Logistics Dataset Analysis Using SQL- By Akash Kacha

DATASET OVERVIEW:

- The logistics company operates in both international and domestic sectors, managing costs and ensuring products meet customer requirements.
- It integrates suppliers, manufacturers, import/export activities, and functions across strategic, tactical, and operational levels.

Usability:

- The project enhances usability by streamlining logistics operations, optimizing resource allocation, and maintaining detailed records for efficient goods delivery.

Problem Statement:

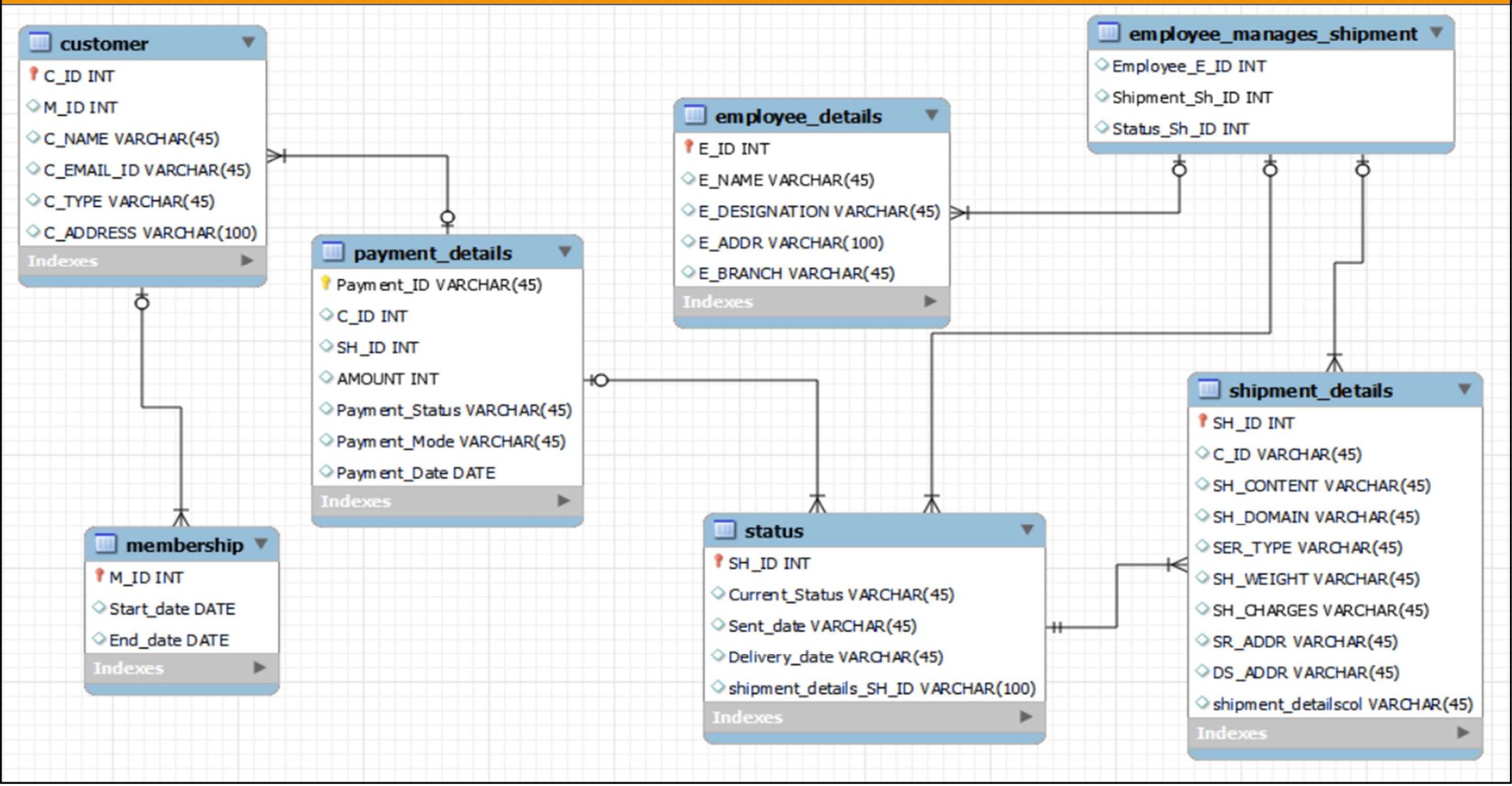
- The logistics company needs to optimize its operations to ensure efficient and cost-effective delivery of both tangible and intangible products to customers both domestically and internationally.

- This involves integrating suppliers, manufacturers, import/export activities, and various logistical facilities at strategic, tactical, and operational levels

Methodology:

- WE will use some basic MY SQL functions like Group by, Join, Where and some aggregate functions like Count, Max to find meaningful insights.

