FINANCIAL PERFORMANCE DASHBOARD

Tools used in building the Project:

1. Excel
2. SQL Server
3. Power BI

Objective of the Project:

Analyse financial performance across different countries, products, and time periods, using key financial metrics such as sales, profit, cost of goods sold (COGS), and discounts.

Dataset Overview:

The dataset includes the following columns:

- **Segment**: Represents the specific market segment or customer group that the sales are attributed to.
- **Country**: The country where the sales activity occurred or where the product was sold.
- **Product**: The name or identifier of the product being analysed.
- **Discount Band**: Indicates the discount category applied to the product.
- **Units Sold**: The total number of units sold.
- **Manufacturing Price**: The cost per unit incurred to manufacture the product.
- **Sale Price**: The price per unit at which the product is sold to customers.
- **Gross Sales**: The total revenue generated from sales before any deductions.
- **Discounts**: The total monetary value of discounts applied.
- **Sales**: The net sales revenue after deducting discounts from gross sales.
- **COGS (Cost of Goods Sold)**: The total cost of producing or acquiring the products sold.
- **Profit**: The financial gain after subtracting COGS from net sales.
- **Date**: The specific date of the sales transaction or record.
- **Month Number**: The numeric representation of the month (e.g., 1 for January, 2 for February).
- **Month Name**: The full name of the month.
- **Year**: The year in which the sales transaction occurred.

Steps involved in building the Project:

1. Study the dataset visually in Excel.
2. Remove the dollar sign '$' from the column values and remove the decimal part of the units-sold column.
3. Upon visual inspection it was found that the discount column had some null records.
4. Import the dataset in SQL Server Management Studio.
5. Verify the data imported.
   SQL Query:
   SELECT * FROM Finance;
6. Clean the Data and prepare for export to Power BI
    1. **CHECKING FOR NULL VALUES IN EACH OF THE COLUMNS**
       SQL QUERY:

```
SELECT
  COUNT(*) AS Total_Rows,
  SUM(CASE WHEN Segment IS NULL THEN 1 ELSE 0 END) AS
Null_Segment,
  SUM(CASE WHEN Country IS NULL THEN 1 ELSE 0 END) AS
Null_Country,
  SUM(CASE WHEN Product IS NULL THEN 1 ELSE 0 END) AS
Null_Product,
  SUM(CASE WHEN Discount_Band IS NULL THEN 1 ELSE 0 END) AS
Null_Discount_Band,
  SUM(CASE WHEN Units_Sold IS NULL THEN 1 ELSE 0 END) AS
Null_Units_Sold,
  SUM(CASE WHEN Manufacturing_Price IS NULL THEN 1 ELSE 0 END)
AS Null_Manufacturing_Price,
  SUM(CASE WHEN Sale_Price IS NULL THEN 1 ELSE 0 END) AS
Null_Sale_Price,
  SUM(CASE WHEN Gross_Sales IS NULL THEN 1 ELSE 0 END) AS
Null_Gross_Sales,
  SUM(CASE WHEN Discounts IS NULL THEN 1 ELSE 0 END) AS
Null_Discounts,
  SUM(CASE WHEN Sales IS NULL THEN 1 ELSE 0 END) AS Null_Sales,
  SUM(CASE WHEN COGS IS NULL THEN 1 ELSE 0 END) AS Null_COGS,
  SUM(CASE WHEN Profit IS NULL THEN 1 ELSE 0 END) AS Null_Profit,
  SUM(CASE WHEN Date IS NULL THEN 1 ELSE 0 END) AS Null_Date,
  SUM(CASE WHEN Month_Number IS NULL THEN 1 ELSE 0 END) AS
Null_Month_Number,
  SUM(CASE WHEN Month_Name IS NULL THEN 1 ELSE 0 END) AS
Null_Month_Name,
```

```
    SUM(CASE WHEN Year IS NULL THEN 1 ELSE 0 END) AS Null_Year
FROM Finance;
```

Result: Discounts had 53 null values and profit had 5 null values.

