

SQL QUERY REPORT

1. What is the revenue contribution of each shipping line to the overall FFC revenue?

Context:

The business requires us to establish relationships with several shipping lines so that we have options to ship consignments of different customers to the required destination port, optimizing the cost and profitability. A shipping line can vary in size, cost and ports at which they conduct operations.

Business Need:

FFC wants to track the commission (gross revenue) generated from each shipping line.

SQL query:

The query lists down the commission generated from different shipping lines and orders it in the descending order.

```
SELECT SHIPPING_LINE.LINER_NAME, SUM(DISTINCT
SHIPPING_LINE.COMMISSION_PCT*BILL_OF_LADING.OCEAN_FREIGHT) AS
COMMISSION

FROM SHIPPING_LINE INNER JOIN CONSIGNMENT

ON SHIPPING_LINE.LINER_ID=CONSIGNMENT.LINER_ID

INNER JOIN CONTAINER

ON CONSIGNMENT.CONSIGNMENT_ID=CONTAINER.CONSIGNMENT_ID

INNER JOIN BILL_OF_LADING

ON BILL_OF_LADING.BL_ID=CONTAINER.BL_ID

GROUP BY SHIPPING_LINE.LINER_NAME

ORDER BY COMMISSION DESC;
```

Business rationale to run this query:

For FFC to ensure and increase profitability, it's important that FFC monitors the revenue generated through each shipping line. When there are multiple choices available, FFC would prefer routing the referral to the shipping line that generates the most revenue for them.

Stakeholders:

The FFC owner is the primary beneficiary of the increase in revenue generated due to business decisions taken by running this query. The FFC's customer service executives appraisal will be positively impacted as their performance is dependent on their ability to generate revenues for FFC.

KPI/Business Metric:

Primary KPI that can be monitored through this query

- Revenue Growth Month on Month
- Revenue contribution per shipping line

Secondary KPIs that can be tracked

- Cost of doing business with each shipping line

Assumption & Key Considerations:

- This query along with time taken to close the lead per shipping line can provide a better estimate of profitability per shipping line.
 - **Assumption:** The time taken by the FFC resource to close the query can be attributed to the direct cost of resource allocated in negotiating quotes with that shipping line. This will give a true picture of the profitability per shipping line.

Frequency to run the query:

Monthly

- After the revenue is booked on the last day of the month

Output of SQL query:

	LINER_NAME	COMMISSION
1	MSC	13860
2	APL	11700
3	MAERSK	3690
4	CMA	2700

2. Generate a report that shows the calculated revenue % earned by each category of cargo shipped.

Context:

The cargo being shipped can be categorized based on the type of product being shipped. Each category impacts overall profitability differently. Electronics for instance may require special packaging, frozen food may need special temperature conditions. These can lead to additional cost of shipping. Scrap on the other hand, may not require special (costly) shipping conditions. The cost will vary depending on the cargo being shipped.

Business Need:

FFC can benefit from targeting “low cost - high revenue” shipping customers. This insight can help FFC drive its marketing and customer acquisition strategy.

SQL query:

The query lists down revenue breakdown by cargo descriptions (Different categories of cargo shipped)

```
SELECT PACKING_LIST.CARGO_DESCRIPTION, (TO_CHAR(ROUND(SUM(DISTINCT
SHIPPING_LINE.COMMISSION_PCT*BILL_OF_LADING.OCEAN_FREIGHT)/31950*100,2))||
%) AS REVENUE_PCT

FROM SHIPPING_LINE INNER JOIN CONSIGNMENT

ON SHIPPING_LINE.LINER_ID=CONSIGNMENT.LINER_ID

INNER JOIN CONTAINER

ON CONSIGNMENT.CONSIGNMENT_ID=CONTAINER.CONSIGNMENT_ID

INNER JOIN BILL_OF_LADING

ON BILL_OF_LADING.BL_ID=CONTAINER.BL_ID

INNER JOIN PACKING_LIST

ON PACKING_LIST.BL_ID= BILL_OF_LADING.BL_ID

GROUP BY PACKING_LIST.CARGO_DESCRIPTION

ORDER BY REVENUE_PCT DESC;
```

Business rationale to run this query:

For FFC to increase profitability based on the cargo type, this query can provide insights in identifying customers and target industries with *relaxed* shipping requirements. Most profitable customers can be given additional preference or services.

Stakeholders:

The FFC owner is the primary beneficiary of the increase in profit generated by the business decisions taken by analyzing the results of this query.

