Sales Data Analysis

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Contents

Overview

- Utilizes **SQL** for real-time data analysis.
- Provides insights into **customer behavior**.
- Analyzes **sales performance**.
- Focuses on other key **business metrics**.

Business Challenge

Mission

To leverage SQL queries in extracting meaningful data insights, solving critical business challenges, and driving informed decision-making for optimized business performance.

Vision

To empower businesses with data-driven strategies by utilizing SQL as a key tool for uncovering actionable insights, enhancing operational efficiency, and fostering sustainable growth.

Our Goals

Querying Data:

Use SQL to retrieve and filter data from tables based on specific criteria.

Data Aggregation:

Apply SQL functions to summarize and aggregate data for insights (e.g., averages, totals).

Data Analysis:

Use SQL joins and subqueries to combine datasets and answer business questions effectively.

Key Performance Indicators (KPI's)

- Trends in customer purchase behavior.
- Sales performance across product categories.
- Regional revenue contributions.
- Customer segmentation and purchase frequency.
- Most popular products across demographics.

Calculate total sales and number of orders per product, category, and subcategory

```sql
select p.Category,p.subcategory,count(o.quantity) as total_QTY,
sum(o.totalordervalue) as total_sales
from orders o
left join products p
on o.ProductID=p.productid
group by p.Category,p.SubCategory;
```

Category	subcategory	total_QTY	total_sales
Electronics	Computers	2	450.00
Electronics	Mobile	1	200.00
Accessories	Audio	1	500.00
Electronics	Wearables	1	1000.00

Identify top-performing products by sales and quantity sold

```sql
select p.productname as Product, o.quantity as Total_QTY,
(o.quantity*o.totalordervalue) as Total_sales
from orders o
left join products p
on o.ProductID=p.productid
order by total_sales desc;
```

	Product	Total_QTY	Total_sales
▶	Smartwatch	10	10000.00
	Headphones	5	2500.00
	Laptop	3	450.00
	Smartphone	2	400.00
	Tablet	1	300.00

Analyze sales performance by region and sales channel

```sql
select concat(c.firstname," ",c.lastname) as Full_name, c.region as Region,
p.productname as Product, sum(o.quantity) as Total_QTY,sum(o.quantity*o.totalordervalue) as Total_sales
from customers c
left join orders o
on c.customerid=o.customerid
left join products p
on o.ProductID=p.productid
group by region, Full_name, product
order by total_sales desc;
```

Full_name	Region	Product	Total_QTY	Total_sales
Bob Lee	West	Smartwatch	10	10000.00
John Doe	North	Headphones	5	2500.00
John Doe	North	Laptop	3	450.00
Jane Smith	South	Smartphone	2	400.00
Alice Johnson	East	Tablet	1	300.00

Calculate total spend and number of orders per customer

```sql
select c.CustomerID, concat(c.firstname," ",c.lastname) as Full_name,
sum(o.quantity) as NO_of_Orders,sum(o.totalordervalue) as Total_Spends
from customers c
left join orders o
on c.customerid=o.customerid
left join products p
on o.ProductID=p.productid
group by c.CustomerID
order by total_spends desc;
```

CustomerID	Full_name	NO_of_Orders	Total_Spends
C004	Bob Lee	10	1000.00
C001	John Doe	8	650.00
C003	Alice Johnson	1	300.00
C002	Jane Smith	2	200.00

Identify high-value customers

```
select c.CustomerID, concat(c.firstname," ",c.lastname) as Full_name,
sum(o.quantity) as NO_of_Orders, sum(totalordervalue) as Total_Spends
from customers c left join orders o on c.customerid=o.customerid
left join products p on o.ProductID=p.productid
group by c.CustomerID
order by total_spends desc limit 2;
```

CustomerID	Full_name	NO_of_Orders	Total_Spends
C004	Bob Lee	10	1000.00
C001	John Doe	8	650.00

