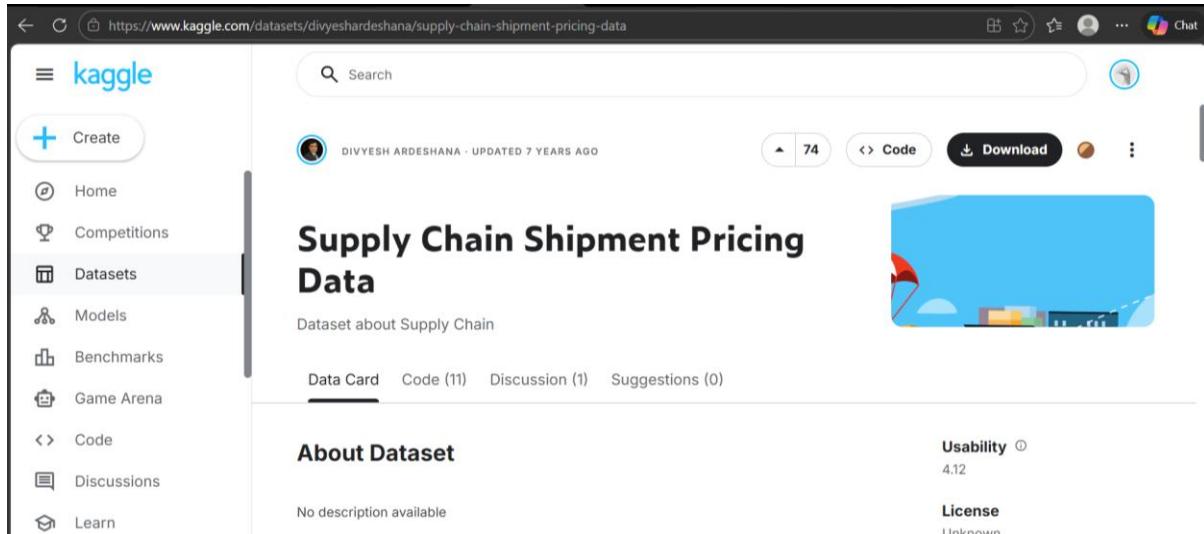


SECTION 1 — PROCESS EVIDENCE

Project Overview

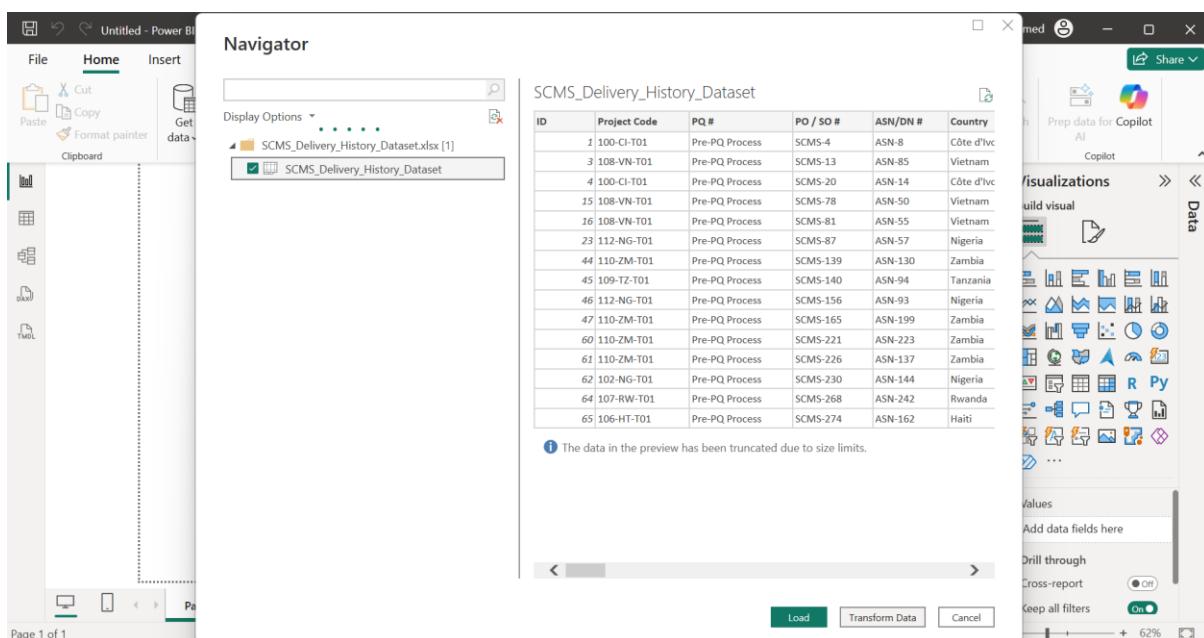
This project analyses supply chain shipment data to evaluate delivery performance, shipment value trends, country distribution, and transport mode efficiency in order to support data-driven logistics decision-making.

DATASET SOURCING



The screenshot shows a Kaggle dataset page titled "Supply Chain Shipment Pricing Data". The page includes a search bar, a user profile for DIVYESH ARDESHANA, and a download button. Below the title, there's a brief description: "Dataset about Supply Chain". The "About Dataset" section notes "No description available". To the right, there are "Usability" and "License" metrics. The main content area displays a preview of the dataset table.

ID	Project Code	PQ #	PO / SO #	ASN/DN #	Country
1	100-CI-T01	Pre-PQ Process	SCMS-4	ASN-8	Côte d'Ivoire
3	108-VN-T01	Pre-PQ Process	SCMS-13	ASN-85	Vietnam
4	100-CI-T01	Pre-PQ Process	SCMS-20	ASN-14	Côte d'Ivoire
15	108-VN-T01	Pre-PQ Process	SCMS-78	ASN-50	Vietnam
16	108-VN-T01	Pre-PQ Process	SCMS-81	ASN-55	Vietnam
23	112-NG-T01	Pre-PQ Process	SCMS-87	ASN-57	Nigeria
44	110-ZM-T01	Pre-PQ Process	SCMS-139	ASN-130	Zambia
45	109-TZ-T01	Pre-PQ Process	SCMS-140	ASN-94	Tanzania
46	112-NG-T01	Pre-PQ Process	SCMS-156	ASN-93	Nigeria
47	110-ZM-T01	Pre-PQ Process	SCMS-165	ASN-199	Zambia
60	110-ZM-T01	Pre-PQ Process	SCMS-221	ASN-223	Zambia
61	110-ZM-T01	Pre-PQ Process	SCMS-226	ASN-137	Zambia
62	102-NG-T01	Pre-PQ Process	SCMS-230	ASN-144	Nigeria
64	107-RW-T01	Pre-PQ Process	SCMS-268	ASN-242	Rwanda
65	106-HT-T01	Pre-PQ Process	SCMS-274	ASN-162	Haiti



The screenshot shows Power BI Desktop with the "SCMS_Delivery_History_Dataset" loaded. The "Navigator" pane on the left lists the dataset. The main area displays a preview of the dataset table with 65 rows. The "Values" pane on the right shows various data fields and visualization options.

