



Olist E-Commerce

From Database Design to Business
Intelligence Dashboards

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Introduction

Overview of Olist Ecommerce Dataset

Welcome! This is a Brazilian e-commerce public dataset of orders made at Olist Store. The dataset contains information on 100k orders from 2016 to 2018 across multiple marketplaces in Brazil. Its features allow viewing order from multiple dimensions: from order status, price, payment, and freight performance to customer location, product attributes, and customer reviews. Additionally, a geolocation dataset is available, linking Brazilian zip codes to latitude/longitude coordinates.

This is real commercial data that has been anonymized, and references to companies and partners in the review text have been replaced with the names of *Game of Thrones* great houses.

Why Use This Dataset?

This dataset provides a valuable opportunity to analyze real-world e-commerce transactions and logistics. It allows us to explore:

- Customer purchasing behavior and trends.
 - Payment and delivery efficiency.
 - Product performance and seller effectiveness.
 - The impact of geolocation on business operations.
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Why Do We Need a Database and Data Warehouse?

1. Databases (OLTP - Online Transaction Processing)

- Store and manage daily transactions efficiently.
- Ensure data consistency, integrity, and security.
- Allow quick retrieval and updates of order, customer, and seller data.
- Support business operations like order processing, payment validation, and inventory tracking.
- Used to create **Views**, **Stored Procedures (SP)**, and **Triggers** to automate tasks and enforce business rules.
- **Stored Procedures (SP)** can be connected to **SQL Server Reporting Services (SSRS)** to generate structured reports for business insights.

2. Data Warehouse (OLAP - Online Analytical Processing)

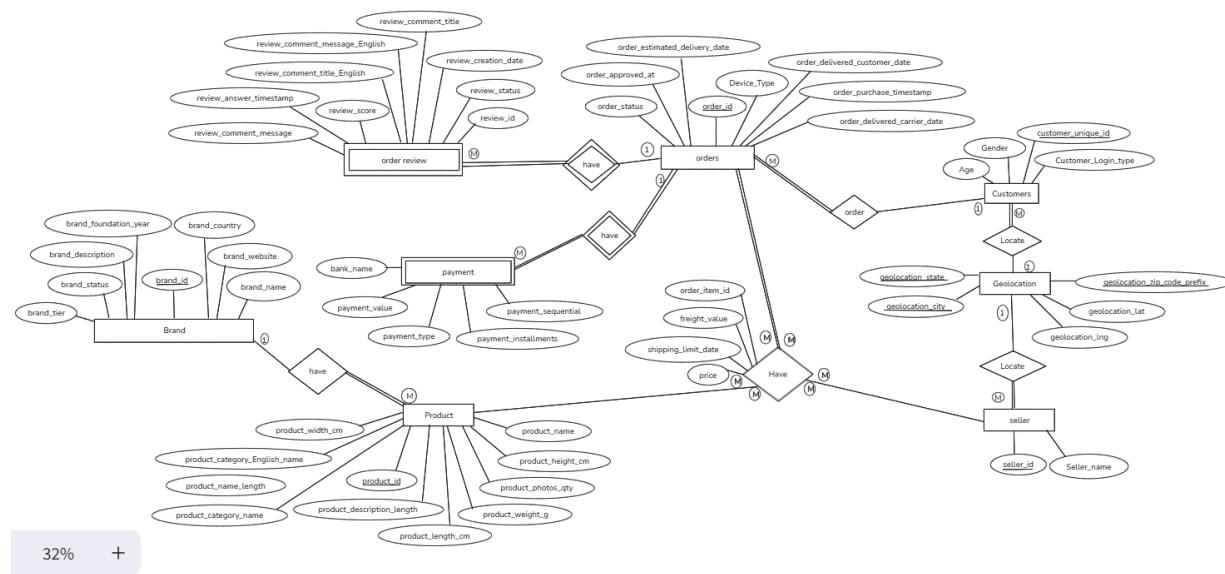
- Aggregate large volumes of historical data for analysis.
- Improve performance for reporting and business intelligence queries.
- Enable trend analysis, sales forecasting, and customer segmentation.

- Support complex queries without affecting live transactional systems.
 - Allow us to **analyze data and create dashboards using visualization tools like Power BI, Tableau, and Excel** for better insights and decision-making.

