

Tailwind Traders Capstone Project Part 1

Project Overview:

In the initial phase of the Tailwind Traders Capstone project, the focus was on assisting Tailwind Traders in preparing and configuring its data for analysis. Subsequently, the refined data was utilized to design and develop a comprehensive data model. The tasks performed in these exercises are outlined below:

1. Prepared the Sales Excel data:

- Downloaded the Sales data: Tailwind Traders Sales.xlsx.
- Calculated Gross Revenue, Total Tax and Net Revenue using appropriate formulas in Microsoft Excel.
- Analyzed the first ten records for Net Revenue, Quantity Purchased, and Total Tax, identifying trends and insights.

2. Configured data sources:

- Loaded the Tailwind Traders Sales data into Power BI and transformed it using Power Query.
- Set appropriate data types for various columns, ensuring data integrity and accurate calculations.
- Analyzed column quality, distribution, and profile for OrderID to ensure data health.
- Loaded and configured Purchases data and Countries data with the respective data types.
- Integrated Historical Currency Exchange data using the following Python script:

```
import pandas as pd

from io import StringIO

data = """Exchange ID;ExchangeRate;Exchange Currency
1;1;USD
2;0.75;GBP
3;0.85;EUR
4;3.67;AED
5;1.3;AUD"""

df = pd.read_csv(StringIO(data), sep=';')

# Return the transformed dataframe

df
```

3. Designed and developed the data model:

- Established a relationship between the Countries and Exchange Data tables based on the Exchange ID field. Configured the relationship with a Many-to-one cardinality and bi-directional cross-filter direction.
- Established a relationship between the Sales and Countries tables based on the Country ID. Configured the relationship with a many-to-one cardinality and bi-directional cross-filter direction.
- Created a relationship between the Purchases and Sales tables based on the OrderID field. Configured the relationship with a Many-to-one cardinality and bi-directional cross-filter direction.
- Created a new Calendar table with essential time-based fields using the following DAX code :

```
CalendarTable =  
ADDCOLUMNS(  
    CALENDAR(DATE(2020, 1, 1), DATE(2023, 12, 31)),  
    "Year", YEAR([Date]),  
    "Month Number", MONTH([Date]),  
    "Month", FORMAT([Date], "MMMM"),  
    "Quarter", QUARTER([Date]),  
    "Weekday", WEEKDAY([Date]),  
    "Day", DAY([Date])  
)
```

- Established relationships between Sales in USD and Sales tables, as well as between the Calendar and Purchases tables.
- Created a calculated table for Sales in USD, converting sales values into USD using exchange rates.

```
Sales in USD =  
ADDCOLUMNS(  
    Sales,  
    "Country Name", RELATED(Countries[Country]),  
    "Exchange Rate", RELATED('Exchange Data'[ExchangeRate]),  
    "Exchange Currency", RELATED('Exchange Data'[Exchange Currency]),  
    "Gross Revenue USD", [Gross Revenue] * IFERROR(RELATED('Exchange Data'[ExchangeRate]), 1),  
    "Net Revenue USD", [Net Revenue] * IFERROR(RELATED('Exchange Data'[ExchangeRate]), 1),  
    "Total Tax USD", [Total Tax] * IFERROR(RELATED('Exchange Data'[ExchangeRate]), 1)  
)
```

Tailwind Traders Capstone Project Part 2:

The second part involved assisting Tailwind Traders in configuring aggregations and generating insightful reports from its data.

4. Configured Aggregations Using DAX:

- In this, measures were created to calculate the Yearly Profit Margin, Quarterly Profit, Year-to-Date (YTD) Profit, and Median Sales using Data Analysis Expressions (DAX). These measures provided essential financial insights into Tailwind Traders' performance.

Yearly Profit Margin = `'Sales in USD'[Gross Revenue USD] / 'Sales in USD'[Net Revenue USD]`

- Derived a measure by dividing Gross Revenue by Net Revenue for the Sales in USD table.
- Calculated quarterly profit using a DAX formula and a calendar table.

Quarterly Profit =

```
CALCULATE(  
    SUMX('Sales in USD', 'Sales in USD'[Yearly Profit Margin]),  
    DATESQTD('CalendarTable'[Date]))
```

- YTD Profit: Created a measure aggregating profit from the start of the fiscal year to the current date.

