**SQL Ecommerce Case Study**

* **Problem statement**

**Identify the top 3 cities with the highest number of customers to determine**

**key markets for targeted marketing and logistic optimization.**

select location,count(customer\_id) as number\_of\_customers

from customers

group by location

order by count(customer\_id) desc

limit 3;

* **Enagement Depath Analysis**

**Problem statement**

**Determine the distribution of customers by the number of orders placed.**

**This insight will help in segmenting customers into one-time buyers,**

**occasional shoppers, and regular customers for tailored marketing strategies.**

select

NumberOfOrders,

count(customer\_id) as CustomerCount

from (

select count(order\_id) as NumberOfOrders ,customer\_id

from orders

group by customer\_id) abc

group by NumberOfOrders;

* **Purchase High-Value Products**

**Problem statement**

**Identify products where the average purchase quantity per order is 2**

**but with a high total revenue, suggesting premium product trends.**

select product\_id,

avg(quantity) as AvgQuantity,

SUM(quantity\*price\_per\_unit) as TotalRevenue

from OrderDetails

group by product\_id

Having AvgQuantity = 2

Order by AvgQuantity, TotalRevenue desc;

* **Category-wise Customer Reach**

**Problem statement**

**For each product category, calculate the unique number of customers purchasing from it.**

**This will help understand which categories have wider appeal across the customer base.**

select p.category,

count(DISTINCT o.customer\_id) as unique\_customers

from Products p

join OrderDetails ord

on p.Product\_id = ord.product\_id

join Orders o

on ord.order\_id = o. order\_id

group by p.category

order by unique\_customers desc;

* **Sales Trend Analysis**

**Problem statement**

**Analyze the month-on-month percentage change in total sales to identify growth trends.**

WITH cte as (

select \*,

ROUND((TotalSales -

lag(TotalSales) over (order by Month))/

lag(TotalSales)over(order by Month)\*100,2) as PercentChange

from

(select DATE\_FORMAT(order\_date,'%Y-%m') as Month ,

sum(total\_amount) as TotalSales

from Orders

group by 1)abc

)

* **Average Order Value Fluctuation**

**Problem statement**

**Examine how the average order value changes month-on-month.**

**Insights can guide pricing and promotional strategies to enhance order value.**

WITH CTE AS (

select \*,

ROUND((AvgOrderValue -

lag(AvgOrderValue) over(order by month)),2) as

ChangeInValue

from

(select

Date\_Format(Order\_date,'%Y-%m') as Month,

avg(total\_amount) as AvgOrderValue

from Orders

group by 1

)abc

order by ChangeInValue desc

)

select \* from CTE;

* **Inventory Refresh Rate**

**Problem statement**

**Based on sales data, identify products with the fastest turnover rates,**

**suggesting high demand and the need for frequent restocking.**

select product\_id,

Count(order\_id) as SalesFrequency

from OrderDetails

group by product\_id

order by SalesFrequency desc

limit 5;

**Low Enagement Products**

**Problem statement**

**List products purchased by less than 40% of the customer base,**

**indicating potential mismatches between inventory and customer interest.**

with cte as

(

select p.product\_id,p.name,count(distinct o.customer\_id)as uniqueCustomerCount

from products p join orderdetails od on od.product\_id=p.product\_id

join orders o on od.order\_id=o.order\_id

group by 1,2

),

total as(

select count(customer\_id)as total\_customers

from customers

),

cte2 as (

select p.product\_id,p.name,p.uniqueCustomerCount,

p.uniqueCustomerCount/t.total\_customers\*100 as per\_of\_cust\_base

from cte p join total t

)

select product\_id,name,uniqueCustomerCount

from cte2

where per\_of\_cust\_base<40;

* **Customer Acquisition Trends**

**Problem statement**

**Evaluate the month-on-month growth rate in the customer base to understand**

**the effectiveness**

**of marketing campaigns and market expansion efforts.**

select FirstPurchaseMonth,

count( distinct customer\_id) as TotalNewCustomers

from

(select

MIN(Date\_Format(order\_date,'%Y-%m'))

as FirstPurchaseMonth,

customer\_id

from Orders

group by customer\_id) abc

group by FirstPurchaseMonth

order by FirstPurchaseMonth;

* **Peak Sales Period Identification**

**Problem statement**

**Identify the months with the highest sales volume, aiding in planning for stock levels,**

**marketing efforts, and staffing in anticipation of peak demand periods.**

select

date\_format(order\_date,'%Y-%m') as Month,

sum(total\_amount)TotalSales

from Orders

group by Month

order by TotalSales desc

limit 3;