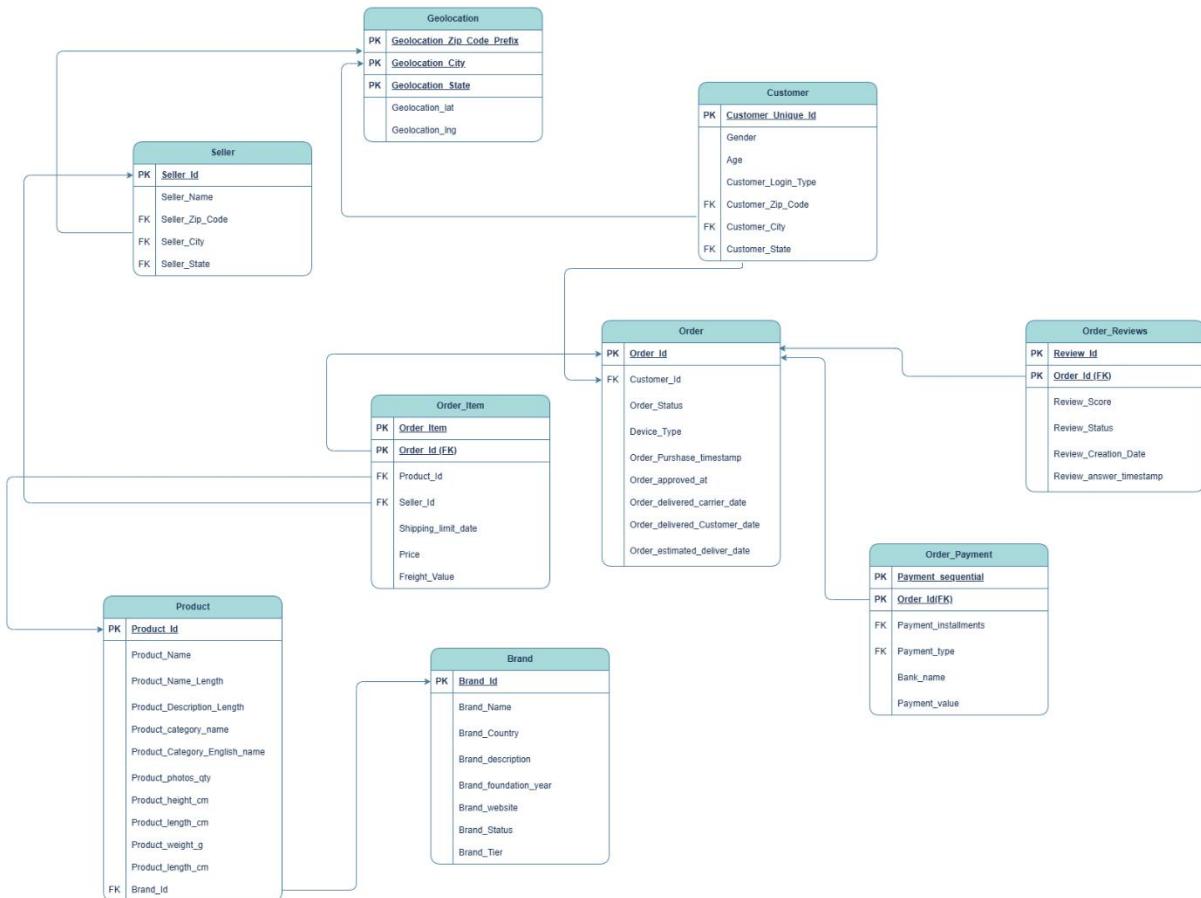
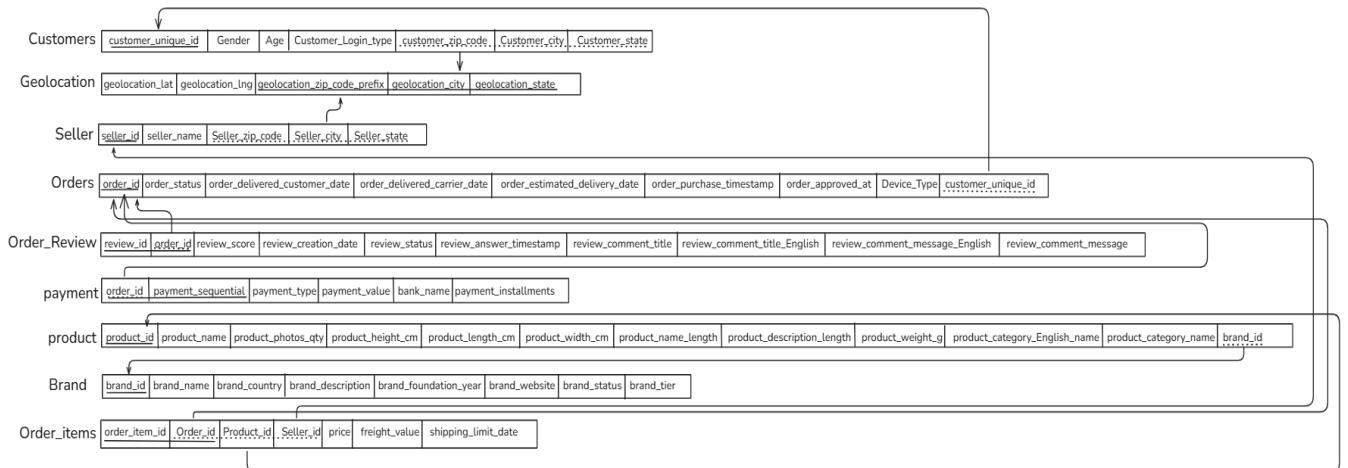
By combining a **transactional database** with a **data warehouse**, businesses can efficiently manage operations while leveraging historical data for advanced analytics, reporting, and visualization.

Olist Database

Entity-Relationship Diagram (ERD):



Mapping ERD to Relational Model:



Data Integrity Operations:

Handling Missing Geolocation Data

- Identifies missing **geolocation** entries from the **Customers** and **Sellers** tables by checking if their zip code, city, and state exist in the **Geolocation** table.
- Inserts missing **geolocation** records to maintain consistency and ensure proper linkage.

Updating Customer Login Type

- Standardizes the **Customer_Login_type** field by correcting inconsistent values, ensuring uniformity across records.
-

Database Constraints:

Customers Table

- **Check Constraints:**
 - **check_age**: Ensures customers are at least 18 years old.
 - **check_gender**: Restricts gender values to 'Male' or 'Female'.
 - **check_login**: Limits login type to 'Member', 'New', 'First Sign Up', or 'Guest'.
- **Foreign Key Constraint:**
 - **FK_Customers_Geolocation**: Links customers to the Geolocation table based on **customer_zip_code_prefix**, **Customer_city**, and **Customer_state** with **ON UPDATE CASCADE**.

Sellers Table

- **Foreign Key Constraint:**
 - **FK_Sellers_Geolocation**: Links sellers to the Geolocation table based on **seller_zip_code_prefix**, **seller_city**, and **seller_state** with **ON UPDATE CASCADE**.

Brand Table

- **Check Constraints:**
 - **check_status**: Ensures **brand_status** is either 'active' or 'inactive'.

- `check_tier`: Restricts `brand_tier` to 'standard' or 'premium'.
- **Default Constraint:**
 - `default_country`: Sets `brand_country` to 'Brazil' by default.

Products Table

- **Foreign Key Constraint:**
 - `FK_Products_Brand`: Links products to the `Brand` table based on `brand_id` with `ON UPDATE CASCADE`.

Orders Table

- **Check Constraints:**
 - `check_DeviceType`: Ensures `Device_Type` is either 'Web' or 'Mobile'.
 - `check_Orderstatus`: Restricts `Order_Status` values to predefined order states.
- **Foreign Key Constraint:**
 - `FK_Orders_Customers`: Links orders to the `Customers` table based on `customer_unique_id` with `ON UPDATE CASCADE`.

Order Items Table

- **Check Constraints:**
 - `check_price`: Ensures product price is greater than 0.
 - `check_freight`: Ensures freight value is at least 0.
- **Foreign Key Constraints:**
 - `FK_Order_Items_Sellers`: Links order items to the `Sellers` table based on `seller_id` with `ON UPDATE CASCADE`.
 - `FK_Order_Items_Products`: Links order items to the `Products` table based on `product_id` with `ON UPDATE CASCADE`.

