FINANCIAL ANALYSIS

Milestone 3 – Infosys Internship

TOPIC: Financial Analysis of a company using Power BI

Introduction:

Financial analysis is the process of evaluating financial data to understand the financial performance and position of a business, project, or investment. . With the help of an appropriate business intelligence solution, a company can play an active role in timely monitoring business performance, quickly responding to external business environment. By systematically examining financial data, businesses and stakeholders can uncover strengths, address weaknesses, and seize opportunities for improvement.

Data Preprocessing:

1. **Loading Data:** Import from sources like Excel, SQL Server, or CSV using **Get Data**.

2. **Data Cleaning:**

   - Remove duplicates.
   - Handle missing values (replace or remove).
   - Trim spaces, standardize text, and correct errors.

3. **Data Transformation:**

   - Rename columns/tables and change data types.
   - Split/merge columns and reshape data with pivot/unpivot.

4. **Data Filtering:** Include/exclude rows or columns based on conditions.

5. **Data Enrichment:**

- Add calculated columns.
- Combine datasets using joins or append.

6. **Grouping & Aggregation:** Summarize data using sums, averages, or counts.

7. **Remove Unnecessary Data:** Delete irrelevant rows/columns for efficiency.

DAX Measures and Calculations:

1. DateTable:

```
DateTable =  ADDCOLUMNS (

   CALENDARAUTO(),
   "Year", YEAR([Date]),
   "Quarter", "Q" & FORMAT(CEILING(MONTH([Date])/3, 1), "#"),
   "Quarter No", CEILING(MONTH([Date])/3, 1),
   "Month No", MONTH([Date]),
   "Month Name", FORMAT([Date], "MMMM"),
   "Month Short Name", FORMAT([Date], "MMM"),
   "Month Short Name Plus Year", FORMAT([Date], "MMM,yy"),
   "DateSort", FORMAT([Date], "yyyyMMdd"),
   "Day Name", FORMAT([Date], "dddd"),
   "Details", FORMAT([Date], "dd-MMM-yyyy"),
   "Day Number", DAY ( [Date] )
)
```

This DAX code creates a DateTable with various date-related columns in Power BI. It uses CALENDARAUTO() to generate a date range based on the minimum and maximum dates in the data model. Each ADDCOLUMNS function adds useful date-related attributes:

1. **Year** - Extracts the year from each date.
2. **Quarter** - Adds a quarter label in "Q1," "Q2," format, using CEILING to calculate quarters.
3. **Quarter No** - Numeric value of the quarter.
4. **Month No** - Numeric value of the month.
5. **Month Name** - Full name of the month (e.g., "January").
6. **Month Short Name** - Abbreviated month name (e.g., "Jan").

7. **Month Short Name Plus Year** - Combination of month and year in "MMM,yy" format.
8. **DateSort** - Provides a sortable date format "yyyyMMdd."
9. **Day Name** - Full weekday name (e.g., "Monday").
10. **Details** - Displays full date in "dd-MMM-yyyy" format.
11. **Day Number** - Day of the month.

2. Current_Year Units:

```
Current_Year Units = SUM(financials[Units Sold])
```

CY Units is a calculated measure that sums up the total number of units sold from the Units Sold column within the financials table.

3. CY vs PY Units:

```
CY vs PY UNits = [Current_Year Units]-[Previous_Year Units]
```

CY vs PY Units calculates the difference in units sold between the current year and the previous year.

4. Discount Percentage:

```
Discount Percentage = ('financials'[Discounts] / 'financials'[Gross Sales]) * 100
```

It calculates the **discount percentage** by dividing the total discounts ('financials'[Discounts]) by the gross sales ('financials'[Gross Sales]) and multiplying by 100 to express it as a percentage. It shows the proportion of gross sales reduced due to discounts, helping businesses assess the impact of discount strategies on revenue.

5. Previous_Year Units:

```
Previous_Year Units = CALCULATE([Current_Year Units], SAMEPERIODLASTYEAR(DateTable[Date]))
```

It calculates **units sold in the previous year** by using the CALCULATE function to evaluate [Current_Year Units] with a shifted date range provided by SAMEPERIODLASTYEAR(DateTable[Date]). This shifts the filter context to the same period in the prior year, allowing for year-over-year comparisons of sales or performance.

6. Sales Classification:

```
Sales Classification =
SWITCH(
    TRUE(),
    'financials'[Gross Sales] > 10000, "High",
    'financials'[Gross Sales] > 5000, "Medium",
```

```
    "Low"
)
```

It classifies sales as **High**, **Medium**, or **Low** based on the value of 'financials'[Gross Sales]. Using the SWITCH function with TRUE(), it evaluates conditions in order: if gross sales are greater than 10,000, it returns "High"; if greater than 5,000 but not over 10,000, it returns "Medium"; otherwise, it returns “Low”.

7. Top 10 Product Profit:

```
Top 10 Product Profit =
CALCULATE(
    SUM('financials'[Profit]),
        TOPN(10, SUMMARIZE('financials', 'financials'[Product], "ProductProfit", SUM('financials'[Profit])), [ProductProfit], DESC)
)
```

It calculates the **total profit of the top 10 products** based on their individual profitability. It uses CALCULATE to sum the 'financials'[Profit] for the top 10 products, identified by TOPN. The SUMMARIZE function creates a table summarizing products and their total profits (ProductProfit), which TOPN ranks in descending order (DESC). This enables focused analysis of high-performing products.