ID	Project Code	PQ #	PO / SO #	ASN/DN #	Country
1	100-CI-T01	Pre-PQ Process	SCMS-4	ASN-8	Côte d'Ivoire
3	108-VN-T01	Pre-PQ Process	SCMS-13	ASN-85	Vietnam
4	100-CI-T01	Pre-PQ Process	SCMS-20	ASN-14	Côte d'Ivoire
15	108-VN-T01	Pre-PQ Process	SCMS-78	ASN-50	Vietnam
16	108-VN-T01	Pre-PQ Process	SCMS-81	ASN-55	Vietnam
23	112-NG-T01	Pre-PQ Process	SCMS-87	ASN-57	Nigeria
44	110-ZM-T01	Pre-PQ Process	SCMS-139	ASN-130	Zambia
45	109-TZ-T01	Pre-PQ Process	SCMS-140	ASN-94	Tanzania
46	112-NG-T01	Pre-PQ Process	SCMS-156	ASN-93	Nigeria
47	110-ZM-T01	Pre-PQ Process	SCMS-165	ASN-199	Zambia
60	110-ZM-T01	Pre-PQ Process	SCMS-221	ASN-223	Zambia
61	110-ZM-T01	Pre-PQ Process	SCMS-226	ASN-137	Zambia
62	102-NG-T01	Pre-PQ Process	SCMS-230	ASN-144	Nigeria
64	107-RW-T01	Pre-PQ Process	SCMS-268	ASN-242	Rwanda
65	106-HT-T01	Pre-PQ Process	SCMS-274	ASN-162	Haiti

I imported the real-world supply chain shipment dataset into Power BI Desktop and verified that the primary fact table contained more than 7,000 rows.

POWER QUERY — DATA PREPARATION

The screenshot shows the Power Query Editor interface with the 'SCMS_Delivery_History' dataset loaded. The 'Properties' pane on the right shows the dataset is named 'SCMS_Delivery_History_Dataset'. The 'Applied Steps' pane shows a single step named 'Changed Type'. The main area displays a table with columns: ID, Project Code, PQ#, PO / SO #, and ASN/DN#. Each column has a data type of 'Whole Number'. The table contains 15 rows of data, such as '1 100-CI-T01 Pre-PQ Process SCMS-4 ASN-8'. Below the table, a note says '33 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows'.

I opened Power Query Editor to begin cleaning and transforming the raw dataset for analytical use.

The screenshot shows the Power Query Editor interface with the 'Fact_Delivery' dataset loaded. The 'Properties' pane on the right shows the dataset is named 'Fact_Delivery'. The 'Applied Steps' pane shows a single step named 'Changed Type'. The main area displays a table with columns: ID, Project Code, PQ#, PO / SO #, and ASN/DN#. Each column has a data type of 'Whole Number'. The table contains 15 rows of data, such as '1 100-CI-T01 Pre-PQ Process SCMS-4 ASN-8'. Below the table, a note says '33 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows'.

I renamed the raw table to Fact_Delivery to follow professional naming conventions for a star schema model.

Untitled - Power Query Editor

APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type
- Removed Columns

PREVIEW DOWNLOADED AT 16:04

I removed irrelevant and unused columns to reduce model size and improve performance.

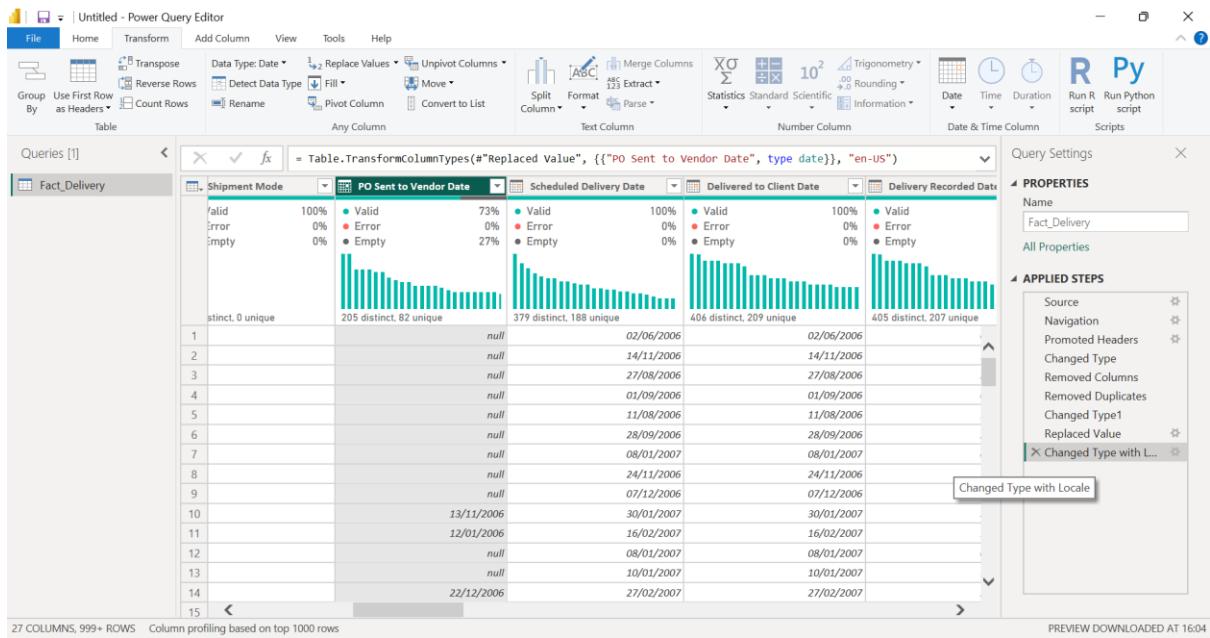
Untitled - Power Query Editor

APPLIED STEPS

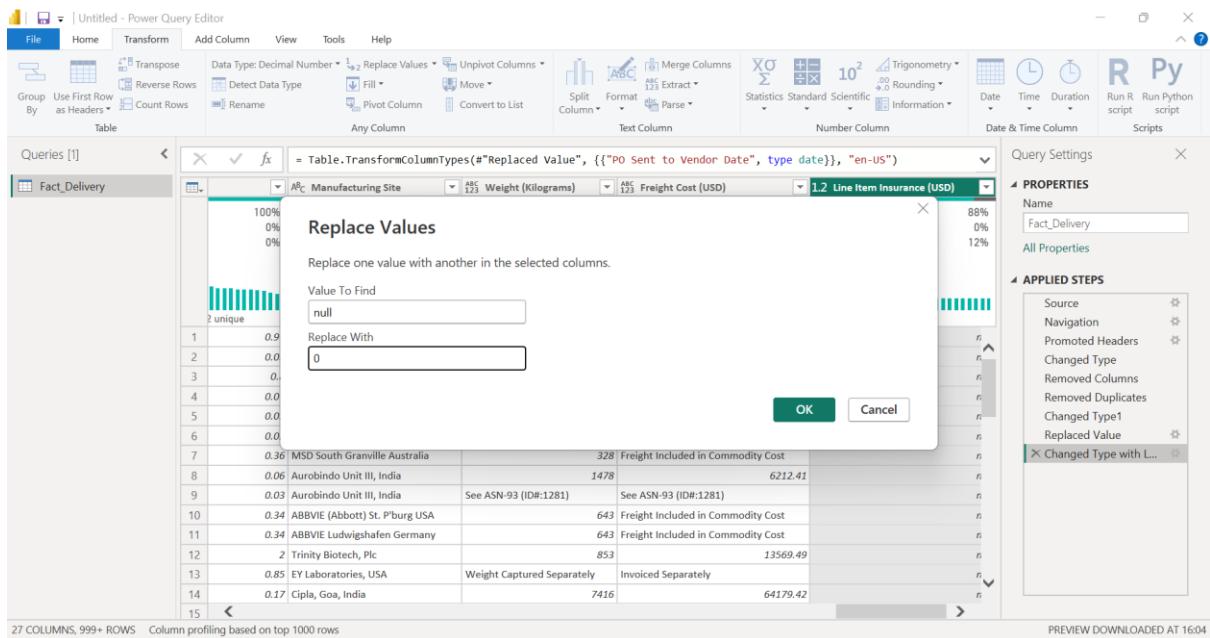
- Source
- Navigation
- Promoted Headers
- Changed Type
- Removed Columns
- Removed Duplicates