Order Reviews Table

- **Check Constraints:**
 - `check_Score`: Ensures review scores range between 1 and 5.
 - `check_Review_status`: Restricts review status to 'positive' or 'negative'.

Order Payments Table

- **Check Constraints:**
 - **check_Sequential**: Ensures `payment_sequential` is greater than 0.
 - **check_paytype**: Restricts payment type to defined values ('credit_card', 'boleto', 'voucher', 'not_defined', 'debit_card').
-

Views:

Sales and Product Performance Views

- **vw_sales_by_category**: Aggregates total sales by product category.
- **vw_product_performance**: Tracks sales, total orders, and units sold for each product.
- **vw_seller_performance**: Summarizes total revenue and item count per seller.
- **vw_top_selling_products**: Lists the top 10 best-selling products by revenue.

Time-Based Sales Summaries

- **vw_monthly_sales**: Summarizes total sales and order count per month.
- **Yearly_Sales_Summary**: Provides a yearly breakdown of orders, revenue, and average order value for delivered orders.

Customer and Order Insights

- **vw_customer_purchase**: Tracks customer purchases, including total spending and order details.
- **vw_high_value_customer**: Identifies customers who have spent over a defined threshold.
- **vw_pending_orders**: Lists orders that are still in processing or created status.

Delivery and Payment Analytics

- **vw_avg_delivery_days**: Calculates the average delivery time per seller.
- **vw_payment_summary**: Summarizes payment methods and total payment values.

Seller Performance Insights

- **vw_Top_sellers:** Lists the top 10 sellers by total revenue and items sold.
-

Stored Procedures:

1. GenerateSales

Description: Generates a sales report within a specified date range.

- **Parameters:**
 - **@StartDate** (Date): Start date of the report.
 - **@EndDate** (Date): End date of the report.
- **Output:**
 - Order Date
 - Total Revenue
 - Order Volume
 - Average Order Value

2. CustomerDemographics

Description: Provides demographic insights based on customer location and login type within a specified date range.

- **Parameters:**
 - **@StartDate** (Date): Start date of the report.
 - **@EndDate** (Date): End date of the report.
- **Output:**
 - Customer Location
 - Number of Customers
 - Number of Orders
 - Total Sales

3. Product Performance

Description: Analyzes the sales performance of a specific product within a given timeframe.

- **Parameters:**
 - `@StartDate` (Date): Start date of the report.
 - `@EndDate` (Date): End date of the report.
 - `@Product_name` (Varchar): Product Name to analyze.
- **Output:**
 - Product ID
 - Product Name
 - Brand Name
 - Seller Name
 - Product Category
 - Number of Units Sold
 - Total Revenue

4. Seller Performance

Description: Evaluates the performance of a specific seller in terms of orders, revenue, and units sold.

- **Parameters:**
 - `@StartDate` (Date): Start date of the report.
 - `@EndDate` (Date): End date of the report.
 - `@Seller_name` (Varchar): Seller Name to analyze.
- **Output:**
 - Seller ID
 - Seller Name
 - Brand Name
 - Product Name
 - Product Category
 - Number of Orders
 - Total Revenue
 - Number of Units Sold

5. Customer Satisfaction

Description: Provides insights into customer satisfaction based on review scores and identifies the most and least satisfactory sellers.

- **Parameters:**
 - `@StartDate` (Date): Start date of the report.
 - `@EndDate` (Date): End date of the report.

- **Output:**
 - Average Customer Satisfaction Score (CSAT)
 - Number of Customers
 - Positive Review Percentage
 - Negative Review Percentage
 - Most Satisfied Seller
 - Least Satisfied Seller

6. Payment Methods

Description: Summarizes the usage of different payment methods within a given timeframe.

- **Parameters:**
 - `@StartDate` (Date): Start date of the report.
 - `@EndDate` (Date): End date of the report.
- **Output:**
 - Payment Method
 - Total Revenue
 - Number of Transactions

7. Customer Category

Description: Categorizes customers based on their login type within a given timeframe.

- **Parameters:**
 - `@StartDate` (Date): Start date of the report.
 - `@EndDate` (Date): End date of the report.
- **Output:**
 - Customer Category
 - Number of Customers

8. Monthly Sales

Description: Generates a sales report for a specific year, broken down by month.

- **Parameters:**
 - `@Year` (Int): Year for which the report is generated.
- **Output:**
 - Month
 - Month Name

- Number of Orders
- Total Sales
- Average Order Value
- Number of Sold Units

9. Top-Selling Products

Description: Retrieves the top N selling products based on sales volume.

- **Parameters:**
 - **@TopN** (Int): Number of top-selling products to retrieve.
- **Output:**
 - Product ID
 - Product Name
 - Product Category
 - Total Sales
 - Number of Units Sold

10. Insert Order with Data Validation

Description: Inserts a new order into the database, ensuring that the customer exists before proceeding.

- **Parameters:**
 - **@OrderID** (Varchar): Unique order identifier.
 - **@CustomerID** (Varchar): Unique customer identifier.
 - **@DeviceType** (Varchar): Type of device used for the order.
 - **@OrderStatus** (Varchar): Current status of the order.
 - **@OrderPurchaseTimestamp** (DateTime): Timestamp when the order was placed.
 - **@OrderEstimatedDeliveryDate** (DateTime): Estimated delivery date for the order.
 - **Validation:**
 - Checks if the customer exists before inserting the order.
 - **Output:**
 - Inserts order into the database if the customer exists.
 - Returns an error message if the customer does not exist.
-

Triggers:

1. Prevent Orders with Zero Value

Trigger Name: prevent_order_zero_value

Table: Order_Items

Event: AFTER INSERT

Description: Ensures that orders have a positive total value. If an order's total value is zero or negative, the transaction is rolled back.

Logic:

- Checks if the inserted order has a price of zero or less.
- If the sum of all items' prices in the order is zero or negative, it raises an error and rolls back the transaction.

2. Prevent Custom Payment Values \leq 10% of Order Value

Trigger Name: prevent_wrong_payment

Table: Order_Payments

Event: AFTER INSERT

Description: Ensures that a custom payment value is at least 10% of the total order value.

