Experiment 8 Output

Data aggregation techniques were **implemented** to generate **summarized views** of large datasets, enhancing reporting and analytical efficiency.

Total Sales Aggregation

```
mysql> SELECT SUM(Sales_Amount) AS Total_Sales FROM Sa
+-------------+
| Total_Sales |
+-------------+
|   320000.00 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT Product, AVG(Sales_Amount) AS Avg_Sales
    -> FROM Sales
    -> GROUP BY Product;
+---------+-------------+
| Product | Avg_Sales   |
+---------+-------------+
| Laptop  | 48500.000000 |
| Phone   | 31500.000000 |
+---------+-------------+
2 rows in set (0.00 sec)
```

Fig 1: Sales aggregation on table

Region Wise aggregation

```
mysql> SELECT Region, COUNT(*) AS Sales_Count
    -> FROM Sales
    -> GROUP BY Region;
+--------+-------------+
| Region | Sales_Count |
+--------+-------------+
| North  |           4 |
| South  |           4 |
+--------+-------------+
2 rows in set (0.00 sec)

mysql> SELECT Year, MAX(Sales_Amount) AS Max_S
    -> FROM Sales
    -> GROUP BY Year;
+------+-----------+-----------+
| Year | Max_Sales | Min_Sales |
+------+-----------+-----------+
| 2022 |  50000.00 |  30000.00 |
| 2023 |  52000.00 |  31000.00 |
+------+-----------+-----------+
2 rows in set (0.00 sec)
```

Fig 2: Min-Max Queries

Sales by Category

```
mysql> SELECT Product, NULL AS Region, SUM(Sa
    -> FROM Sales
    -> GROUP BY Product
    -> UNION ALL
    -> SELECT NULL, Region, SUM(Sales_Amount)
    -> FROM Sales
    -> GROUP BY Region
    -> UNION ALL
    -> SELECT NULL, NULL, SUM(Sales_Amount) A
    -> FROM Sales;
+---------+--------+-------------+
| Product | Region | Total_Sales |
+---------+--------+-------------+
| Laptop  | NULL   |   194000.00 |
| Phone   | NULL   |   126000.00 |
| NULL    | North  |   163000.00 |
| NULL    | South  |   157000.00 |
| NULL    | NULL   |   320000.00 |
+---------+--------+-------------+
5 rows in set (0.00 sec)
```

Fig 3: Grouping Queries

Regional-Yearly Aggregation

```
mysql> SELECT Region, Product, SUM(Sales_Amo
    -> FROM Sales
    -> GROUP BY Region, Product WITH ROLLUP;
+--------+---------+-------------+
| Region | Product | Total_Sales |
+--------+---------+-------------+
| North  | Laptop  |   102000.00 |
| North  | Phone   |    61000.00 |
| North  | NULL    |   163000.00 |
| South  | Laptop  |    92000.00 |
| South  | Phone   |    65000.00 |
| South  | NULL    |   157000.00 |
| NULL   | NULL    |   320000.00 |
+--------+---------+-------------+
7 rows in set (0.00 sec)

mysql> SELECT Product,
    ->        SUM(CASE WHEN Year = 2022 THEN
    ->        SUM(CASE WHEN Year = 2023 THEN
    -> FROM Sales
    -> GROUP BY Product;
+---------+------------+------------+
| Product | Sales_2022 | Sales_2023 |
+---------+------------+------------+
| Laptop  |   95000.00 |   99000.00 |
| Phone   |   62000.00 |   64000.00 |
+---------+------------+------------+
```

Fig 4: Region and Yearly Aggregation by product Categories