Analyzing Transport Data with Power BI(Techdome)

Data Analyst

Report on Transportation Dataset

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Objective

1. Utilize Power BI to analyze and visualize transportation data sourced from an Excel file.
2. Convert raw transportation data into actionable insights through comprehensive analysis.
3. Develop interactive dashboards within Power BI for presenting insights effectively.
4. Derive informed business decisions by exploring and interpreting the analytical findings.
5. Provide participants with practical experience in data transformation, visualization, and decision-making processes using Power BI.

1.Data import and Data Cleaning

- **Import Data:** Import the provided Excel file into Power BI using the appropriate connector.
- **Identify Missing Values**: Use Power BI's data view to identify any missing values in the dataset.
- **Handle Missing Values:** Replace missing values with appropriate substitutes.

2.Data Exploration

1. **TripID:** Just a unique identifier for each trip.
2. **ShipperID:** Identifies which company shipped the goods.
3. **CategoryID:** Tells us the category of the shipment.
4. **Customer:** Who received the goods.
5. **ShipDate:** When the shipment started its journey.
6. **OriginCity and OriginState:** Where the shipment began its journey.
7. **ShipDays:** How many days it took to ship.
8. **DestinationCity and DestinationState:** Where the shipment ended up.
9. **DeliveryDate:** When the shipment reached its destination.
10. **TotalMiles:** The total distance traveled.
11. **LoadedMiles:** Distance traveled with the goods loaded.
12. **ShippingCost:** How much it cost to ship.
13. **Revenue:** How much money was made from the shipment.
14. **Capacity:** The capacity of the shipment.
15. **TripType:** Whether it was a domestic or international trip.
16. **CheckPoints:** Number of checkpoints during the journey.

summary statistics for key variables

Total Miles:

Total Distance Traveled: Sum of all total miles in the dataset.

Measure: Sum Total Miles = SUM('Worksheet'[TotalMiles])

Loaded Miles:

Total Distance Traveled with Goods Loaded: Sum of all loaded miles in the dataset.

Measure: Sum Loaded Miles = SUM('Worksheet'[LoadedMiles])

Shipping Cost:

Total Shipping Costs: Sum of all shipping costs in the dataset.

Measure: Sum Shipping Cost = SUM('Worksheet'[ShippingCost])

3.Visualization

- Create a column for Month Name:

  Use the DAX formula below to extract the month name from the Ship Date

  Month Name = FORMAT(Worksheet[ShipDate], "mmmm")

- Create a column for Month Number:

  Use the DAX formula below to extract the month number from the Ship Date:

  Month Number = MONTH(Worksheet[ShipDate])

- Implement time series analysis using line charts or area charts:
- Place Ship Date (or Month Name/Month Number) on the x-axis and relevant metrics.
- Create a line chart or area chart to visualize trends over time.

Geographic analysis using maps to visualize the origin and destination cities:

- Utilize map visualizations to represent the geographic distribution of shipments.
- Plot origin and destination cities on a map using latitude and longitude coordinates.
- Customize map markers to differentiate between origin and destination cities.
- Geographic analysis helps in identifying transportation routes and understanding regional trends.

Revenue and Shipping Cost trends over time:

- Use line charts to visualize the trends in Revenue and Shipping Date over time.
- Use line charts to visualize the trends in sum of revenueRevenue and Delivery Date Date over time.
- Used linea chart for to visualize Revenue by minth name.
- Line charts provide a clear representation of how Revenue and Shipping Cost vary over different time periods.
- Analyze trends to identify revenue-generating opportunities and cost-saving measures.

4. Key Performance Indicators (KPIs): Define and calculate relevant KPIs for transportation performance.

Total Miles:

Definition: The total distance traveled by all shipments.

Calculation: Sum of the total miles for all trips in the dataset.

Shipping Cost:

Definition: The total cost incurred for shipping all the goods.

Calculation: Sum of the shipping costs for all trips in the dataset.

Loaded Miles:

Definition: The total distance traveled with goods loaded on the vehicles.

Calculation: Sum of the loaded miles for all trips in the dataset.

Total Revenue:

Definition: The total income generated from all shipments.

Calculation: Sum of the revenue for all trips in the dataset.

5. Filtering and Slicing:

- Add a slicer or filter component to the Power BI report canvas.
- Select the "Origin City" and "Origin State" and “Month Name”fields as filter options.
- Users can interact with the slicer or filter to dynamically select specific origin cities or states.