Logic:

- Joins Order_Items and Orders tables to calculate the total order value.
- If the inserted payment value is \leq 10% of the order value, it raises an error and rolls back the transaction.

3. Enforce Review Creation After Order Completion

Trigger Name: Review_After_Delivery

Table: Order_Reviews

Event: AFTER INSERT

Description: Ensures that reviews can only be created for completed orders (i.e., orders that have been delivered).

Logic:

- Checks if the inserted review is associated with an order that has not been delivered

(order_delivered_customer_date IS NULL).

- If true, it raises an error and rolls back the transaction.

4. Track Late Deliveries

Trigger Name: log_late_deliveries

Table: Orders

Event: AFTER UPDATE

Description: Logs late deliveries by inserting records into the **Late_Delivery_Log** table.

Logic:

- If the order_delivered_customer_date is later than order_estimated_delivery_date, logs the order ID and delay days in **Late_Delivery_Log**.

Late_Delivery_Log Schema:

- Order_Id (Primary Key)
- Delay_Days (Difference between estimated and actual delivery dates)
- Logged_At (Timestamp of logging)

5. Prevent Order Deletion

Trigger Name: prevent_order_deletion

Table: Orders

Event: INSTEAD OF DELETE

Description: Prevents deletion of records from the **Orders** table.

Logic:

- If a delete operation is attempted, an error is raised preventing deletion.

6. Prevent Over-Payment

Trigger Name: Prevent_Over_Payment

Table: Order_Payments

Event: AFTER INSERT

Description: Ensures that total payments for an order do not exceed the total order price.

Logic:

- Calculates the total amount paid for an order.
 - Compares it with the total order value (sum of **price** from **Order_Items**).
 - If the total paid exceeds the order value, it raises an error and rolls back the transaction.
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OLIST Data Warehouse (DWH) - Galaxy Schema

Overview

This Data Warehouse is designed to support analytical processing for an e-commerce platform. It uses a Galaxy Schema, which consists of 2 fact tables, dimension tables. The schema facilitates advanced reporting and analytics by efficiently handling large-scale transactional data.

Why Do We Choose the Galaxy Schema?

In this e-commerce business model, we have two different levels of granularity in our transactional data:

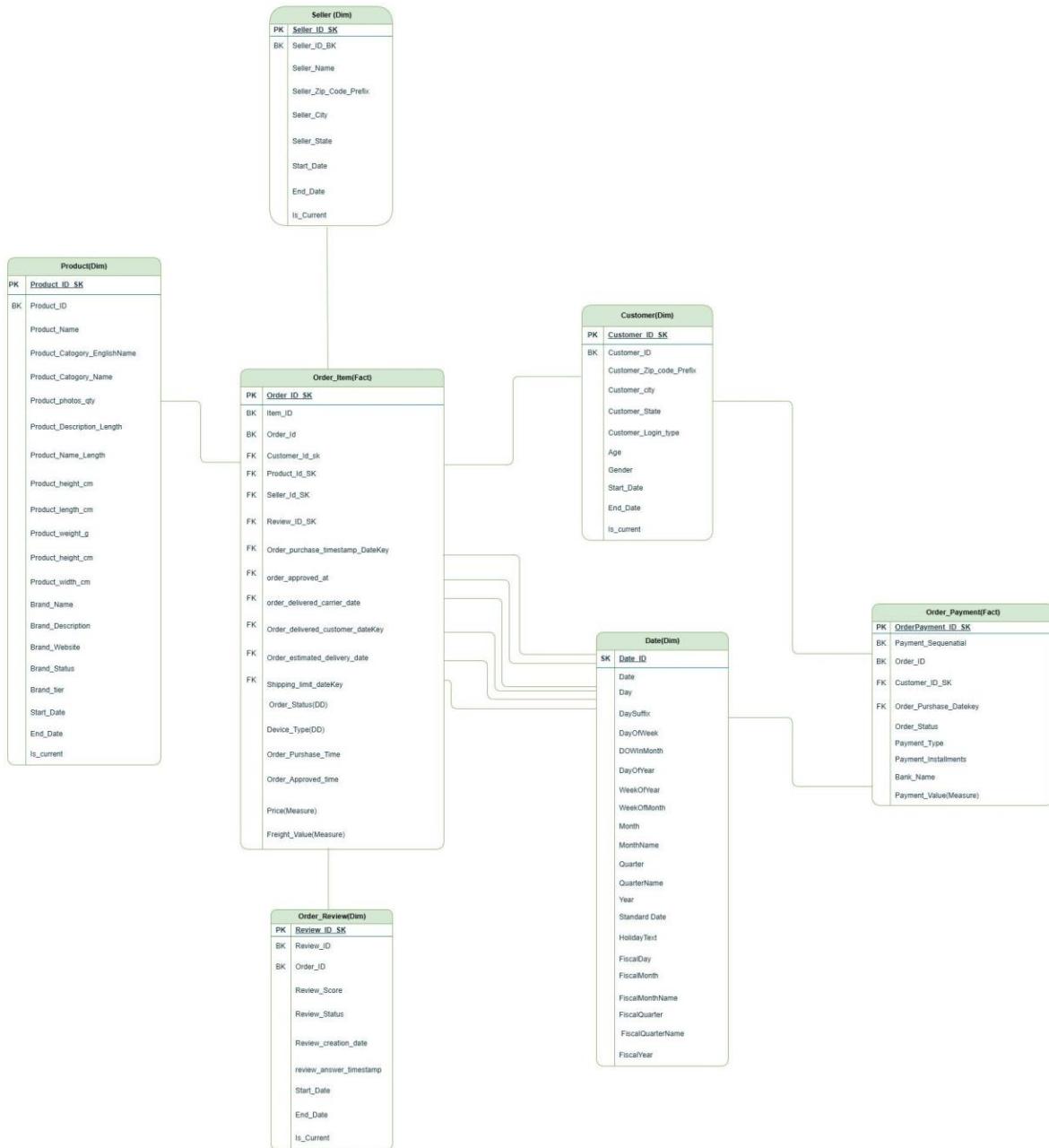
- Order Items Level (**Order_ItemsFact**): Each row represents an individual product in an order. A single order can contain multiple items.
- Order Payments Level (**Order_PaymentsFact**): Payment details are stored at the order level, not at the item level.

