Sales Trend Analysis Using Aggregations Outputs

Create db and table

```
MariaDB [(none)]> CREATE DATABASE sales_analysis;
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> USE sales_analysis;
Database changed
MariaDB [sales_analysis]> CREATE TABLE online_sales (
    ->     order_id INT PRIMARY KEY,
    ->     customer_name VARCHAR(100),
    ->     country VARCHAR(50),
    ->     product_name VARCHAR(100),
    ->     order_date DATE,
    ->     amount DECIMAL(10, 2),
    ->     quantity INT
    -> );
Query OK, 0 rows affected (0.021 sec)
```

Loading data from csv to db

```
MariaDB [sales_analysis]> LOAD DATA LOCAL INFILE 'C:/xampp/mysql/data/sales_analysis/online_sales.csv'

    ->
    -> INTO TABLE online_sales
    ->
    -> FIELDS TERMINATED BY ','
    ->
    -> ENCLOSED BY '"'
    ->
    -> LINES TERMINATED BY '\n'
    ->
    -> (order_id, customer_name, country, product_name, @order_date, amount, quantity)
    ->
    -> SET order_date = STR_TO_DATE(@order_date, '%d-%b-%y');
Query OK, 1094 rows affected, 1094 warnings (0.086 sec)
Records: 1094  Deleted: 0  Skipped: 0  Warnings: 1094

MariaDB [sales_analysis]> SELECT COUNT(*) FROM online_sales;
+----------+
| COUNT(*) |
+----------+
|     1094 |
+----------+
1 row in set (0.091 sec)
```

Verify data

```
MariaDB [sales_analysis]> SELECT * FROM online_sales LIMIT 10;
+----------+-----------------+-------------+--------------------+------------+----------+----------+
| order_id | customer_name   | country     | product_name       | order_date | amount   | quantity |
+----------+-----------------+-------------+--------------------+------------+----------+----------+
|        1 | Jehu Rudeforth  | UK          | Mint Chip Choco    | 2022-01-04 |  5320.00 |      180 |
|        2 | Van Tuxwell     | India       | 85% Dark Bars      | 2022-08-01 |  7896.00 |       94 |
|        3 | Gigi Bohling    | India       | Peanut Butter Cubes | 2022-07-07 |  4501.00 |       91 |
|        4 | Jan Morforth    | Australia   | Peanut Butter Cubes | 2022-04-27 | 12726.00 |      342 |
|        5 | Jehu Rudeforth  | UK          | Peanut Butter Cubes | 2022-02-24 | 13685.00 |      184 |
|        6 | Van Tuxwell     | India       | Smooth Sliky Salty | 2022-06-06 |  5376.00 |       38 |
|        7 | Oby Sorrel      | UK          | 99% Dark & Pure    | 2022-01-25 | 13685.00 |      176 |
|        8 | Gunar Cockshoot | Australia   | After Nines        | 2022-03-24 |  3080.00 |       73 |
|        9 | Jehu Rudeforth  | New Zealand | 50% Dark Bites     | 2022-04-20 |  3990.00 |       59 |
|       10 | Brien Boise     | Australia   | 99% Dark & Pure    | 2022-07-04 |  2835.00 |      102 |
+----------+-----------------+-------------+--------------------+------------+----------+----------+
10 rows in set (0.001 sec)
```

Check column names

```
MariaDB [sales_analysis]> SHOW COLUMNS FROM online_sales;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| order_id      | int(11)       | NO   | PRI | NULL    |       |
| customer_name | varchar(100)  | YES  |     | NULL    |       |
| country       | varchar(50)   | YES  |     | NULL    |       |
| product_name  | varchar(100)  | YES  |     | NULL    |       |
| order_date    | date          | YES  |     | NULL    |       |
| amount        | decimal(10,2) | YES  |     | NULL    |       |
| quantity      | int(11)       | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
7 rows in set (0.059 sec)
```

Basic Monthly Revenue and Order Volume

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue
    -> FROM online_sales
    -> GROUP BY year, month
    -> ORDER BY year, month;
+------+-------+--------------+---------------+
| year | month | order_volume | total_revenue |
+------+-------+--------------+---------------+
| 2022 |     1 |          154 |     896105.00 |
| 2022 |     2 |          110 |     699377.00 |
| 2022 |     3 |          131 |     749483.00 |
| 2022 |     4 |          118 |     674051.00 |
| 2022 |     5 |          135 |     752892.00 |
| 2022 |     6 |          163 |     865144.00 |
| 2022 |     7 |          149 |     803425.00 |
| 2022 |     8 |          134 |     743148.00 |
+------+-------+--------------+---------------+
8 rows in set (0.004 sec)
```

Monthly Revenue with Average Order Value

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue,
    ->     ROUND(AVG(amount), 2) AS avg_order_value
    -> FROM online_sales
    -> GROUP BY year, month
    -> ORDER BY year, month;
+------+-------+--------------+---------------+-----------------+
| year | month | order_volume | total_revenue | avg_order_value |
+------+-------+--------------+---------------+-----------------+
| 2022 |     1 |          154 |     896105.00 |         5818.86 |
| 2022 |     2 |          110 |     699377.00 |         6357.97 |
| 2022 |     3 |          131 |     749483.00 |         5721.24 |
| 2022 |     4 |          118 |     674051.00 |         5712.30 |
| 2022 |     5 |          135 |     752892.00 |         5576.98 |
| 2022 |     6 |          163 |     865144.00 |         5307.63 |
| 2022 |     7 |          149 |     803425.00 |         5392.11 |
| 2022 |     8 |          134 |     743148.00 |         5545.88 |
+------+-------+--------------+---------------+-----------------+
8 rows in set (0.004 sec)
```