7. Check the table for those null values:

SQL Query

```
SELECT * FROM Finance
WHERE Discounts IS NULL;

SELECT * FROM Finance
    WHERE Profit IS NULL;
```

Result: The gross sales and sales were equal for null discount values which meant Zero discount and the sales and COGS were equal for null profit values which meant Zero profit.

8. Update the Null Values as Zero:

SQL Query:

```
UPDATE Finance
SET Discounts = 0
Where Discounts IS NULL;

UPDATE Finance
SET Profit = 0
Where Profit IS NULL;
```

9. Check for Duplicate Rows:

SQL Query:

```
WITH DuplicateCheck AS (
  SELECT
    *,
    ROW_NUMBER() OVER (PARTITION BY Segment, Country, Product,
Discount_Band, Units_Sold,
                Manufacturing_Price, Sale_Price, Gross_Sales, Discounts, Sales,
                COGS, Profit, Date, Month_Number, Month_Name, Year
                ORDER BY (SELECT NULL)) AS RowNum
  FROM Finance
)
SELECT *
FROM DuplicateCheck
```

```
WHERE RowNum > 1;
```

Result: No Duplicate Rows found.

10. Import the dataset to Power BI.
11. Build the following measures required for the project.

DAX Queries of the measures:

1. Avg Sale Price = DIVIDE([Revenue],[Units Sold])
2. COGS = SUM(Finance[COGS])
3. Cost to Sales Ratio = DIVIDE([COGS], [Revenue])
4. Discount % = DIVIDE([Discounts],[Gross Sales])
5. Discounts = SUM(Finance[Discounts])
6. Gross Sales = SUM(Finance[Gross_Sales])
7. MoM Profit Growth % =
   DIVIDE(
   [Profit] - CALCULATE([Profit], PREVIOUSMONTH('Finance'[Date])),
   CALCULATE([Profit], PREVIOUSMONTH('Finance'[Date]))
)
8. MoM Revenue Growth % =
   DIVIDE(
   [Revenue] - CALCULATE([Revenue],
   PREVIOUSMONTH('Finance'[Date])),
   CALCULATE([Revenue], PREVIOUSMONTH('Finance'[Date]))
)
9. Profit = SUM(Finance[Profit])
10. Profit Margin = DIVIDE([Profit],[Revenue])
11. Revenue = SUM(Finance[Sales])
12. Units Sold = SUM(Finance[Units_Sold])

Pages of the Project:

1. **Financial Overview:** Provides a detailed overview of financial performance by country, product, and segment to identify key areas of profitability.
   Insights:
   - $118.73M generated in revenue and $16.89M in profit, with a 14.23% profit margin and a cost-to-sales ratio of 0.86 with moderate discounts at 7.20%.
   - The USA generates the highest revenue among countries but has the lowest profit margin (12%).
   - France and Germany have highest profit margins (15.5% and 15.7%).

- Among products, Amarilla has the highest profit margin (15.9%), while Velo has the lowest (12.6%) of all.
- Paseo has the highest revenue while Carretera contributes the least.
- Revenue and profit show noticeable month-over-month (MoM) growth spikes toward the end of 2014.
- Channel Partners maintain consistent profit margins above 73%.
- Government tops the market segment in terms of units sold, revenue, profit and discounts given.
- Enterprise is the lowest performing market segment with a negative profit margin of 3.13%.

2. **Sales & Discounts:** Analyses the impact of discounts on sales and profit across countries, products and segments.
   Insights:
   - 1M units were sold generating $127.93M in gross sales with $101.83M in COGS and $9.21M in discounts.
   - Profit trends lag behind revenue trends.
   - Government segment contributes the most amount of revenue followed by small businesses and enterprises.
   - High discount band gives most discounts (58%) followed by medium (33%) and low (10%).
   - The high discount band shows the lowest profit margin (9.07%) while the none discount band shows the highest profit margin but has lowest revenue.
   - Medium and Low discount bands generate considerable revenue with good profit margins (14.39 % and 17.87%).
   - France and Germany lead in profit generation, whereas Mexico makes the least profit.
   - Canada sells most no. of products followed by France and USA.
   - USA gives the highest discounts ($2.3 M) despite making the second lowest profit($3 M).
   - Paseo leads in units sold, discounts as well as profit generated.
   - Carretera is the lowest performing product.