If we had one single fact table, it would lead to data redundancy and incorrect aggregations, as:

- Payment data would be duplicated for each item in an order.
 - Metrics like total revenue and payment installments would be overcounted in queries.
 - Queries would become complex and inefficient when analyzing payments separately from orders.
-

Data Modeling:

- Dimensional Modeling



Tables

Fact Tables

The dimensional model includes two fact tables that capture key business transactions:

a. Order_Items Fact Table (Order_ItemsFact)

- This table records detailed order information at the item level.
- Each row represents a product purchased in a specific order.
- Primary Key: Order_ID_SK (Surrogate Key)
- Foreign Keys: Links to ProductDim, CustomerDim, SellerDim, DateDim, and Order_ReviewDim.

b. Order_Payments Fact Table (Order_PaymentsFact)

- Stores payment transaction details for each order.
- Primary Key: OrderPayment_ID_SK
- Foreign Keys: Links to CustomerDim, and DateDim.

Dimension Tables

Supporting dimensions provide contextual information for reporting and analysis.

a. Product Dimension (ProductDim)

- Contains detailed product attributes, including name, category, brand, and size.
- Tracks changes over time with Start_Date and End_Date.

b. Customer Dimension (CustomerDim)

- Stores customer-related data such as location, age, gender, and app usage.
 - Maintains history using Start_Date, End_Date, and Is_Current.

c. Seller Dimension (SellerDim)

- Holds seller-related information, including location and active period.

d. Date Dimension (DateDim)

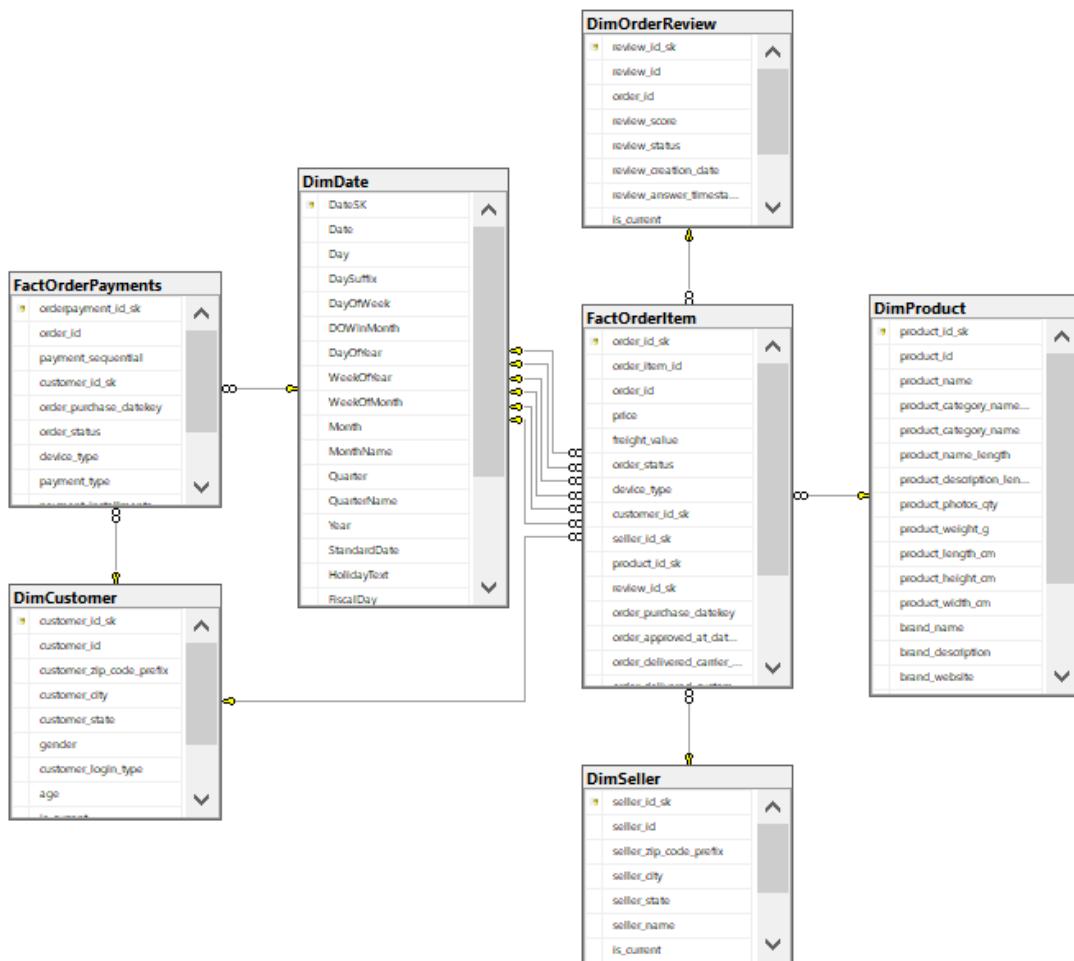
- A critical dimension for time-based analysis, containing attributes like:
 - Day, Week, Month, Quarter, and Fiscal Year breakdowns.

e. Order Review Dimension (Order_ReviewDim)

- Stores customer reviews and ratings associated with each order.
 - Helps analyze customer satisfaction trends.
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Data warehouse implementation

The above dimensional model has been successfully implemented in SSMS using SQL scripts. A Data Warehouse diagram reflecting this schema.



ETL Process

Introduction

The ETL (Extract, Transform, Load) process is essential for transferring data from the operational database (**Olist_Ecommerce_DB**) to the data warehouse (**Olist_Ecommerce_DWH**). This process ensures that the data is cleansed, transformed, and optimized for analytical reporting.