PREVIEW DOWNLOADED AT 16:04

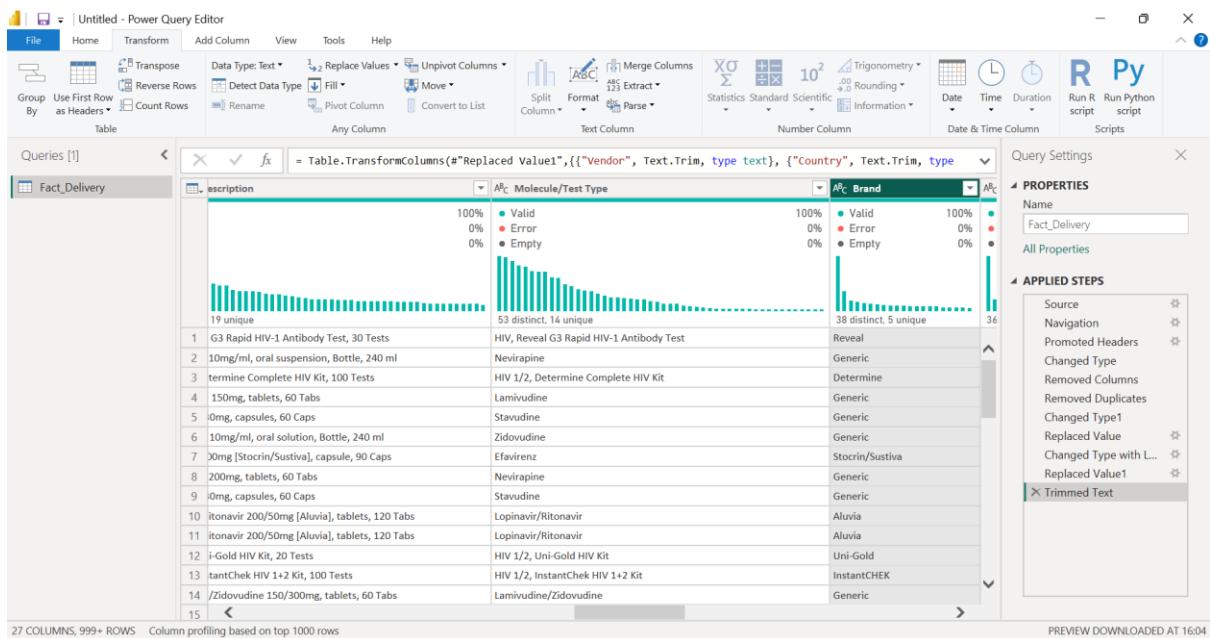
I removed duplicate records to ensure data accuracy and prevent double counting in KPI calculations.



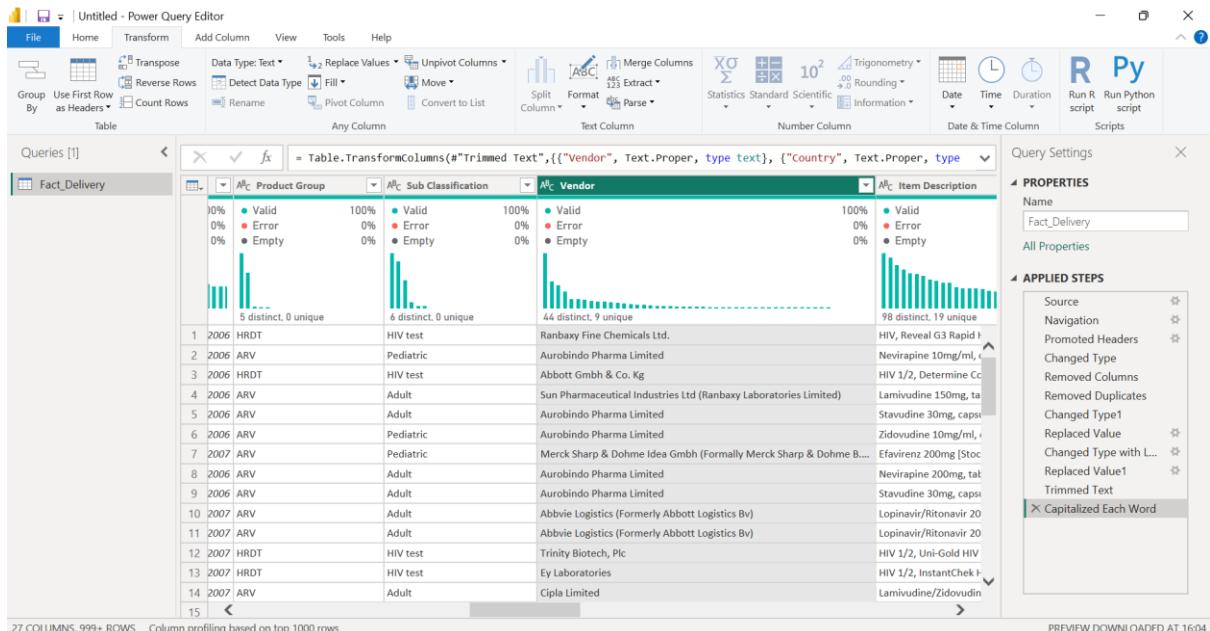
I corrected data types for dates, text, and numeric fields to enable proper time intelligence and aggregations.



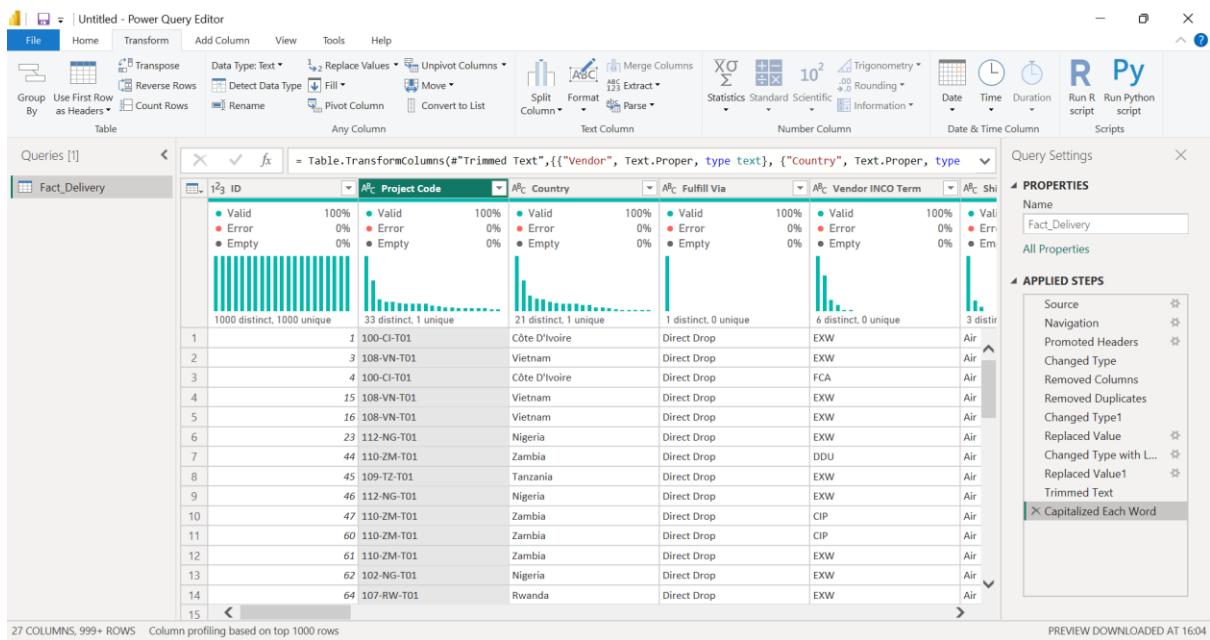
I handled missing values by replacing or removing nulls to maintain data quality.



