SQL(STRUCTURE QUERY LANGUAGE)

PROJECT TITLE:-

Superstore Sales Analytics

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STRUCTURED QUERY LANGUAGE

- Structured query language is a programming language used to manage and manipulate the database.
- It allows you to create ,update ,insert and delete the data in the data base.
- If we have to communicate with our MYSQL database, we have to use SQL.
- MY SQL is an open-source relational database management system(RDBMS) that is widely used for managing and organizing data in various applications.
- It is used in web development , stand around and client server applications.

SAMPLE SUPER STORE SALES

- The Sample Superstore dataset provides a comprehensive view of retail sales operations, capturing various aspects of transactions, customer interactions, and product performance. This data is structured to reveal insights across multiple dimensions such as **Sales**, **Profit**, **Customer Segments**, **Product Categories**, **Shipping Modes**, and Geographic Regions. Each entry represents a single transaction, making it possible to analyze patterns in purchasing behavior, profitability, and distribution.

- This project aims to analyze and interpret key performance indicators for the superstore, identifying trends and opportunities to improve operations. Through SQL-based queries and data analysis, we delve into questions around **regional performance**, **sales trends**, **discount impacts**, and **profitability by product type**. The goal is to derive actionable insights that can support strategic decision-making, optimize sales tactics, and enhance overall customer satisfaction.

- By the end of this project, we provide a clear picture of the store's operational efficiency, highlighting areas where data-driven improvements can be made. The findings will be valuable for understanding not only the superstore's current standing but also potential pathways for growth and innovation in retail operations.

Projection: Retrieve the City, State, and Quantity for all entries in the dataset.

```
SELECT
    City, State, Quantity
FROM
    samplesuperstore;
```

RESULT:-

City	State	Quantity
Henderson	Kentucky	2
Henderson	Kentucky	3
Los Angeles	California	2
Fort Lauderdale	Florida	5
Fort Lauderdale	Florida	2
Los Angeles	California	7
Los Angeles	California	4
Los Angeles	California	6
Los Angeles	California	3
Los Angeles	California	5

Selection : Show Segment, Category, and Profit for records where the profit is below 20.

```
SELECT
    Segment, Category, profit
FROM
    samplesuperstore
WHERE
    profit < 20;
```

RESULT:-

Segment	Category	profit
Corporate	Office Supplies	6.8714
Consumer	Furniture	-383.031
Consumer	Office Supplies	2.5164
Consumer	Furniture	14.1694
Consumer	Office Supplies	1.9656
Consumer	Office Supplies	5.7825
Consumer	Office Supplies	5.4432
Home Office	Office Supplies	-123.858

Distinct Values for Multiple Columns: Display unique combinations of Category and Region.

```
SELECT DISTINCT
    Category, Region
FROM
    samplesuperstore;
```

RESULT:-

Category	Region
Furniture	South
Office Supplies	West
Office Supplies	South
Furniture	West
Technology	West
Office Supplies	Central
Furniture	East
Office Supplies	East
Technology	Central
Furniture	Central
Technology	East
Technology	South

Aggregation with SUM and GROUP BY: Display the total Sales and Profit for each State.

```
  SELECT
    SUM(Sales) AS Total_Sales, SUM(profit) AS Profit, state
FROM
    samplesuperstore
GROUP BY state;
```

RESULT:-

Total_Sales	Profit	state
36591.74999999997	11199.696600000005	Kentucky
457687.631500001	76381.38710000017	California
89473.708	-3399.3017	Florida
55603.16399999997	-7490.912200000003	North Carolina
138641.26999999993	33402.651699999995	Washington
170188.04580000002	-25729.3563	Texas
32114.61000000002	8401.800399999998	Wisconsin
11220.055999999999	2546.5335000000005	Utah
7464.9299999999985	2037.0942000000007	Nebraska
116511.91400000003	-15559.960300000013	Pennsylvania
80166.10099999986	-12607.88699999998	Illinois
29863.149999999994	10823.1874	Minnesota

Range Filtering with BETWEEN: List the Sub-Category and Discount for records with discounts between 0.05 and 0.20.

```
SELECT
    `Sub-Category`, discount
FROM
    samplesuperstore
WHERE
    discount BETWEEN 0.05 AND 0.20;
```

RESULT:-

Sub-Category	discount
Storage	0.2
Phones	0.2
Binders	0.2
Tables	0.2
Phones	0.2
Paper	0.2
Binders	0.2
Phones	0.2
Binders	0.2
Binders	0.2
Furnishings	0.2
Envelopes	0.2

ORDER BY : Show City, Sales, and Profit, sorting Profit in descending order where Sales are over 2000.

```
SELECT
    city, sales, profit
FROM
    samplesuperstore
WHERE
    sales > 2000
ORDER BY profit DESC;
```

RESULT:-

city	sales	profit
Lafayette	17499.95	8399.976
Seattle	13999.96	6719.9808
Newark	10499.97	5039.9856
Detroit	9892.74	4946.37
Minneapolis	9449.95	4630.4755
New York City	11199.968	3919.9888
Atlanta	6354.95	3177.475
Arlington	8749.95	2799.984
Providence	5399.91	2591.9568
Jackson	5443.96	2504.2216
Yonkers	4899.93	2400.9657
Lakewood	9099.93	2365.9818