KPI/Business Metric:

Primary KPI that can be monitored through this query

- Revenue percentage contribution per cargo type
- Category-wise revenue growth

Secondary KPIs that can be tracked

- Customer wise profitability

Assumption & Key Considerations:

- The query along with cost components can be utilized to track which are the most profitable cargo types.
 - **Assumption:** The cost of shipping different types of cargo vary and may have special packaging needs, temperature conditions or may need to be shipped in a specific timeline to prevent it from expiry.

Frequency to run the query:

Monthly

- After the revenue is booked on the last day of the month

Output of SQL query:

	◇ CARGO_DESCRIPTION ◇	◇ REVENUE_PCT ◇
1	DRY FOOD	40.55%
2	ELECTRONICS	27.45%
3	MACHINERY	19.66%
4	TEXTILE	12.35%

3. Generate a report that shows the conversion rate per customer based on the number of inquiries (cases) converted into successful shipments.

Context:

Each inquiry made by the customer is stored in the database as a case. Based on the process that follows from logging the case to finalizing, the case is updated in the database as success, closed or open. 'Success' refers to the cases which are successfully shipped by the shipping line.

Business Need:

The customer requirements can be challenging and difficult to fulfill. Only a few customers get converted. Knowing before-hand the likelihood of a customer to convert can help FFC align business resources accordingly. FFC can look at historical conversion rates of customers from different industries and have an aggregated estimate of the leads from a given industry. For e.g. ~42% of customer queries from the Fashion industry (Gucci and Louis Vitton) are converted by FFC. This data can then be used by FFC to estimate the likelihood of a new lead to convert.

SQL query:

The query lists down conversion rate through each customer

```
SELECT CUSTOMER.CUSTOMER_NAME,  
  
TO_CHAR(ROUND(SUM(CASE WHEN CASES.CASE_STATUS='SUCCESS' THEN 1 ELSE 0  
END)/COUNT(CASES.CASE_ID)*100,2))||'%'  
  
AS CONVERSION_RATE  
  
FROM CASES  
  
INNER JOIN CUSTOMER  
  
ON CASES.CUSTOMER_ID=CUSTOMER.CUSTOMER_ID  
  
GROUP BY CUSTOMER.CUSTOMER_NAME  
  
ORDER BY CONVERSION_RATE DESC;
```

Business rationale to run this query:

For FFC to increase profitability based on the customer, we would want to group our customers into segments based on the type of industry. We would then take the conversion rate into account to analyze which customers are likely to convert. More focus can be then given to certain industry segments for customer retention and acquiring new customers.

Stakeholders:

Customer Sales Executive (CSE) is the primary beneficiary of this insight. CSE is the point of contact for customers and can benefit from the industry wise conversion rate. The CSE can leverage this information when stating quotes and building proposals for the customers. Different segments of industries can have varied requirements which can be further analyzed by the sales executive during initial communication with the customer.

KPI/Business Metric:

Primary KPI that can be monitored through this query

- Conversion percentage per customer segment (industry type) based on the total cases

Assumption & Key Considerations:

- The query along with customer segmentation can be utilized to track customers from which specific industries are likely to convert. For instance, if the aggregate conversion rate of e-commerce industries is good, we are likely to convert customers with similar businesses.

Frequency to run the query:

Monthly

- After the new cases have been logged for the next month.

Output of SQL query:

	CUSTOMER_NAME	CONVERSION_RATE
1	GUCCI	50%
2	GE	50%
3	NYKAA	50%
4	AMAZON	40%
5	LOUIS VUITTON	33.33%
6	TESLA	33.33%
7	FERRARI	25%
8	TARGET	100%
9	MICROSOFT	0%
10	WALMART	0%

4. **Generate a report that shows the volume (in cubic meters) of the cargo that is shipped from each Port of Loading.**

Context:

High volume cargo being shipped from the port of loading can be of business interest with respect to connectivity, geographical location, etc. However, this could also impact the cost of shipping from that port. The shipping lines that we contact may have longer term contracts with certain ports of loading which can be a deciding factor for connecting customers to shipping lines.

Business Need:

The role of the customer service executives will require them to optimize customer shipping cost for certain customers and connect them to the right shipping lines. With the information of handling capacity and average shipping time from the ports, we can shortlist shipping lines for the customer based on the port of loading.