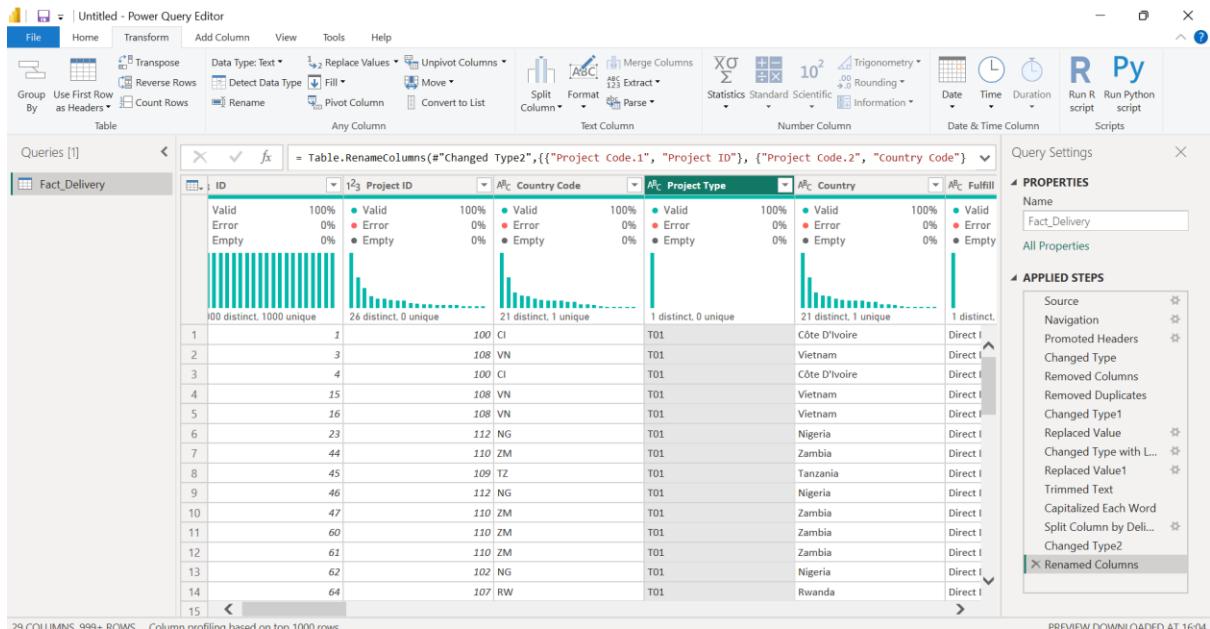
I trimmed leading and trailing spaces to standardize categorical fields.



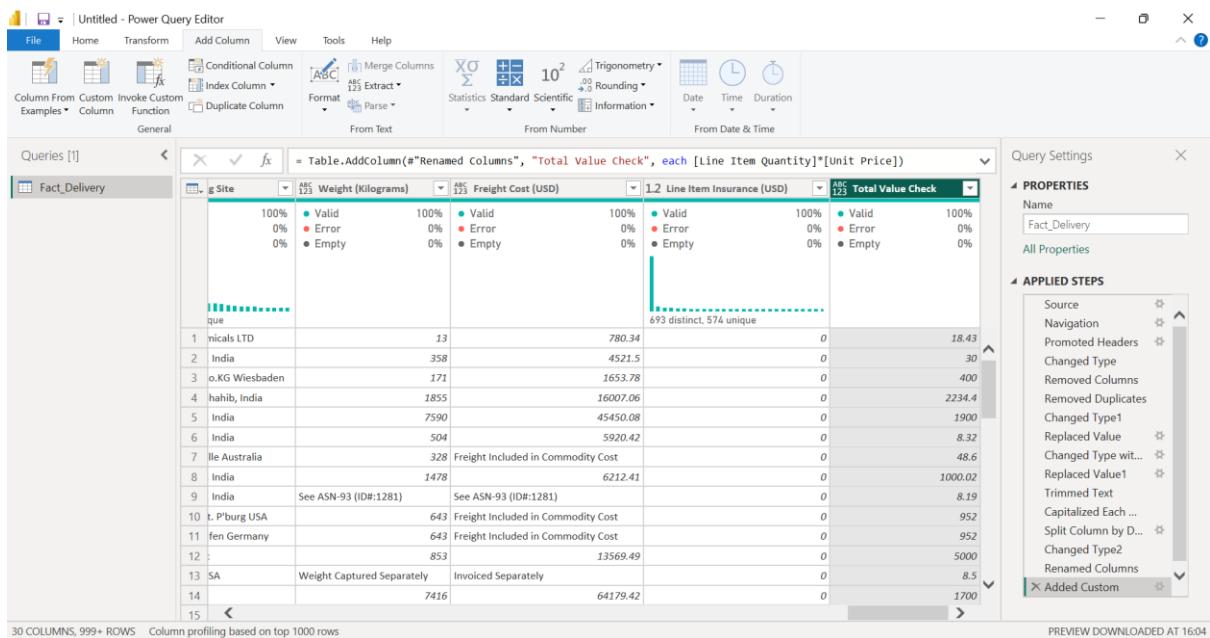
I standardized text formatting using proper case to ensure consistent category labels.



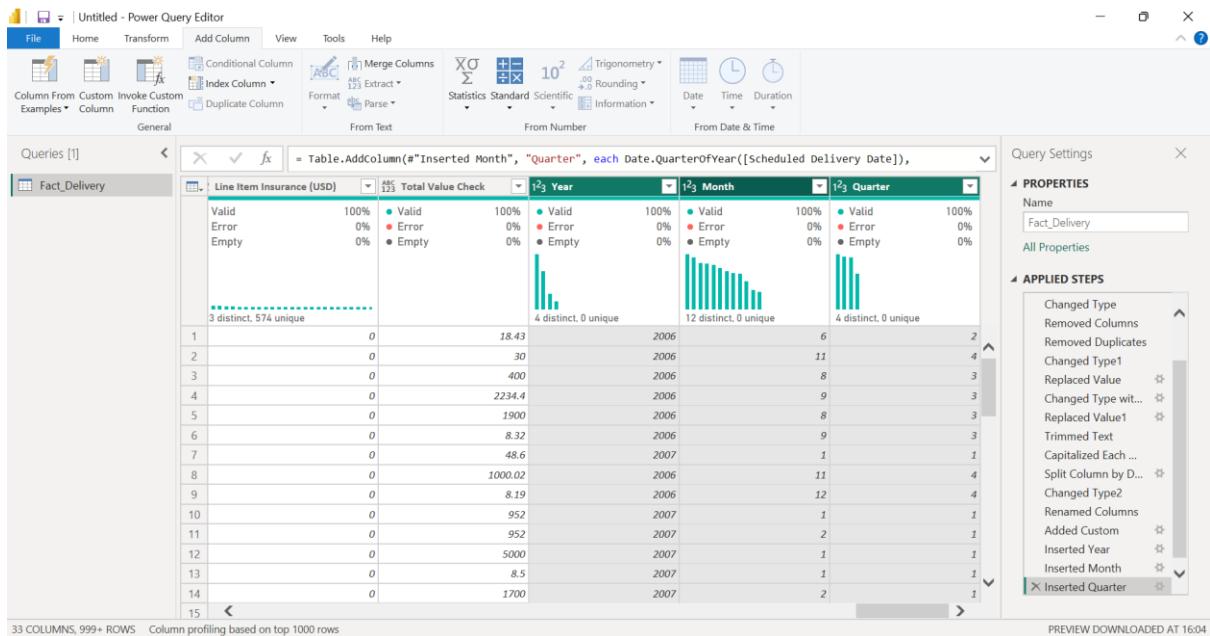
I identified a composite column that required splitting for better dimensional modelling.