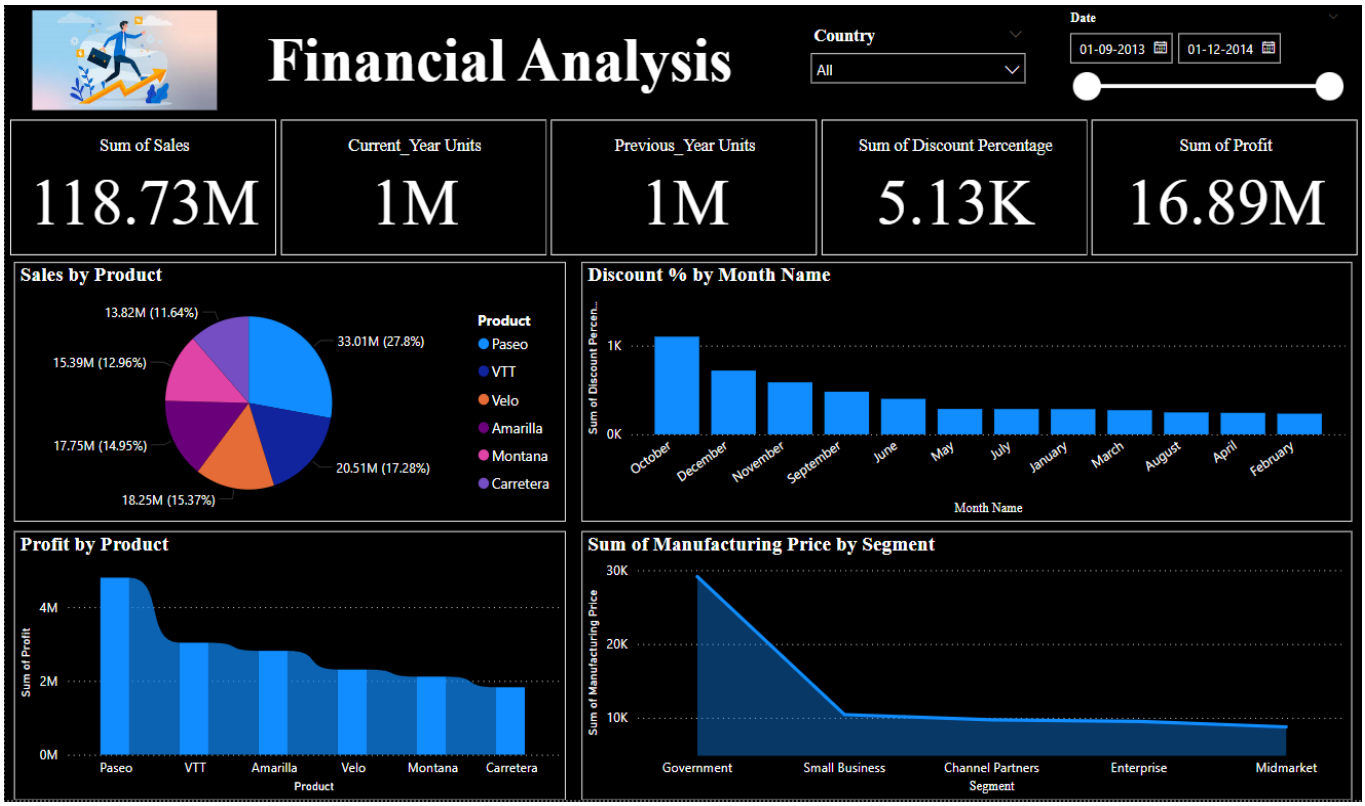
8. YTD Units:

```
YTD Units = TOTALYTD([Current_Year Units],DateTable[Date])
```

The `YTD Units` measure calculates the year-to-date (YTD) total units sold based on the current date context.

Report View:

Report View-1:



The dashboard provides a comprehensive financial analysis, showcasing key metrics such as total sales, current year and previous year units,discount percentage, profit. It visualizes sales and profit distribution across products, highlighting "Paseo" as the top performer. Monthly discount trends reveal October as the highest discount period, while manufacturing costs are primarily driven by the Government segment. Filters for country and date range enable focused analysis, making it a powerful tool for tracking sales, profit, and discount performance.

Report View-2:

The dashboard analyzes sales and manufacturing data across multiple dimensions. It highlights sales distribution by discount bands, with "Low" discounts contributing the most (37.37M). Units sold peak at lower sale prices, and profits for top 10 products remain consistent at 16.89M for both 2013 and 2014. Manufacturing costs are evenly distributed across months, each contributing 68K. A breakdown of units sold by year and product shows stability across "Amarilla," "Montana," "Carretera," and "Paseo," with consistent trends in current, previous, and year-to-date (YTD) units.

Conclusion:

Financial analysis provides critical insights into the performance, profitability, and efficiency of a business. By examining metrics such as sales, profit, discounts, and trends over time, organizations can identify strengths, address weaknesses, and optimize strategies. It aids in informed decision-making, enhances resource allocation, and drives growth. A well-executed financial analysis ensures businesses stay competitive, adapt to market changes, and achieve their financial goals effectively.