Quarterly Analysis

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     QUARTER(order_date) AS quarter,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue
    -> FROM online_sales
    -> GROUP BY year, quarter
    -> ORDER BY year, quarter;
+------+---------+--------------+---------------+
| year | quarter | order_volume | total_revenue |
+------+---------+--------------+---------------+
| 2022 |       1 |          395 |    2344965.00 |
| 2022 |       2 |          416 |    2292087.00 |
| 2022 |       3 |          283 |    1546573.00 |
+------+---------+--------------+---------------+
3 rows in set (0.004 sec)
```

Top 5 Revenue Months

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue
    -> FROM online_sales
    -> GROUP BY year, month
    -> ORDER BY total_revenue DESC
    -> LIMIT 5;
+------+-------+--------------+---------------+
| year | month | order_volume | total_revenue |
+------+-------+--------------+---------------+
| 2022 |     1 |          154 |     896105.00 |
| 2022 |     6 |          163 |     865144.00 |
| 2022 |     7 |          149 |     803425.00 |
| 2022 |     5 |          135 |     752892.00 |
| 2022 |     3 |          131 |     749483.00 |
+------+-------+--------------+---------------+
5 rows in set (0.005 sec)
```

Specific Time Period Analysis (2022 only)

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue
    -> FROM online_sales
    -> WHERE YEAR(order_date) = 2022
    -> GROUP BY year, month
    -> ORDER BY year, month;
+------+-------+--------------+---------------+
| year | month | order_volume | total_revenue |
+------+-------+--------------+---------------+
| 2022 |     1 |          154 |     896105.00 |
| 2022 |     2 |          110 |     699377.00 |
| 2022 |     3 |          131 |     749483.00 |
| 2022 |     4 |          118 |     674051.00 |
| 2022 |     5 |          135 |     752892.00 |
| 2022 |     6 |          163 |     865144.00 |
| 2022 |     7 |          149 |     803425.00 |
| 2022 |     8 |          134 |     743148.00 |
+------+-------+--------------+---------------+
8 rows in set (0.004 sec)
```

Monthly Product Sales Count

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     COUNT(DISTINCT product_name) AS unique_products,
    ->     SUM(amount) AS total_revenue
    -> FROM online_sales
    -> GROUP BY year, month
    -> ORDER BY year, month;
+------+-------+--------------+-----------------+---------------+
| year | month | order_volume | unique_products | total_revenue |
+------+-------+--------------+-----------------+---------------+
| 2022 |     1 |          154 |              22 |     896105.00 |
| 2022 |     2 |          110 |              22 |     699377.00 |
| 2022 |     3 |          131 |              22 |     749483.00 |
| 2022 |     4 |          118 |              22 |     674051.00 |
| 2022 |     5 |          135 |              22 |     752892.00 |
| 2022 |     6 |          163 |              22 |     865144.00 |
| 2022 |     7 |          149 |              22 |     803425.00 |
| 2022 |     8 |          134 |              22 |     743148.00 |
+------+-------+--------------+-----------------+---------------+
8 rows in set (0.006 sec)
```

Creating monthly_sales_results.csv

```
MariaDB [sales_analysis]> SELECT
    ->     EXTRACT(YEAR FROM order_date) AS year,
    ->     EXTRACT(MONTH FROM order_date) AS month,
    ->     COUNT(DISTINCT order_id) AS order_volume,
    ->     SUM(amount) AS total_revenue,
    ->     ROUND(AVG(amount), 2) AS avg_order_value
    -> FROM online_sales
    -> GROUP BY year, month
    -> ORDER BY year, month
    -> INTO OUTFILE 'C:/temp/monthly_sales_results.csv'
    -> FIELDS TERMINATED BY ','
    -> ENCLOSED BY '"'
    -> LINES TERMINATED BY '\n';
Query OK, 8 rows affected, 1 warning (0.005 sec)
```

monthly_sales_results.csv

C: > Temp > monthly_sales_results.csv

```
1  "2022","1","154","896105.00","5818.86"
2  "2022","2","110","699377.00","6357.97"
3  "2022","3","131","749483.00","5721.24"
4  "2022","4","118","674051.00","5712.30"
5  "2022","5","135","752892.00","5576.98"
6  "2022","6","163","865144.00","5307.63"
7  "2022","7","149","803425.00","5392.11"
8  "2022","8","134","743148.00","5545.88"
```

Overall stats

```
MariaDB [sales_analysis]> SELECT
    ->     COUNT(DISTINCT order_id) AS total_orders,
    ->     SUM(amount) AS total_revenue,
    ->     ROUND(AVG(amount), 2) AS avg_order_value,
    ->     MIN(order_date) AS first_order_date,
    ->     MAX(order_date) AS last_order_date
    -> FROM online_sales;
+--------------+---------------+-----------------+-----------------+-----------------+
| total_orders | total_revenue | avg_order_value | first_order_date | last_order_date |
+--------------+---------------+-----------------+-----------------+-----------------+
|         1094 |    6183625.00 |         5652.31 | 2022-01-03       | 2022-08-31      |
+--------------+---------------+-----------------+-----------------+-----------------+
1 row in set (0.002 sec)
```