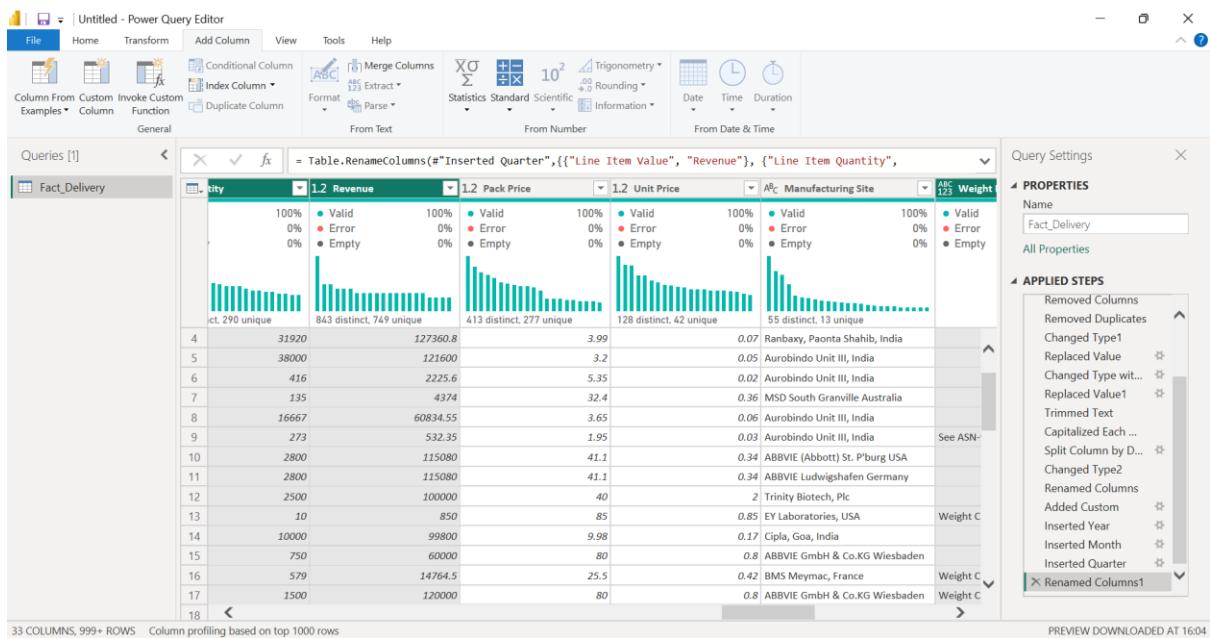
I split the column into separate attributes to improve filtering and analysis.



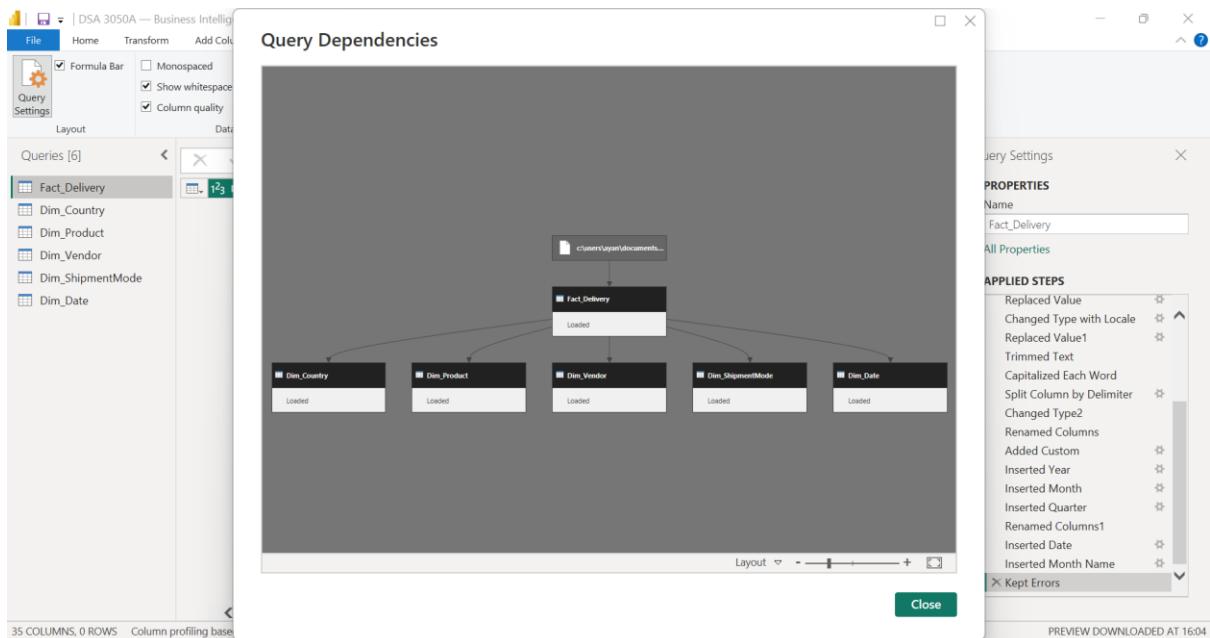
I created a calculated column to validate shipment value and support KPI calculations.



I extracted Year, Month, and Quarter from the date field to enable time-based trend analysis.



I renamed columns using business-friendly names for better report readability.



I reviewed the query dependency diagram to confirm a structured and efficient data transformation flow.

DIMENSION TABLE CREATION

The screenshot shows the Power Query Editor interface with the following details:

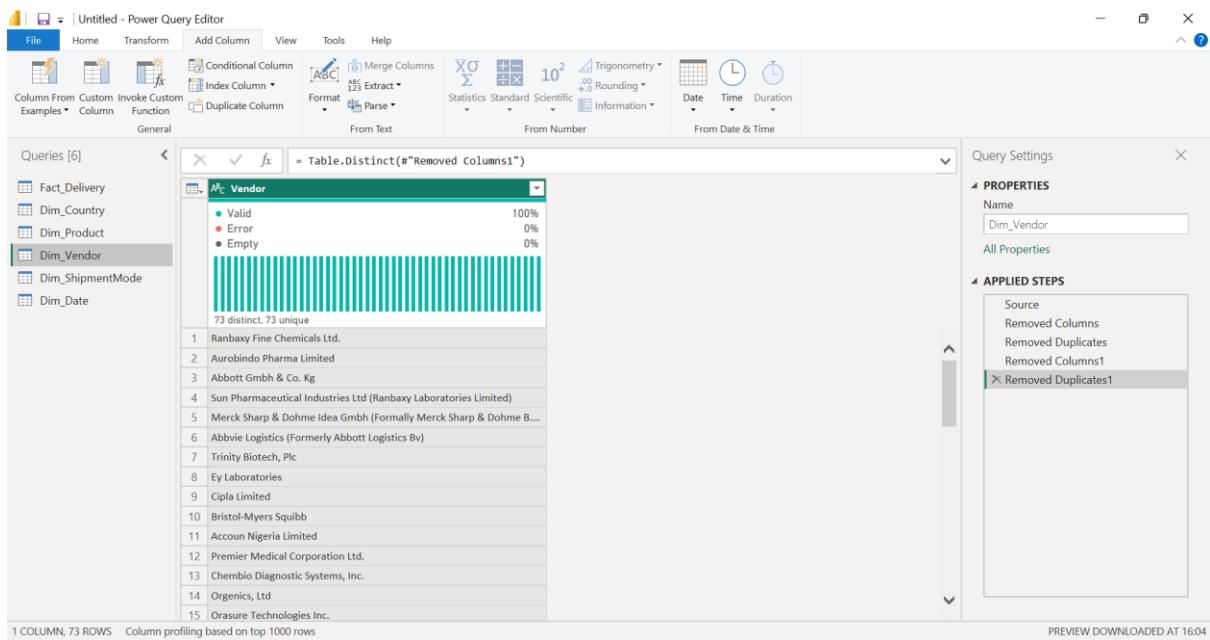
- File**: Untitled - Power Query Editor
- Home**: Transform, Add Column, View, Tools, Help
- Queries [6]**: Fact_Delivery, Dim_Country, Dim_Product, Dim_Vendor, Dim_ShipmentMode, Dim_Date
- Current Query**: Dim_Country (highlighted)
- Applied Steps**: Removed Columns, Removed Duplicates, Removed Columns1 (selected), Removed Duplicates1
- Properties**: Name = Dim_Country
- Preview**: Shows a table with 15 rows of country names: Côte d'Ivoire, Vietnam, Nigeria, Zambia, Tanzania, Rwanda, Haiti, Zimbabwe, Ethiopia, South Africa, Guyana, Namibia, Botswana, Mozambique, Kenya.
- Column Profiling**: 1 COLUMN, 43 ROWS, Column profiling based on top 1000 rows.
- Downloaded At**: PREVIEW DOWNLOADED AT 16:04

