SQL LAB-5

Group By

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QUESTIONS

Lab 2-

Database Schema:

Use the same database scheme created in Previous Lab.

Task: Let's consider a scenario where you want to count the number of students based

on their gender from a database table named Student.

Hint: use GroupBy clause and Count() function

ChatGPT Exercise

Using ChatGPT generates SQL queries of the below problem .

Scenario 1:

Library Books Given a table called books with columns book_id, title, and author_id, write a query to count the number of books written by each author, ordering the results by the author's name without using a join clause.

Task: Let's consider a scenario where you want to count the number of students based

on their gender from a database table named Student.

Hint: use GroupBy clause and Count() function

```
mysql> select *from student;
+------------+------------+-----------+------+--------------------------+--------+
| student_id | first_name | last_name | age  | email                    | gender |
+------------+------------+-----------+------+--------------------------+--------+
|          1 | John       | Doe       |   20 | john.doe@example.com     | Male   |
|          2 | Jane       | Smith     |   22 | jane.smith@example.com   | Female |
|          3 | Alice      | Johnson   |   21 | alice.johnson@example.com | Female |
|          4 | Bob        | Brown     |   23 | bob.brown@example.com    | Male   |
|          5 | Charlie    | Davis     |   24 | charlie.davis@example.com | Male   |
+------------+------------+-----------+------+--------------------------+--------+
5 rows in set (0.00 sec)
```

Code & Output:-

```
mysql> -- Count the number of students based on their gender
mysql> Select gender, COUNT(*) AS number_of_students from student GROUP BY gender;
+--------+--------------------+
| gender | number_of_students |
+--------+--------------------+
| Male   |                  3 |
| Female |                  2 |
+--------+--------------------+
2 rows in set (0.03 sec)
```

ChatGPT Exercise

Using ChatGPT generates SQL queries of the below problem .

Scenario 1:

Library Books Given a table called books with columns book_id, title, and author_id, write a query to count the number of books written by each author, ordering the results by the author's name without using a join clause.

--Create bookst database and use the bookst database environment

```
mysql> create database bookst;
Query OK, 1 row affected (0.04 sec)

mysql> use bookst;
Database changed
```

-- Creating the new table named books

```
mysql> use bookst;
Database changed
mysql> -- Creating the books table
mysql> CREATE TABLE books (
    ->     book_id INT PRIMARY KEY, -- Unique identifier for each book
    ->     title VARCHAR(100), -- Title of the book
    ->     author_id INT -- Identifier for the author of the book
    -> );
Query OK, 0 rows affected (0.04 sec)
```

--Inserting the values into the books table

```
mysql> -- Inserting sample data into the books table
mysql> INSERT INTO books (book_id, title, author_id)
    -> VALUES
    ->     (1, 'The Great Gatsby', 101),
    ->     (2, 'To Kill a Mockingbird', 102),
    ->     (3, '1984', 103),
    ->     (4, 'Pride and Prejudice', 104),
    ->     (5, 'Animal Farm', 103),
    ->     (6, 'The Catcher in the Rye', 105),
    ->     (7, 'Moby-Dick', 106),
    ->     (8, 'War and Peace', 107),
    ->     (9, 'Ulysses', 108),
    ->     (10, 'The Odyssey', 109),
    ->     (11, 'Crime and Punishment', 107),
    ->     (12, 'The Iliad', 109);
Query OK, 12 rows affected (0.03 sec)
Records: 12  Duplicates: 0  Warnings: 0
```

--Display the books table

```
mysql> select *from books;
+---------+------------------------+-----------+
| book_id | title                  | author_id |
+---------+------------------------+-----------+
|       1 | The Great Gatsby       |       101 |
|       2 | To Kill a Mockingbird  |       102 |
|       3 | 1984                   |       103 |
|       4 | Pride and Prejudice    |       104 |
|       5 | Animal Farm            |       103 |
|       6 | The Catcher in the Rye |       105 |
|       7 | Moby-Dick              |       106 |
|       8 | War and Peace          |       107 |
|       9 | Ulysses                |       108 |
|      10 | The Odyssey            |       109 |
|      11 | Crime and Punishment   |       107 |
|      12 | The Iliad              |       109 |
+---------+------------------------+-----------+
12 rows in set (0.00 sec)
```

--Adding the author_name column and insert the values into the books table

```
mysql> -- Adding the author_name column to the books table
mysql> ALTER TABLE books
    -> ADD COLUMN author_name VARCHAR(100); -- Name of the author
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> -- Updating the books table with author names
mysql> UPDATE books
    -> SET author_name = CASE book_id
    ->     WHEN 1 THEN 'F. Scott Fitzgerald'
    ->     WHEN 2 THEN 'Harper Lee'
    ->     WHEN 3 THEN 'George Orwell'
    ->     WHEN 4 THEN 'Jane Austen'
    ->     WHEN 5 THEN 'George Orwell'
    ->     WHEN 6 THEN 'J.D. Salinger'
    ->     WHEN 7 THEN 'Herman Melville'
    ->     WHEN 8 THEN 'Leo Tolstoy'
    ->     WHEN 9 THEN 'James Joyce'
    ->     WHEN 10 THEN 'Homer'
    ->     WHEN 11 THEN 'Fyodor Dostoevsky'
    ->     WHEN 12 THEN 'Homer'
    ->     ELSE author_name
    -> END;
Query OK, 12 rows affected (0.01 sec)
Rows matched: 12  Changed: 12  Warnings: 0
```

--Display the books table

```
mysql> Select *from books;
+---------+------------------------+-----------+---------------------+
| book_id | title                  | author_id | author_name         |
+---------+------------------------+-----------+---------------------+
|       1 | The Great Gatsby       |       101 | F. Scott Fitzgerald |
|       2 | To Kill a Mockingbird  |       102 | Harper Lee          |
|       3 | 1984                   |       103 | George Orwell       |
|       4 | Pride and Prejudice    |       104 | Jane Austen         |
|       5 | Animal Farm            |       103 | George Orwell       |
|       6 | The Catcher in the Rye |       105 | J.D. Salinger       |
|       7 | Moby-Dick              |       106 | Herman Melville     |
|       8 | War and Peace          |       107 | Leo Tolstoy         |
|       9 | Ulysses                |       108 | James Joyce         |
|      10 | The Odyssey            |       109 | Homer               |
|      11 | Crime and Punishment   |       107 | Fyodor Dostoevsky   |
|      12 | The Iliad              |       109 | Homer               |
+---------+------------------------+-----------+---------------------+
12 rows in set (0.00 sec)
```

Code & Output:-

```
mysql> -- Query to count the number of books written by each author and order by author_name
mysql> SELECT author_name, COUNT(*) AS number_of_books FROM books GROUP BY author_name
    -> ORDER BY author_name;
+--------------------+----------------+
| author_name        | number_of_books |
+--------------------+----------------+
| F. Scott Fitzgerald |              1 |
| Fyodor Dostoevsky   |              1 |
| George Orwell       |              2 |
| Harper Lee          |              1 |
| Herman Melville     |              1 |
| Homer               |              2 |
| J.D. Salinger       |              1 |
| James Joyce         |              1 |
| Jane Austen         |              1 |
| Leo Tolstoy         |              1 |
+--------------------+----------------+
10 rows in set (0.01 sec)
```