YTD Profit = `TOTALYTD(SUMX('Sales in USD', 'Sales in USD'[Yearly Profit Margin]), 'CalendarTable'[Date])`

- Median Sales: Developed a measure using the MEDIAN function on Gross Revenue.

Median Sales = `MEDIAN('Sales in USD'[Gross Revenue USD])`

- The performance of these measures was analyzed using the Performance Analyzer tool to ensure efficient data loading.

5. Created Sales Report:

- Loyalty Points by Country: Utilized a clustered bar chart to visualize loyalty points by country.
- Quantity Sold by Product: Developed a clustered column chart to represent the quantity sold by product.
- Median Sales Distribution by Country: Created a pie chart to display median sales distribution by country.
- Median Sales Over Time: Implemented a line chart to visualize median sales over time with a forecast.
- Visualize Measures with Cards: Utilized cards to represent Stock, Quantity Purchased, and Median Sales.
- Slicer: Added a slicer for Country Name to filter data dynamically.

6. Created Profit Report:

- Net Revenue by Product: Utilized a clustered bar chart to visualize net revenue by product.
- Yearly Profit Margin by Country: Created a donut chart to visualize yearly profit margin by country.
- Yearly Profit Margin Over Time: Implemented an area chart to visualize yearly profit margin over time.
- Visualize Measures with Cards: Utilized cards for YTD Profit, Net Revenue USD, and created a KPI for Gross Revenue USD.
- Slicer: Added a slicer for Date to enable dynamic filtering.

Tailwind Traders Capstone Project Part 3:

In the final installment of the Capstone project, engaged in configuring alerts and subscriptions, fortifying the company's decision-making capabilities.

7. Created an Executive Dashboard:

- Created a New Dashboard: Began by navigating to your workspace, then created a new dashboard named "Tailwind Traders Executive Dashboard." Followed the steps in the Navigation view, selecting the + New button, and opted for Dashboard from the options. After naming the dashboard, proceeded to create the shell.
- Pinned Sales Overview Core Visualizations: Accessed your workspace and the Sales Overview tab in the Tailwind Traders Report. Pinned core visualizations, including Loyalty Points by Country, Quantity Sold by Product, Median Sales Distribution by Country, and Median Sales Over Time to the newly created executive dashboard.
- Pinned Sales Overview Card Visualizations: Pinned essential card visualizations from the Sales Overview, including Sum of Stock, Sum of Quantity Purchased, and Median Sales, to the Executive Dashboard.
- Pinned Profit Overview Core Visualizations: Switched to the Profit Overview tab and pinned core visualizations like Net Revenue by Product, Yearly Profit Margin by Country, and Year Profit Margin Over Time to the Executive Dashboard.
- Pinned Profit Overview Card and KPI Visualizations: Pinned key cards and KPI visualizations such as YTD Profit, Sum of Net Revenue USD, and Sum of Gross Revenue USD KPI to the Executive Dashboard.
- Configured Mobile View for Cards and KPI Visuals: Enhanced mobile accessibility by configuring the mobile view for cards and KPI visuals. Organized Sum of Net Revenue USD, Sum of Quantity Purchased, Median Sales, and YTD Profit cards in a balanced layout.
- Configured Mobile View for Core Visualizations: Extended mobile optimization by pinning core Sales Overview and Profit Overview visualizations in a user-friendly order on the mobile canvas.

8. Configured Alerts and Subscriptions:

- Created a Daily Alert for Gross Revenue USD: Initiated an alert for Sum of Gross Revenue USD KPI by setting a threshold of \$400. Configured it to check at most every 24 hours to promptly notify on deviations.
- Created a Subscription for Sales Overview: Created a subscription named "Sales Weekly Summary" for the Sales Overview report, scheduled weekly on Mondays at 5:00 AM. Ensured inclusive report page options and activated the subscription.
- Created a Subscription for Profit Overview: Established a subscription titled "Profit Weekly Summary" for the Profit Overview report, scheduled on Mondays, Wednesdays, and Fridays at 6:00 AM. Set page options, activated the subscription, and received confirmation.