I created a Dim_Country table by removing duplicates to support geographic analysis.

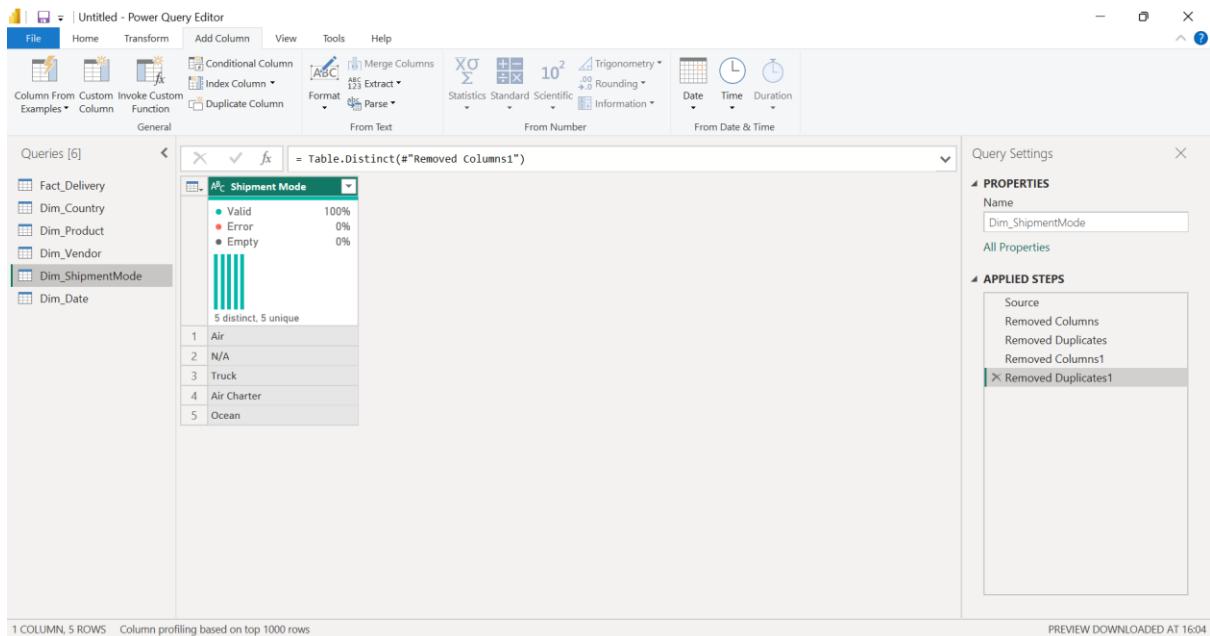
The screenshot shows the Power Query Editor interface with the following details:

- File**: Untitled - Power Query Editor
- Home**: Transform, Add Column, View, Tools, Help
- Queries [6]**: Fact_Delivery, Dim_Country, Dim_Product, Dim_Vendor, Dim_ShipmentMode, Dim_Date
- Current Query**: Dim_Product (highlighted)
- Applied Steps**: Source, Removed Columns, Removed Duplicates (selected)
- Properties**: Name = Dim_Product
- Preview**: Shows a table with 15 rows of product information, including Product Group (HRDT, ARV), Sub Classification (HIV test, Pediatric, Adult), Item Description (various HIV medications like Nevirapine, Lamivudine, Efavirenz, Didanosine), and Molecule/Test Type (various forms like tablets, capsules, oral suspension).
- Column Profiling**: 9 COLUMNS, 330 ROWS, Column profiling based on top 1000 rows.
- Downloaded At**: PREVIEW DOWNLOADED AT 16:04

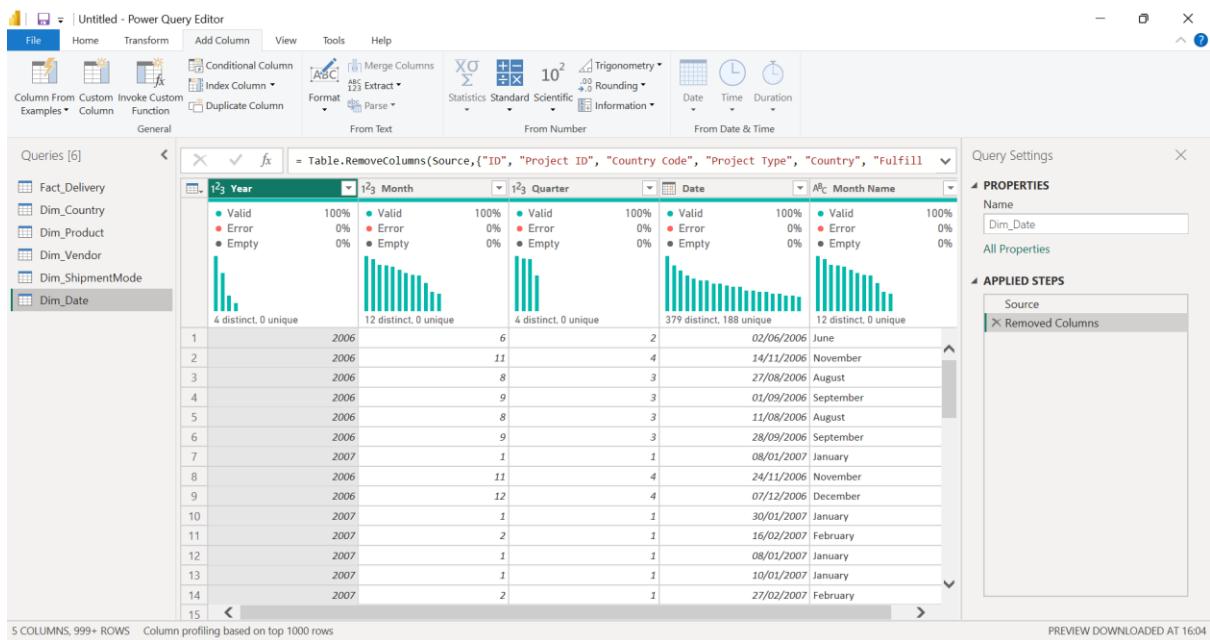
I created a Dim_Product table to enable product-level filtering and categorization.



I created a Dim_Vendor table to allow vendor performance analysis within the model.