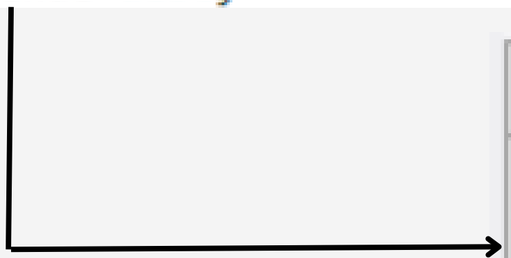
Segment customers by region, frequency of purchase, and average order value

```sql
select c.CustomerID , c.region, count(o.orderid) as Order_freq,
round(avg(totalordervalue),2) as Avg_Order_value
from customers c
left join orders o
on c.customerid=o.customerid
group by c.CustomerID, c.region
order by Order_freq desc;
```

CustomerID	region	Order_freq	Avg_Order_value
C001	North	2	325.00
C002	South	1	200.00
C003	East	1	300.00
C004	West	1	1000.00

Analyze monthly or quarterly sales trends for each product category

```sql
select o.productid as Product_ID, date_format(o.orderdate, '%m-%y') as Order_Month,
Sum(o.totalordervalue) as Monthly_Revenue
from orders o
group by o.productid, Order_Month
order by Monthly_Revenue desc;
```



Product_ID	Order_Month	Monthly_Revenue
P005	01-24	1000.00
P004	01-24	500.00
P003	01-24	300.00
P002	01-24	200.00
P001	01-24	150.00

Calculate the current stock levels for each product

```sql
select i.productid as Product_ID ,p.productname as Product_name,
i.stocklevel-sum(o.quantity) as Current_stock
from inventory i
left join orders o on i.ProductID=o.ProductID
left join products p on i.ProductID=p.ProductID
group by i.ProductID,p.ProductName
order by i.ProductID;
```

Product_ID	Product_name	Current_stock
P001	Laptop	17
P002	Smartphone	8
P003	P002	14
P004	Headphones	0
P005	Smartwatch	15

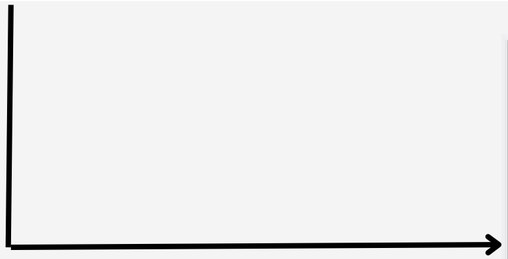
Identify products that are frequently out of stock

```sql
select i.productid as Product_ID ,p.productname as Product_name, count(*) as Out_of_stock
from inventory i
left join orders o on i.ProductID=o.ProductID
left join products p on i.ProductID=p.ProductID
where i.StockLevel<=o.Quantity
group by i.ProductID,p.ProductName
order by i.ProductID;
```

	Product_ID	Product_name	Out_of_stock
▶	P004	Headphones	1

Calculate inventory turnover rate for each product category

```sql
select i.productid as Product_ID ,p.productname as Product_name,
round(sum(o.TotalOrderValue)/avg(i.StockLevel),2) as Inventory_Turnover_Rate
from inventory i
left join orders o on i.ProductID=o.ProductID
left join products p on i.ProductID=p.ProductID
group by i.ProductID,p.ProductName
order by i.ProductID;
```



Product_ID	Product_name	Inventory_Turnover_Rate
P001	Laptop	7.50
P002	Smartphone	20.00
P003	Tablet	20.00
P004	Headphones	100.00
P005	Smartwatch	40.00

Insights

1

Customer purchase behavior is seasonal

2

Certain product categories outperform others in specific regions

3

High revenue concentration in key regions

4

Customer segmentation helps target high-value customers

Final thoughts

- **Data Extraction:** SQL enables the extraction of relevant business data from databases.
- **Real-Time Analysis:** It supports real-time data analysis for immediate insights.
- **Performance Metrics:** SQL helps track and optimize business performance metrics.
- **Informed Decisions:** Provides actionable insights for data-driven decision-making.
- **Efficiency:** Streamlines data querying and reporting processes for better efficiency.

Thank You!

Connect with me.

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