SQL Analysis Report

Supply Chain Optimization & Inventory Forecasting

1. 🧾 Total Orders Placed

Objective:
To determine the total number of orders placed in the system.

SQL Query & Output:

```
mysql> SELECT COUNT(*) AS Total_Orders FROM orders;
+--------------+
| Total_Orders |
+--------------+
|           30 |
+--------------+
1 row in set (0.00 sec)
```

2. 📅 Orders by Month

Objective:
To analyze the number of orders placed each month for trend identification.

SQL Query & Output:

```
mysql> SELECT DATE_FORMAT(order_date, '%Y-%m') AS Month, COUNT(*) AS
Orders_Count -> FROM orders -> GROUP BY Month -> ORDER BY Month;
+---------+--------------+
| Month | Orders_Count |
 +---------+--------------+
| 2024-01 | 30 |
+---------+--------------+
1 row in set (0.00 sec)
```

3. 📦 Most Ordered Product

Objective:
To identify which product has the highest total quantity ordered.

SQL Query & Output:

mysql> SELECT product_id, SUM(quantity_ordered) AS Total_Quantity -> FROM orders -> GROUP BY product_id -> ORDER BY Total_Quantity DESC -> LIMIT 1;

+------------+----------------+

| product_id | Total_Quantity |

+------------+----------------+

| P004 | 833 |

+------------+----------------+

1 row in set (0.00 sec)

4. 🚚 Orders by Status

Objective:
To understand the distribution of order statuses (e.g., Delivered, Pending, Cancelled).

SQL Query & Output:

mysql> SELECT order_status, COUNT(*) AS Status_Count -> FROM orders -> GROUP BY order_status;

+--------------+--------------+

| order_status | Status_Count |

+--------------+--------------+

| Pending | 7 |

| Delivered | 16 |

| In Transit | 4 |

| Cancelled | 3 |

+--------------+--------------+

4 rows in set (0.00 sec)

5. 🏢 Supplier Performance

Objective:
To evaluate which supplier has fulfilled the most orders.

SQL Query & Output:

mysql> SELECT supplier_name, COUNT(*) AS Orders_Handled -> FROM orders -> WHERE order_status = 'Delivered' -> GROUP BY supplier_name -> ORDER BY Orders_Handled DESC;

+---------------+----------------+

| supplier_name | Orders_Handled |

+---------------+----------------+

| Supplier B | 7 |

| Supplier C | 5 |

| Supplier A | 4 |

+---------------+----------------+

3 rows in set (0.00 sec)

6. 📉 Cancelled Orders Summary

Objective:
To check how many orders were cancelled and by which suppliers.

SQL Query & Output:

mysql> SELECT supplier_name, COUNT(*) AS Cancelled_Orders -> FROM orders -> WHERE order_status = 'Cancelled' -> GROUP BY supplier_name;

+---------------+------------------+

| supplier_name | Cancelled_Orders |

+---------------+------------------+

| Supplier A | 1 |

| Supplier C | 1 |

| Supplier B | 1 |

+---------------+------------------+

3 rows in set (0.00 sec)

7. ⏱️ Average Delivery Time

Objective:
To calculate the average number of days between order date and expected delivery date.

SQL Query & Output:

```
mysql> SELECT ROUND(AVG(DATEDIFF(expected_delivery, order_date)), 2) AS
Avg_Delivery_Days -> FROM orders;

+-------------------+

| Avg_Delivery_Days |

+-------------------+

| 8.47 |

+-------------------+

1 row in set (0.01 sec)
```

8. 📊 Daily Order Trends

Objective:
To see how many orders were placed each day.

SQL Query & Output:

mysql> SELECT order_date, COUNT(*) AS Orders_Per_Day -> FROM orders -> GROUP BY order_date -> ORDER BY order_date;

+------------+----------------+

| order_date | Orders_Per_Day |

+------------+----------------+

| 2024-01-02 | 1 |

| 2024-01-03 | 2 |

| 2024-01-04 | 1 |

| 2024-01-05 | 2 |

| 2024-01-06 | 2 |

| 2024-01-07 | 2 |

| 2024-01-10 | 1 |

| 2024-01-11 | 2 |

| 2024-01-12 | 3 |

| 2024-01-16 | 1 |

| 2024-01-17 | 4 |

| 2024-01-19 | 1 |

| 2024-01-20 | 2 |

| 2024-01-22 | 2 |

| 2024-01-23 | 1 |

| 2024-01-25 | 3 |

+------------+----------------+

16 rows in set (0.00 sec)

9. 🔄 Reordered Products

Objective:
To find products that have been ordered more than once.

SQL Query & Output:

mysql> SELECT product_id, COUNT(*) AS Times_Ordered -> FROM orders -> GROUP BY product_id -> HAVING Times_Ordered > 1;

+------------+---------------+

| product_id | Times_Ordered |

+------------+---------------+

| P001 | 2 |

| P002 | 5 |

| P004 | 5 |

| P005 | 4 |

| P006 | 3 |

| P008 | 3 |

| P009 | 5 |

| P010 | 2 |

+------------+---------------+
8 rows in a set (0.00 sec)

10. 📍 Recent Pending Orders

Objective:
To list all recent orders that are still pending.

SQL Query & Output:

mysql> SELECT * -> FROM orders -> WHERE order_status = 'Pending' -> ORDER BY order_date DESC;

+----------+------------+--------------+------------+------------------+------------------+--------------+ | order_id | product_id | supplier_name | order_date | expected_delivery | quantity_ordered | order_status |

+----------+------------+--------------+------------+------------------+------------------+--------------+

| 5 | P009 | Supplier B | 2024-01-25 | 2024-02-01 | 183 | Pending |

| 9 | P009 | Supplier C | 2024-01-25 | 2024-02-07 | 170 | Pending |

| 23 | P010 | Supplier B | 2024-01-23 | 2024-02-05 | 172 | Pending |

| 1 | P009 | Supplier A | 2024-01-20 | 2024-01-26 | 192 | Pending |

| 21 | P008 | Supplier C | 2024-01-19 | 2024-01-23 | 102 | Pending |

| 13 | P002 | Supplier A | 2024-01-10 | 2024-01-24 | 108 | Pending |

| 28 | P006 | Supplier A | 2024-01-06 | 2024-01-11 | 197 | Pending |

+----------+------------+--------------+------------+------------------+------------------+--------------+
7 rows in a set (0.00 sec)

Summary

This SQL Analysis Report provides a structured and data-driven overview of the Inventory and Sales Management System. The purpose of this report is to uncover insights related to product orders, supplier performance, inventory flow, and sales trends, all extracted from a relational database using SQL.

Each section of the report includes a clear **title**, a brief **objective**, the corresponding **SQL query**, and a **result snapshot**. These analyses serve multiple purposes, such as:

- Understanding **overall order volume**
- Identifying **high-demand products**
- Tracking **supplier contributions**
- Monitoring **delivery timelines**
- Detecting **order status patterns**
- Supporting **inventory planning** and **decision-making**

By compiling these findings into a single, readable report, stakeholders and analysts can make informed business decisions, optimize operations, and enhance overall performance within the sales and inventory domain.

This report not only showcases proficiency in SQL and data analytics but also highlights the importance of structured reporting for practical, real-world business intelligence.