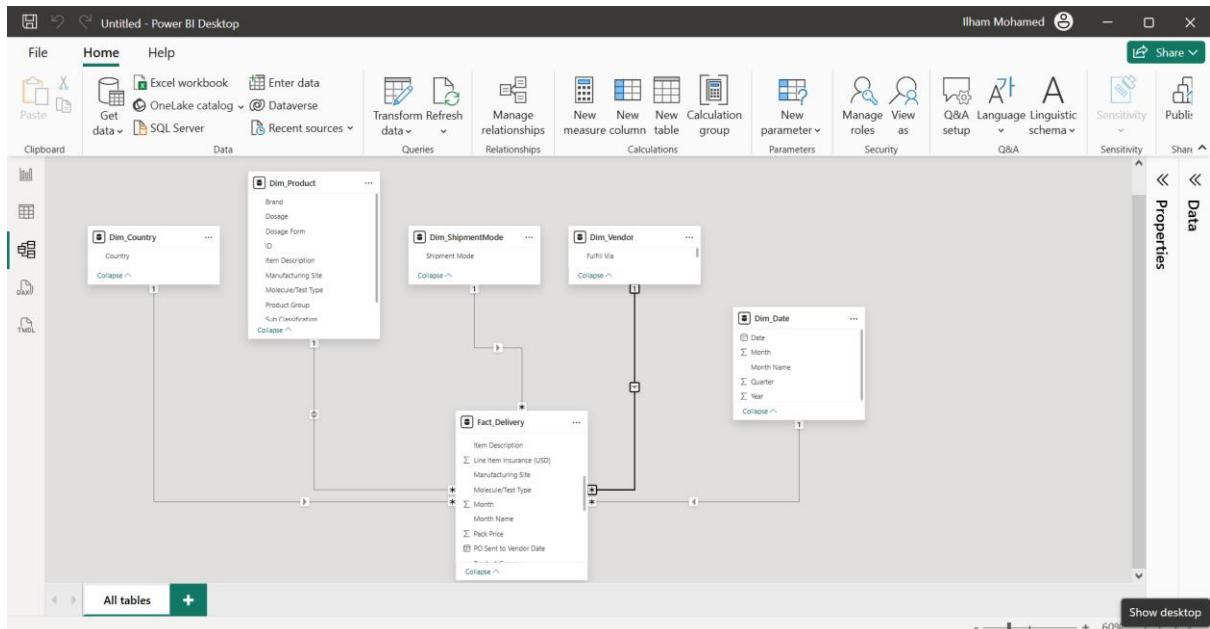


I created a Dim_ShipmentMode table to analyze logistics performance by transport mode.

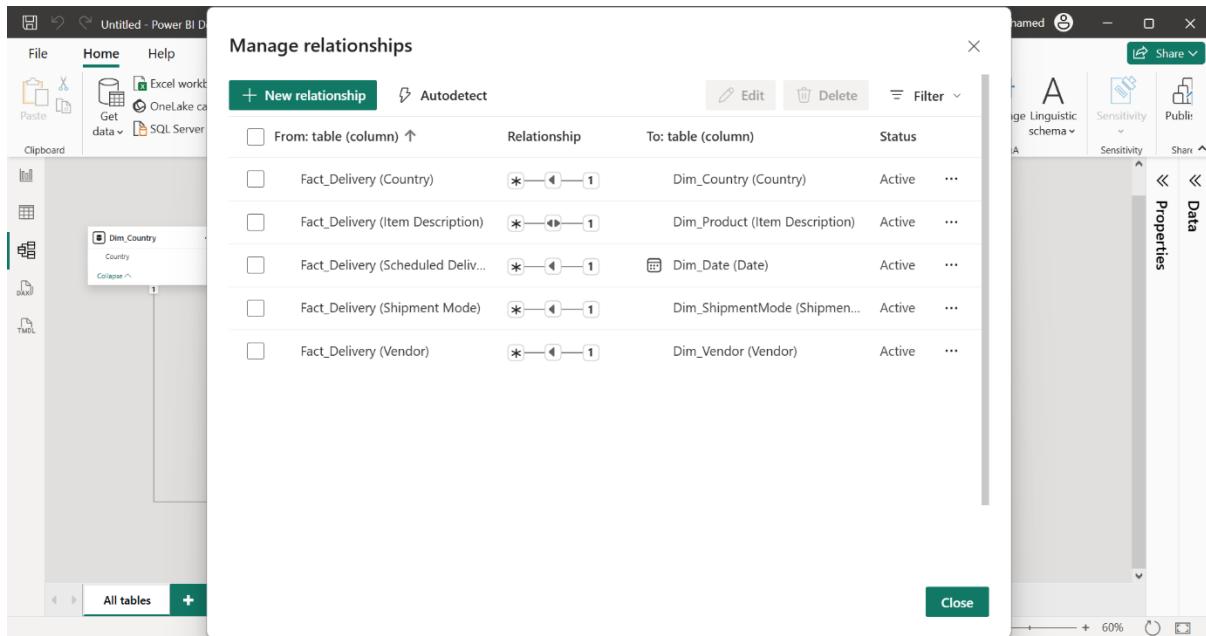


I created a Dim_Date table to support time intelligence and proper chronological sorting.