SQL query:

```
SELECT VESSEL.PORT_OF_DISCHARGE,  
  
SUM(CASE WHEN CONTAINER.CONTAINER_TYPE='20FT' THEN 1 ELSE 0 END)  
NO_OF_20FT_CONTAINERS ,  
  
SUM(CASE WHEN CONTAINER.CONTAINER_TYPE='40FT' THEN 1 ELSE 0 END)  
NO_OF_40FT_CONTAINERS  
  
FROM VESSEL  
  
INNER JOIN CONTAINER  
  
ON CONTAINER.VESSEL_ID = VESSEL.VESSEL_ID  
  
GROUP BY VESSEL.PORT_OF_DISCHARGE;
```

Business rationale to run this query:

For FFC to identify ports of loading for specific customers, this query can provide insights to which port will have greater profitability for the business by combining high volume port to cost of shipping through that port. Busy ports may take more time to ship which can also be one of the factors in deciding which port accounts for the required time to ship. To optimize the cost and time for customers, FFC can keep track of “low volume - low cost” ports for customers with budget and time constraints. Shipping lines may operate only from specific ports which may require the business to categorize them based on ports they operate with.

Stakeholders:

Customer Operation Executive can leverage this insight by prioritizing touch points with the shipping line.

KPI/Business Metric:

Primary KPI that can be monitored through this query

- Monthly shipping capacity per port

Deduced KPI that can be monitored through this query

- Business lost due to delay in shipping through busy ports. This would require additional information logging of fields that are currently not part of the current database.

Assumption & Key Considerations:

- The query along with cost can help in optimizing cost and time for different customers.
- To determine if new customers can be allotted a particular port given the capacity in volume. A customer may require us to ship high volume cargo but it may not align with the port capacity at the moment.
 - **Assumption:**
 - High volume ports can be identified as busy ports impacting the time it takes to ship the cargo.
 - Ports with low capacity may only be delegated to customers which ship low volume goods.

Frequency to run the query:

Monthly

- Determine the high capacity ports to assign customers with big shipments to those ports during the initial month.

Output of SQL query:

	PORT_OF_LOADING	TOTAL_VOLUME_IN_CBM
1	Mumbai	583
2	Le Havre	531
3	Rotterdam	507
4	Genova	440

5. Generate a report that shows the number of each type of container that has reached a particular Port of Discharge.

Context:

Each container in the database has a specific port of loading (source location) and port of discharge (destination location) associated with it. Different types of containers (for example, 40ft, 20ft) are used depending on the nature, weight and volume of the cargo. The containers that reach a particular port of discharge are destuffed and the empty containers are stored in the container yard.

Business Need:

The customer operations executive has to negotiate with the shipping line to offer the best freight rates to the customer. If the customer service executive can find ports where there is a container imbalance (huge excess) , the freight forwarder could negotiate with the shipping line for better freight rates since it is also the need of the shipping line to ship out the empty containers in excess.

SQL query:

```
SELECT VESSEL.PORT_OF_DISCHARGE,  
  
SUM(CASE WHEN CONTAINER.CONTAINER_TYPE='20FT' THEN 1 ELSE 0 END)  
NO_OF_20FT_CONTAINERS ,  
  
SUM(CASE WHEN CONTAINER.CONTAINER_TYPE='40FT' THEN 1 ELSE 0 END)  
NO_OF_40FT_CONTAINERS  
  
FROM VESSEL  
  
INNER JOIN CONTAINER  
  
ON CONTAINER.VESSEL_ID = VESSEL.VESSEL_ID  
  
GROUP BY VESSEL.PORT_OF_DISCHARGE;
```

Business rationale to run this query:

There are situations where certain types of containers are available in excess at certain ports. If there is a huge excess of containers and not enough cargo to be shipped out of a particular port, the empty containers have to be sent to other ports where there is a requirement of containers and where there is enough cargo to be loaded. If we can identify where there is an excess of containers and if these empty containers are to be shipped to another location where there is cargo, we (freight forwarder) could use these containers for our consignments at much cheaper freight rates. If one of our customers has got cargo to be shipped out of that port where there is an excess of containers, there are chances that the shipping line might offer huge discounts on the freight rates. By identifying the ports where there is an imbalance, the freight forwarder would be able to generate higher profits and improve customer satisfaction by offering them discounted freight rates.

Stakeholders:

Customer Operations Executive can monitor this and team up with the customer service executive and can while quoting include discounts for the customers and at the same time increase the margins for the freight forwarder. This way the imbalance of the containers could be monetized.

KPI/Business Metric:

Primary KPI that can be monitored through this query :

- Containers available per port of discharge

Assumption & Key Considerations:

- The availability of containers vary from port to port
- The shipping lines suffer losses if the containers remain idle at one particular port

Frequency to run the query:

Weekly

- After every weekly feeder vessel has reached the final destination

Output of SQL query:

	PORT_OF_DISCHARGE	NO_OF_20FT_CONTAINERS	NO_OF_40FT_CONTAINERS
1	New York	9	9
2	Oakland	5	3
3	Los Angeles	3	2
4	Miami	6	8
5	Houston	1	3