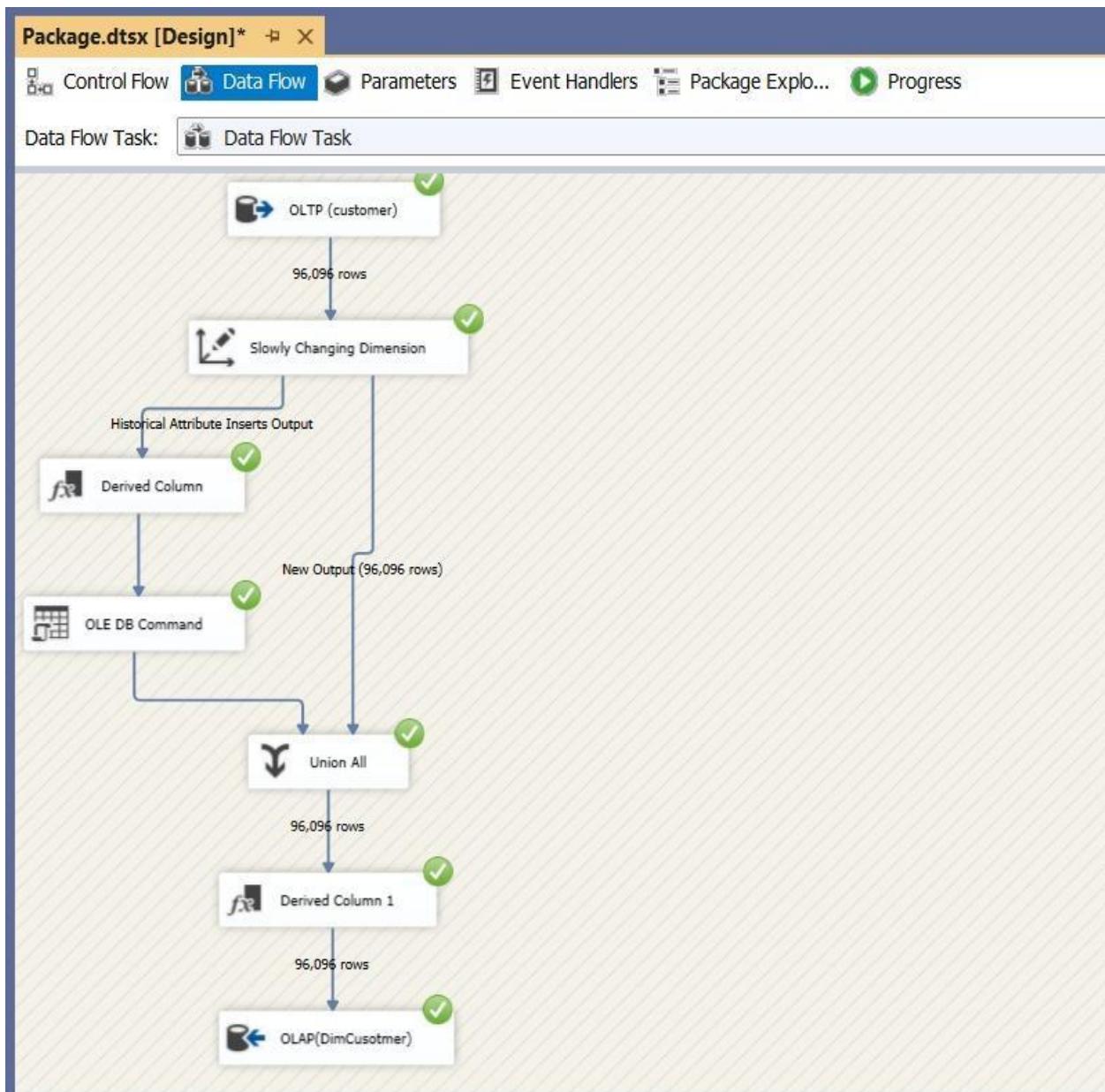
ETL Implementation Overview

- **ETL Tool Used:** SQL Server Integration Services (SSIS)
 - **Source Database:** Olist_Ecommerce_DB (OLTP)
 - **Destination:** Olist_Ecommerce_DWH
 - **Update Strategy:** Slowly Changing Dimension Type 2 (SCD Type 2) for dimension tables
 - **Fact Tables:** FactOrderItem, FactOrderPayments
 - **Dimension Tables:** DimCustomer, DimProduct, DimOrderReview, DimSeller
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ETL Process for Dimension Tables

1. DimCustomer

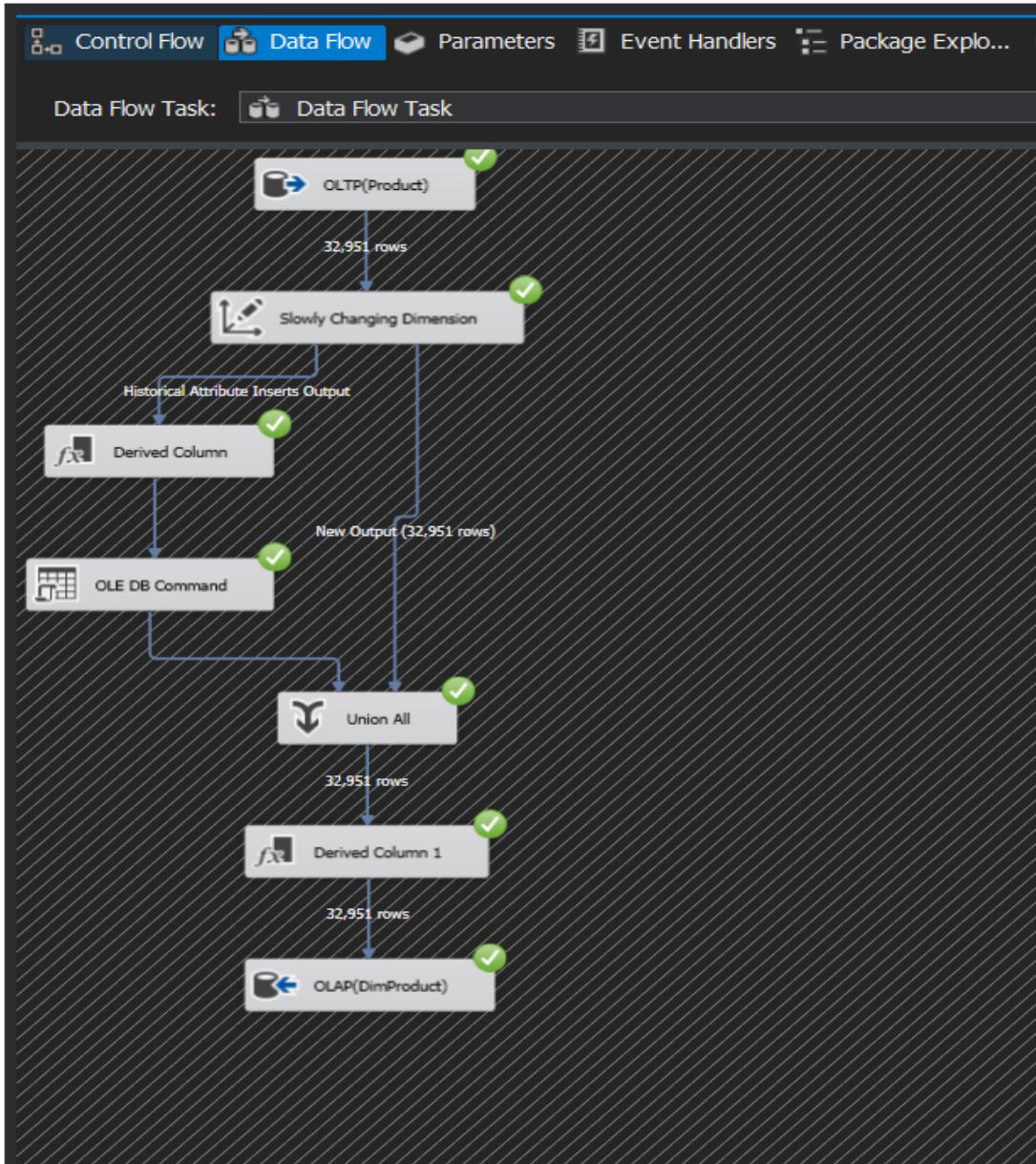
- **Source Table:** Olist_Ecommerce_DB.dbo.customers
- **Target Table:** Olist_Ecommerce_DWH.dbo.DimCustomer
- **Transformations:**
 - Extract customer details (customer_id, customer_unique_id, customer_zip_code_prefix, customer_city, customer_state).
- **Load Process:**
 - Implement **SCD Type 2** to track changes in customer information.