Database Schema:



1. Count the customer base based on customer type to identify current customer preferences and sort them in descending order.

```sql
SELECT
    C_TYPE AS customer_type, COUNT(*) AS customer_count
FROM
    customer
GROUP BY C_TYPE
ORDER BY customer_count DESC;
```

Insights:

- **Retail customer are the highest at 78.**
- **Retail customer account for 39.00% of total customer.**
- **Internal goods customer account for 34.00% of total customer.**
- **Wholesale customer account for 27.00% of total customer.**

2. Count the customer base based on their status of payment in descending order.

```sql
SELECT
    Payment_Status, COUNT(*) AS customer_count
FROM
    customer
        JOIN
    payment_details USING (C_ID)
GROUP BY Payment_Status
ORDER BY customer_count DESC;
```

Insights:

- **Payment status for Paid and not paid amount are equal.**
- **50.00% of payment status is paid**
- **50.00% of payment status is Not paid**

3. Count the customer base based on their payment mode in descending order of count.

```sql
SELECT
    Payment_Mode, COUNT(*) AS customer_count
FROM
    customer
        JOIN
    payment_details USING (C_ID)
GROUP BY Payment_Mode
ORDER BY customer_count DESC;
```

Insights:

- **106 people choose COD as payment method.**
- **COD method account for 53.00% of total payment count.**
- **Card payment method account for 47.00% of total payment count.**

4. Count the customers as per shipment domain in descending order.

```sql
SELECT
    SH_DOMAIN, COUNT(*) AS customer_count
FROM
    customer
        JOIN
    payment_details USING (C_ID)
        JOIN
    `status` USING (SH_ID)
        JOIN
    shipment_details USING (SH_ID)
GROUP BY SH_DOMAIN
ORDER BY customer_count DESC;
```

Insights:

- 109 customer has Domestic as shipping domain.
- Domestic shipping domain account for 54.50% of total shipping domain.
- International shipping domain account for 45.50% of total shipping domain.

5. Count the customer according to service type in descending order of count.

```
SELECT
    SER_TYPE as service_type, COUNT(*) AS customer_count
FROM
    customer
        JOIN
    payment_details USING (C_ID)
        JOIN
    `status` USING (SH_ID)
        JOIN
    shipment_details USING (SH_ID)
GROUP BY SER_TYPE
ORDER BY customer_count DESC;
```

Insights:

- **Express service has the highest service count at 102.**
- **Express service account for 51.00% of total no of service types.**
- **Regular service account for 49.00% of total no of service types.**

6. Explore employee count based on the designation-wise count of employees' IDs in descending order.

```sql
SELECT
    E_DESIGNATION, COUNT(E_ID) AS e_count
FROM
    employee_details
GROUP BY E_DESIGNATION
ORDER BY e_count DESC;
```

Insights:
Top 3 Departments

Department	Number of People	Percentage of Total
Delivery Boy	14	7.00%
Market analyst	11	5.50%
Chief finance officer	10	5.00%

7. Branch-wise count of employees for efficiency of deliveries in descending order.

```sql
SELECT
    E_BRANCH, COUNT(E_ID) AS e_count
FROM
    employee_details
GROUP BY E_BRANCH
ORDER BY e_count DESC;
```

Insights:
Top 5 Branch's

Branch	Employees	Percentage
TX	14	7.00%
NY	13	6.50%
IL	12	6.00%
OH	11	5.50%
CA	11	5.50%

8. Finding C_ID, M_ID, and tenure for those customers whose membership is over 10 years.

```sql
SELECT
    C_ID,
    M_ID,
    ROUND(DATEDIFF(End_date, Start_date) / 365, 2) AS tenure
FROM
    customer
        JOIN
    membership USING (M_ID)
HAVING tenure > 10;
```

Insights:

Membership Tenure	No_of_members
10-11.99	19
12-13.99	23
14-15.99	24
16-17.99	17
18-19.99	26
20-21.99	4
Grand Total	113

9. Considering average payment amount based on customer type having payment mode as COD in descending order.

```sql
SELECT
    C_TYPE, ROUND(AVG(AMOUNT), 2) AS avg_amount
FROM
    customer
        JOIN
    Payment_details USING (C_ID)
WHERE
    payment_Mode = 'COD'
GROUP BY C_TYPE
ORDER BY avg_amount DESC;
```

Insights:

Category	Aaverage payment amount
Retail	53,075.28
Internal Goods	47,515.36
Wholesale	46,144.04

10. Calculate the average payment amount based on payment mode where the payment date is not null.

```
SELECT
    payment_mode, ROUND(AVG(AMOUNT), 2) AS avg_amount
FROM
    customer
        JOIN
    Payment_details USING (C_ID)
WHERE
    payment_date IS NOT NULL
GROUP BY payment_mode
ORDER BY avg_amount DESC;
```

Insights:

payment mode	Average amount
COD	49578.86
CARD PAYMENT	45039.89

11. Calculate the average shipment weight for each shipment domain (International and Domestic).

```sql
SELECT
    SH_DOMAIN, ROUND(AVG(SH_WEIGHT), 2) AS avg_weight
FROM
    shipment_details
GROUP BY SH_DOMAIN;
```

Insights:

Shipping domain	Average weight
Domestic	535.28
International	506.13

12.Identify the shipment with the highest charges and the corresponding client's name.

```
SELECT
    C_NAME, SH_CHARGES AS highest_charges
FROM
    customer
        JOIN
    payment_details USING (C_ID)
        JOIN
    `status` USING (SH_ID)
        JOIN
    shipment_details USING (SH_ID)
WHERE
    SH_CHARGES = (SELECT
            MAX(SH_CHARGES)
        FROM
            shipment_details)
```

Insights:

- **Marie paid the highest charges 1486 for shipment**

- Thank you for your attention! Now, I would like to invite any questions or discussions you may have regarding the SQL project.
- Please feel free to ask about the methodology, data analysis process, key findings, or any other aspect of the project.
- Your insights and inquiries are valuable, and I'm eager to engage in an enriching discussion with you.
- Don't hesitate to share your thoughts, suggestions, or ideas related to the project. Your input is greatly appreciated!