Exercise: Visualizing Sales Data in Looker Studio

Objectives

- Craft SQL queries to gather sales data by state/province and analyze monthly sales trends.
- Utilize Looker Studio to create visual representations of this data.

Instructions

Part 1: SQL Query for State/Province Sales Data

Write a SQL query to calculate the total sales data by state/province within the United States, including the subtotal, taxes, and freight charges.

Query Skeleton

```
SELECT
  -- Placeholder for the state/province column (replace with actual column
  ↪   name)
  SUM(CAST([SUBTOTAL_COLUMN] AS FLOAT64)) AS total_subtotal,
  -- Additional placeholders for tax, freight, and total sales (replace with
  ↪   actual column names and calculations)
FROM
  `adventureworks.[SALES_TABLE]` AS soh
-- Placeholder for the JOIN statement (replace with the actual JOIN clause)
-- Placeholder for the WHERE clause to filter for 'United States'
-- Placeholder for the GROUP BY clause (replace with actual column name)
```

Concepts to Learn: - **CAST**: Sometimes data is stored as text (strings) even though it represents numbers (like money). CAST is used to change the data into a number so that you can perform calculations on it. - **SUM**: This is an aggregation function that adds up all the values in a column, giving you a total. - **INNER JOIN**: This combines rows from two tables based on a related column between them, in this case, matching address IDs with sales orders. - **WHERE**: This clause filters the data to return only the rows that meet certain criteria, like orders from 'United States'. - **GROUP BY**: This is used when you're using aggregation functions like SUM, to specify which columns to summarize data by, such as by each state/province.

Part 2: SQL Query for Monthly Sales Trend Analysis

Construct a query to determine the sales trends over time, broken down by month and year.

Query Skeleton

```sql
SELECT
  EXTRACT(YEAR FROM [ORDER_DATE_COLUMN]) AS order_year,
  EXTRACT(MONTH FROM [ORDER_DATE_COLUMN]) AS order_month,
  -- Placeholder for the SUM function to aggregate monthly sales (replace
  ↪   with actual column names and calculations)
FROM
  `adventureworks.[SALES_TABLE]`
-- Placeholder for the GROUP BY clause (replace with actual column names)
-- Placeholder for the ORDER BY clause (replace with actual column names)
```

Concepts to Learn: - **EXTRACT**: This function is used to get a specific part of a date, such as the year or month, from a date column. - **ORDER BY**: This arranges your data in a particular order, typically chronological for date fields.

Part 3: Visualizing Results in Looker Studio

After running your queries in BigQuery, use Looker Studio to visualize the data and draw insights.

1. **Run Query**: Execute your queries in BigQuery to verify they produce the correct results.
2. **Looker Studio Integration**: Directly from BigQuery, navigate to "Explore Data" and select "Explore with Looker Studio" to send your data to Looker Studio for visualization.

Working with Looker Studio: - **Chart Selection**: In Looker Studio, choose the appropriate chart types from the menu to best represent your data, such as Geo Maps or Line Charts. - **Dimensions and Metrics**: Use dimensions to categorize your data (like dates or categories) and metrics to measure them (like sales totals). - **Chart Customization**: Customize your charts with various styling options to make your data clear and impactful.

Deliverables

- **Complete the SQL queries by replacing placeholders with correct SQL statements and column names.**
- **In Looker Studio, create a Geo Map chart to visualize sales by state/province and a Line Chart to visualize the monthly sales trend.**

Geo Map

Datei Bearbeiten Ansicht Einfügen Seite Anordnen Ressource Hilfe

Seite hinzufügen Daten hinzufügen Diagramm hinzufügen Steuerelement hinzufügen Aktualisierungsvorgänge pa

+ Schnellfilter hinzufügen Zurücksetzen Diagramm Daten

EINRICHTUNG STIL Suche

Hintergrundebene BigQuery Benutzerdefinierte SQL-Anwe...
Vektorgrafiken verwenden stateprovince_name
Typ total_freight
Karte total_sales
Satellit total_subtotal
Stil total_tax
Berichtsdesign (Silber) Record Count
Straßen
Sehenswürdigkeiten
Labels
Typ der Ebene
Standorte anzeigen als
Blasen
Standarddarstellungsbereich
Als Standardansicht festlegen
Blasenebene

total_sales 15.379,54 17.335.850,11

Line Chart

Datei Bearbeiten Ansicht Einfügen Seite Anordnen Ressource Hilfe

Seite hinzufügen Daten hinzufügen Diagramm hinzufügen Steuerelement hinzufügen Aktualisierungsvorgänge pa

+ Schnellfilter hinzufügen Zurücksetzen Diagramm Daten

EINRICHTUNG STIL Suche

Datenquelle BigQuery Benutzerdefinierte SQL-Anwe...
BigQuery Benutzerdefinierte S... monthly_sales
DATEN ZUSAMMENFÜ... order_month
Zeitraumdimension order_year
Dimension hinzufügen Record Count

Dimension
order_month
Aufschlüsseln
Aufschlüsselungsdimension
Dimension hinzufügen

Messwert
SUM monthly_sales
Messwert hinzufügen
Optionale Messwerte
Schieberegler für Messwerte

Filter
Filter "Zeitreihe"
FILTER HINZUFÜGEN

monthly_sales

20 Mio.
15 Mio.
10 Mio.
5 Mio.
0

Januar Februar März April Mai Juni Juli August September Oktober November Dezem...