2. DimProduct

- **Source Tables:**
 - Olist_Ecommerce_DB.dbo.products
 - Olist_Ecommerce_DB.dbo.brands
- **Target Table:** Olist_Ecommerce_DWH.dbo.DimProduct
- **Transformations:**
 - Join products and brands on brand_id to integrate product and brand data.

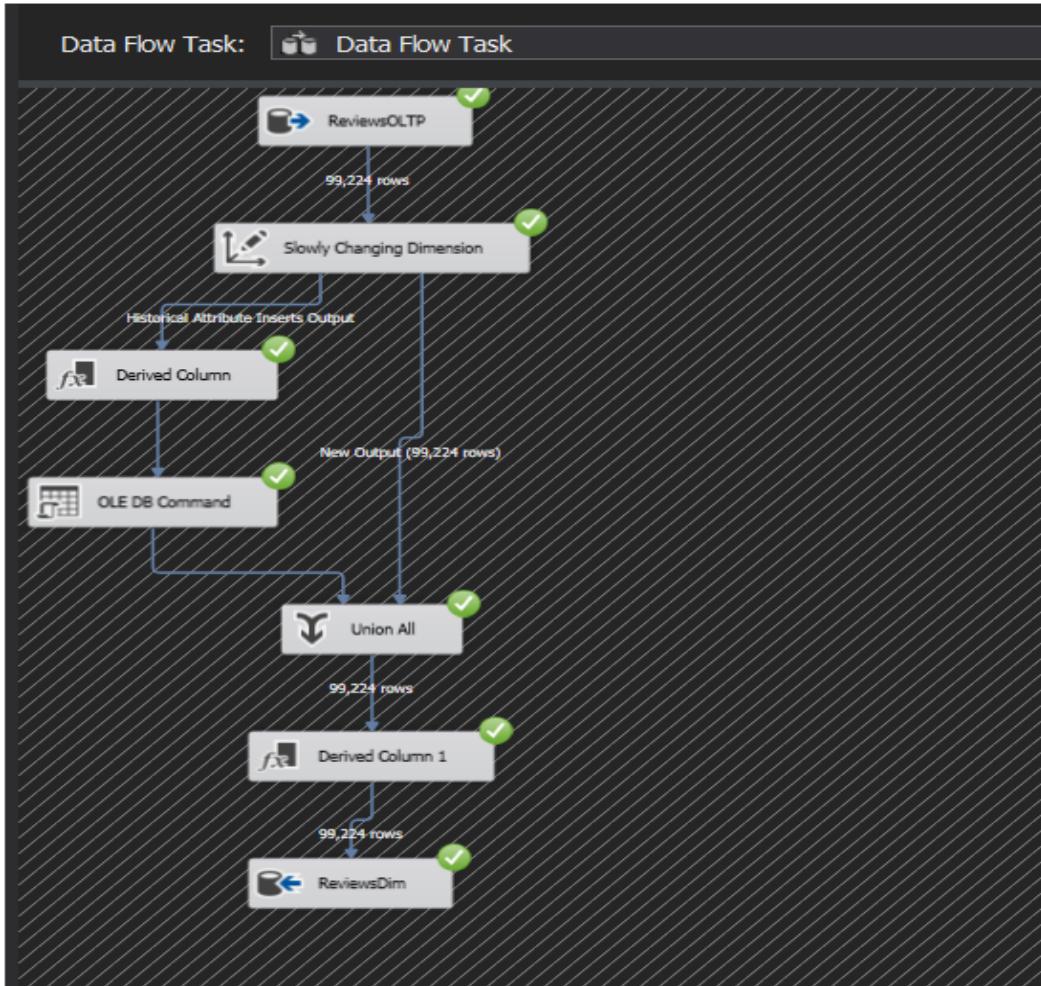
- Extract relevant attributes (`product_id`, `product_category_name`, `brand_name`).
- **Load Process:**
 - Apply **SCD Type 2** to track historical changes in product details.



3. DimOrderReview

- **Source Table:** `Olist_Ecommerce_DB.dbo.order_reviews`
- **Target Table:** `Olist_Ecommerce_DWH.dbo.DimOrderReview`
- **Transformations:**
 - Extract review details (`review_id`, `order_id`, `review_score`, `review_creation_date`, `review_answer_timestamp`).

- Standardize missing or incorrect values.
- **Load Process:**
 - Implement **SCD Type 2** to maintain historical review changes.



