group rows that have the same values in specified columns into summary rows, like "total" or "average." It is often used with aggregate functions to perform calculations on each group of rows.

2.Explain the difference between the WHERE and HAVING clauses in SQL.

Answer: The WHERE clause is used to filter rows before they are grouped and aggregated. It is applied to individual rows before they become part of any groups. On the other hand, the HAVING clause is used to filter the results of aggregate functions applied to grouped rows. It is applied after the GROUP BY clause.

3. How does the ORDER BY clause work in SQL?

Answer: The ORDER BY clause is used to sort the result set of a SQL query. It can be applied to one or more columns in ascending (ASC) or descending (DESC) order. The sorting is applied after the result set is generated, and it does not affect the grouping of rows.

4.Can you use aggregate functions without the GROUP BY clause in a SQL query?

Answer: Yes, you can use aggregate functions without the GROUP BY clause in a SQL query. When aggregate functions are used without the GROUP BY clause, they operate on the entire result set, summarizing the values across all rows.

5. In what situations would you use the HAVING clause in a SQL query?

Answer: The HAVING clause is used in conjunction with the GROUP BY clause to filter the results of aggregate functions. It allows you to specify a condition for groups of rows, filtering

out groups that do not meet the specified condition. This is useful for applying conditions to aggregated data.

Course Teacher
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