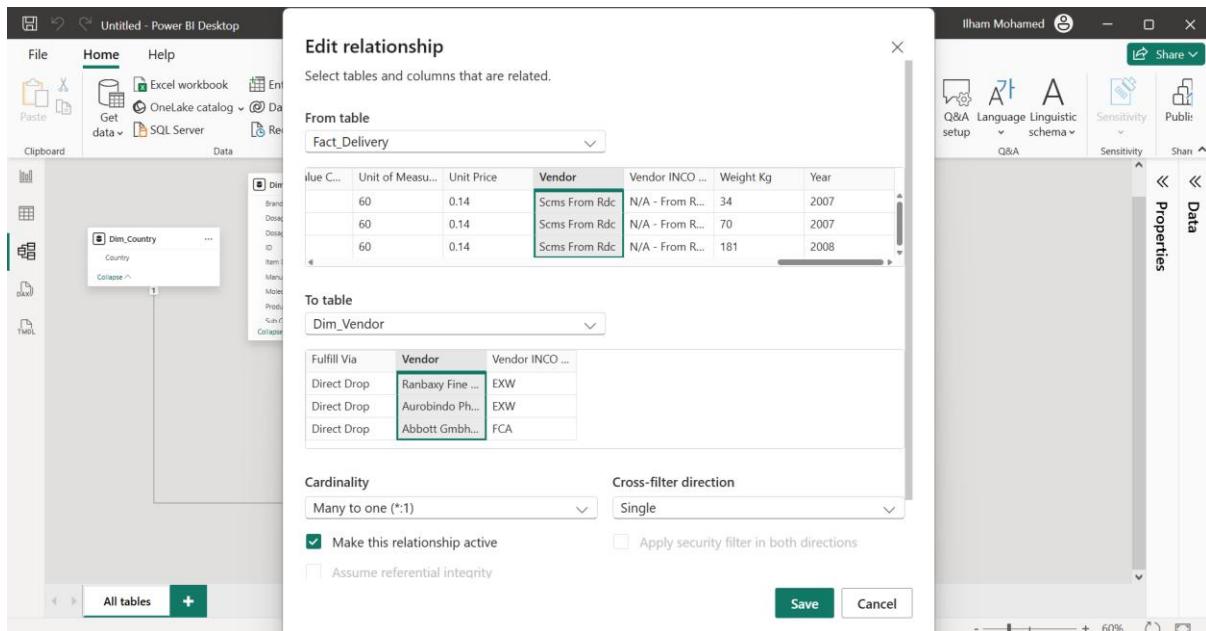
DATA MODELLING



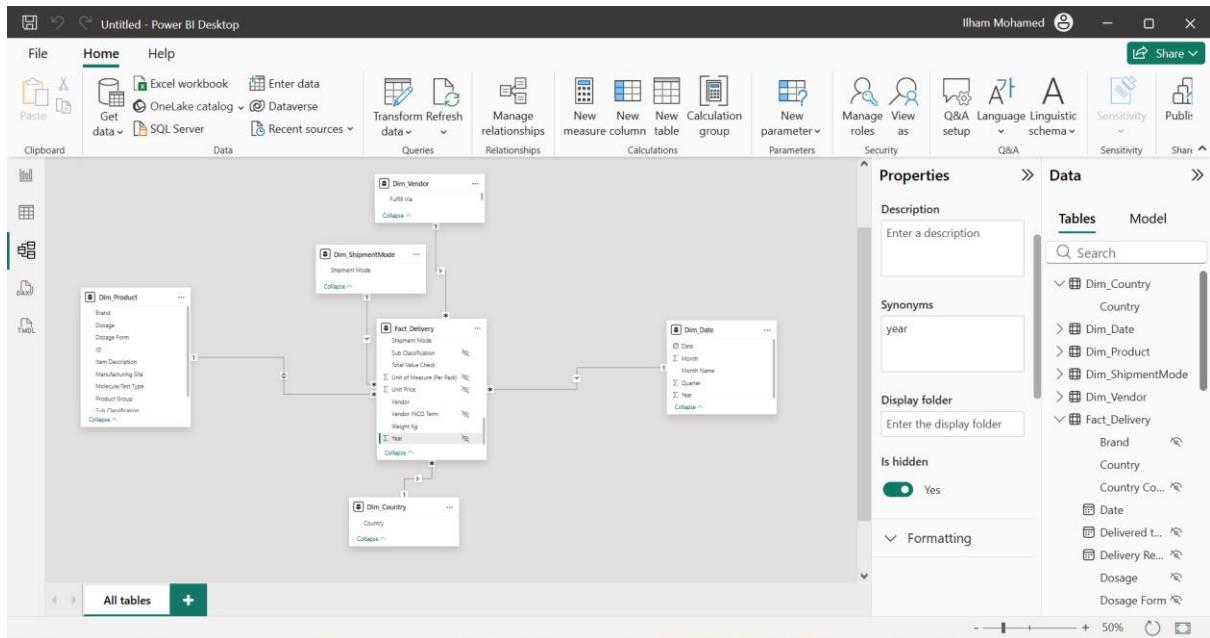
I designed a star schema with Fact_Delivery at the center and connected dimension tables using one-to-many relationships.



I configured relationships with correct cardinality and single-direction filtering to ensure accurate aggregation.

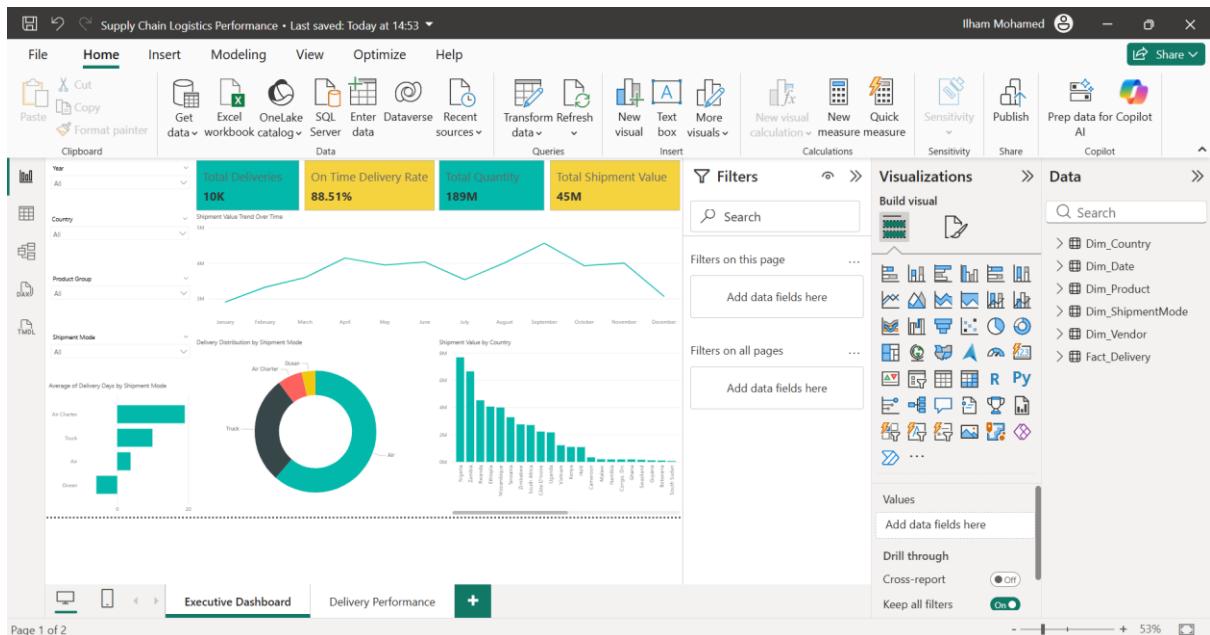


I validated the vendor relationship to confirm proper key matching and filter propagation.



I organized the model by hiding technical fields and arranging tables logically for usability.

DASHBOARD DEVELOPMENT



I developed an interactive executive dashboard including KPI cards, trend analysis, comparative country performance, shipment mode distribution, delivery efficiency metrics, and slicers with cross-filtering.

- The dashboard includes KPI cards for **Total Deliveries**, **On-Time Delivery Rate**, **Total Quantity**, and **Total Shipment Value** to provide a high-level operational overview.
- A line chart showing **Shipment Value Trend by Month** is used to identify time-based performance patterns.
- A bar chart displaying **Shipment Value by Country** enables comparison of logistics performance across regions.
- A donut chart showing **Shipment Mode Distribution** illustrates the proportion of deliveries by transport mode.
- A bar chart of **Average Delivery Days by Shipment Mode** is used to evaluate delivery efficiency and identify delays.
- Slicers for **Year**, **Country**, **Product Group**, and **Shipment Mode** allow dynamic filtering of all visuals.

Key Analytical Insights

- On-time delivery rate is 88.51%, indicating operational improvement opportunities.
- Air transport dominates shipment volume but has higher average delivery days, especially for Air Charter.
- Shipment value is concentrated in a few high-performing countries.
- Monthly shipment value shows mid-year peaks, suggesting seasonal demand patterns.

PUBLISHING & DEPLOYMENT

The screenshot shows the Microsoft Power BI service interface. On the left, there's a sidebar with navigation links like Home, Copilot, Workspaces, and My workspace. The main area displays a dashboard titled "Supply Chain Logistics Performance". The dashboard includes several visualizations: a summary card with metrics like "Total Deliveries 10K", "On Time Delivery Rate 88.51%", "Total Quantity 189M", and "Total \$ 45M"; a line chart showing "Delivery Value Trend Over Time" over months; a donut chart for "Delivery Distribution by Shipment Mode" (Air, Land, Rail); and a bar chart for "Average of Delivery Days by Shipment Mode" (Air, Land, Rail). Below the dashboard, there's a "Microsoft Power BI" watermark and details about the owner: "Owner: Ilham Mohamed", "Workspace: My workspace", and "Status: Active". On the left side of the dashboard, there's a section titled "Embed code" with options to copy the link or HTML for embedding, set the size (600 x 373.5 px), and choose a placeholder image.

Link:<https://app.powerbi.com/view?r=eyJrIjoiMTNIYWRiMzYtYmQzM00MTAyLTg0ZjYtMmVkJ2ZmOGM3MzlmIiwidCI6IjE2ZDgzZWU2LTI1NGEtNDY5ZC1hNmNjLTU0ZTJjYTIzMTNINyIsImMiOjh9>

I published the report to Power BI Service to deploy the solution.

I generated a public dashboard link and verified that the report is accessible online.

GITHUB LINK

https://github.com/Ilham-sy/Supply_Chain_Logistics_Performance_152