8) Queries using Aggregate functions, GROUP BY, HAVING and Creation and dropping of Views

GROUP BY Syntax

```
SELECT column1, column2, ..., columnN, aggregate_function(column_Z)
FROM table_name
WHERE condition
GROUP BY column1, column2, ..., columnN;
```

mysql> CREATE TABLE Orders (id INTEGER NOT NULL AUTO_INCREMENT PRIMARY KEY, cust_id INTEGER, amount INTEGER NOT NULL);
Query OK

mysql> INSERT INTO Orders(cust_id,amount) VALUES (1,105); INSERT INTO Orders(cust_id,amount) VALUES (1,78); INSERT INTO Orders(cust_id,amount) VALUES (3,55); INSERT INTO Orders(cust_id,amount) VALUES (3,42); INSERT INTO Orders(cust_id,amount) VALUES (2,215);
Query OK, 1 row affected (0.23 sec)

Query OK, 1 row affected
Query OK, 1 row affected
Query OK, 1 row affected
Query OK, 1 row affected

mysql> SELECT * FROM Orders;

id	cust_id	amount
1	1	105
2	1	78
3	3	55
4	3	42
5	2	215

5 rows in set (0.05 sec)

mysql> SELECT cust_id, SUM(amount) as total_amount FROM Orders GROUP BY cust_id;

cust_id	total_amount
1	183
3	97
2	215

3 rows in set

- You can also use expressions in the GROUP BY clause to group data based on calculated values. Consider the following query on the same Orders table to understand the usage of GROUP BY with an expression example

mysql> SELECT CASE
WHEN amount < 50 THEN 'Low'
WHEN amount >= 50 AND amount < 150 THEN 'Medium'
WHEN amount >= 150 THEN 'High'
END as amount_range,

```
COUNT(*) as count_orders
FROM Orders
GROUP BY amount_range;

+--------------+--------------+
| amount_range | count_orders |
+--------------+--------------+
| Medium       |            3 |
| Low          |            1 |
| High         |            1 |
+--------------+--------------+
3 rows in set
```

GROUP BY With HAVING Clause

```
mysql> SELECT cust_id, SUM(amount) as total_amount
FROM Orders
GROUP BY cust_id
HAVING total_amount <= 200;

+---------+--------------+
| cust_id | total_amount |
+---------+--------------+
|       1 |          183 |
|       3 |           97 |
+---------+--------------+
2 rows in set
```

Example

Let's create a view in MySQL Command line client using an existing table inside a database. Suppose, we have a table EMPLOYEE which displays the details of employees working in an organization.

Emp_id	first_name	last_name	Emp_age	Emp_salary
101	Harry	Wills	29	20000
102	Nicholas	Byer	27	30000
103	Marie	Curie	24	55000
104	Karl	Anderson	38	70000

Query:

```
CREATE VIEW EMP_DETAILS AS
SELECT Emp_id,Emp_salary
FROM EMPLOYEE
WHERE Emp_salary > 20000;
SELECT * FROM EMP_DETAILS;
```

Output:

Emp_id	Emp_salary
102	30000
103	55000
104	70000