HAVING Clause: Show the total Profit and Quantity for each State where total Profit exceeds 5000.

```
SELECT
    SUM(profit) AS Total_Profit,
    SUM(quantity) AS Total_Quantity,
    state
FROM
    samplesuperstore
GROUP BY state
HAVING SUM(profit) > 5000;
```

RESULT:-

Total_Profit	Total_Quantity	state
11199.696600000005	523	Kentucky
76381.38710000017	7667	California
33402.651699999995	1883	Washington
8401.800399999998	463	Wisconsin
10823.1874	331	Minnesota
24463.187599999994	946	Michigan
9977.374800000001	367	Delaware
18382.936300000005	578	Indiana
74038.54860000005	4224	New York
18597.9504	893	Virginia
5786.825299999999	256	Alabama
6436.210499999999	252	Missouri

LIKE Operator : Display columns where the City name contains "ville"

```sql
SELECT DISTINCT
    City
FROM
    samplesuperstore
WHERE
    city LIKE '%ville%';
```

RESULT:-

City
Naperville
Roseville
Lakeville
Belleville
Louisville
Jacksonville
Huntsville
Fayetteville
Marysville
Asheville
Brownsville
Rockville

Combining OR and AND Operators: Show Region, Category, and Quantity where the Quantity is either 3 or 7, and Profit is greater than 50.

```
SELECT
    Region, Category, Quantity
FROM
    samplesuperstore
WHERE
   quantity = 3 OR  quantity = 7 AND profit > 50;
```

RESULT:-

Region	Category	Quantity
South	Furniture	3
West	Office Supplies	3
South	Office Supplies	3
West	Office Supplies	3
Central	Office Supplies	3
West	Technology	3
West	Furniture	3
West	Technology	3
East	Furniture	3
Central	Office Supplies	3
Central	Technology	7
Central	Furniture	3

Subquery with Comparison: Retrieve the Segment and Sales for records where Sales are greater than the average Sales in the West region.

```
    SELECT
    Segment, Sales
FROM
    samplesuperstore
WHERE
    sales > (SELECT
            AVG(sales)
        FROM
            samplesuperstore
        WHERE
            region = 'west');
```

RESULT:-

Segment	Sales
Consumer	665.88
Consumer	1044.63
Consumer	3083.43
Corporate	1097.544
Home Office	532.3992
Home Office	371.168
Corporate	1029.95
Consumer	319.41
Corporate	1113.024
Consumer	831.936
Home Office	230.376
Consumer	301.96

IN Operator : Display Segment and Profit for entries where the State is either "Texas" or "California."

```
SELECT
    Segment, Profit
FROM
    samplesuperstore
WHERE
    State IN ('Texas' , 'California');
```

RESULT:-

Segment	Profit
Corporate	6.8714
Consumer	14.1694
Consumer	1.9656
Consumer	90.7152
Consumer	5.7825
Consumer	34.47
Consumer	85.3092
Consumer	68.3568
Home Office	-123.858
Home Office	-3.816
Consumer	2.4824
Consumer	16.011

Subquery: Show City and Sales where Sales are greater than the average sales of all cities.

```
SELECT
    City, Sales
FROM
    samplesuperstore
WHERE
    Sales > (SELECT
            AVG(Sales)
        FROM
            samplesuperstore);
```

RESULT:-

City	Sales
Henderson	261.96
Henderson	731.94
Fort Lauderdale	957.5775
Los Angeles	907.152
Los Angeles	1706.184
Los Angeles	911.424
Seattle	407.976
Madison	665.88
Orem	1044.63
Philadelphia	3083.43
Richardson	1097.544
Houston	532.3992

Display the top 3 cities with the highest total Profit in each Region.

```sql
SELECT
    City, SUM(profit) AS Total_Profit, Region
FROM
    samplesuperstore
GROUP BY City , Region
ORDER BY Region , Total_Profit DESC
LIMIT 3;
```

RESULT:-

City	Total_Profit	Region
Detroit	13181.790800000002	Central
Lafayette	8976.097300000001	Central
Minneapolis	6824.584599999999	Central

Display states where the average Sales is higher than the overall average sales across all states.

```sql
SELECT
    State, ROUND(AVG(Sales), 2) AS Average_Sales
FROM
    SampleSuperstore
GROUP BY State
HAVING AVG(Sales) > (SELECT
        AVG(Sales)
    FROM
        SampleSuperstore);
```

RESULT:-

State	Average_Sales
Kentucky	263.25
Florida	233.61
Washington	273.99
Wisconsin	291.95
Minnesota	335.54
Michigan	299.1
Delaware	285.95
Indiana	359.43
New York	275.6
Virginia	315.34
Alabama	319.85
Missouri	336.44

Display the top 5 states by profit within each region, but only for those with at least 5000 in total sales.

```sql
SELECT
    Region,
    State,
    ROUND(SUM(Profit), 2) AS Total_Profit,
    ROUND(SUM(Sales), 2) AS Total_Sales
FROM
    SampleSuperstore
GROUP BY Region , State
HAVING Total_Sales >= 5000
ORDER BY Region , Total_Profit DESC
LIMIT 5;
```

RESULT:-

Region	State	Total_Profit	Total_Sales
Central	Michigan	24463.19	76269.61
Central	Indiana	18382.94	53555.36
Central	Minnesota	10823.19	29863.15
Central	Wisconsin	8401.8	32114.61
Central	Missouri	6436.21	22205.15

THANK YOU