4. DimSeller

- **Source Table:** Olist_Ecommerce_DB.dbo.sellers
- **Target Table:** Olist_Ecommerce_DWH.dbo.DimSeller
- **Transformations:**
 - Extract seller details (`seller_id`, `seller_zip_code_prefix`, `seller_city`, `seller_state`).
- **Load Process:**
 - Apply **SCD Type 2** to track seller information changes.



ETL Process for Fact Tables

1. FactOrderItem

- Source Tables:
 - Olist_Ecommerce_DB.dbo.order_items
 - Olist_Ecommerce_DB.dbo.orders
 - Olist_Ecommerce_DB.dbo.customers
 - Olist_Ecommerce_DB.dbo.products
 - Olist_Ecommerce_DB.dbo.sellers

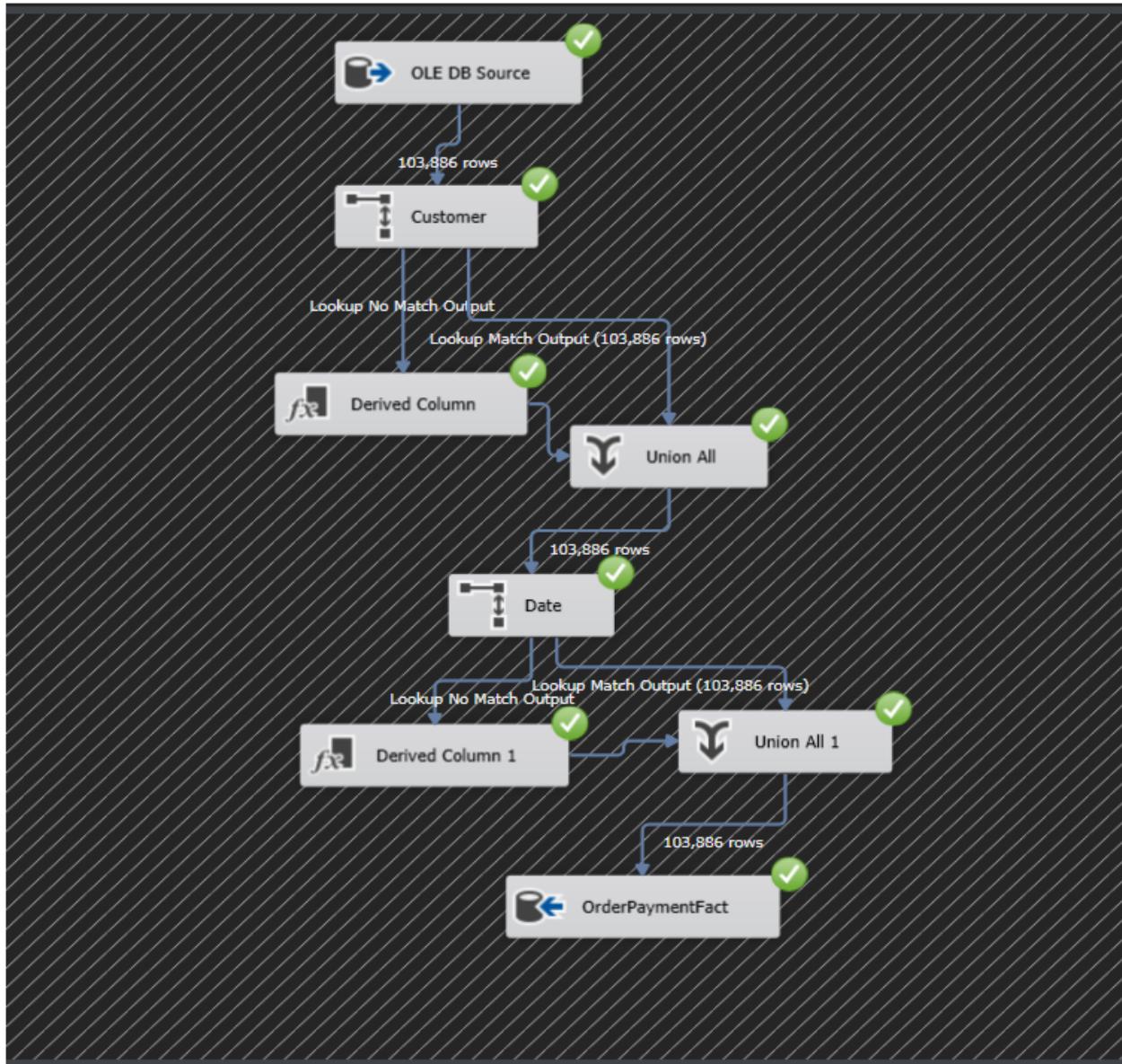
- Olist_Ecommerce_DB.dbo.order_reviews
- Target Table: Olist_Ecommerce_DWH.dbo.FactOrderItem
- Transformations:
 - Extract **order item details** (order_id, product_id, seller_id, shipping_limit_date, price, freight_value).
 - Perform **LOOKUP operations** to map foreign keys:
 - customer_id_sk from DimCustomer
 - product_id_sk from DimProduct
 - seller_id_sk from DimSeller
 - review_id_sk from DimOrderReview
 - DateSK from DimDate
 - Standardize missing values and perform necessary data type conversions.
- Load Process:
 - Insert transformed data into **FactOrderItem**.



2. FactOrderPayments

- Source Tables:
 - Olist_Ecommerce_DB.dbo.order_payments
 - Olist_Ecommerce_DB.dbo.orders
 - Olist_Ecommerce_DB.dbo.customers
- Target Table: Olist_Ecommerce_DWH.dbo.FactOrderPayments
- Transformations:
 - Extract **payment details** (order_id, payment_sequential, payment_type, payment_installments, payment_value).
 - Perform **LEFT JOIN** with **orders** and **customers** to integrate relevant order and customer details.
 - Apply **LOOKUP operations** for:
 - customer_id_sk from DimCustomer

- order_date_key from Date Dimension
- Load Process:
 - Insert the transformed data into **FactOrderPayments**.



Index for Data Warehouse

1. Indexes on DimCustomer Table

These indexes are created to optimize queries that filter or join on customer-related attributes.

- **customer_id**: Accelerates lookups and joins.
- **customer_state**: Optimizes searches by state, useful for regional analysis.
- **customer_city**: Improves query performance when filtering by city.

2. Indexes on DimProduct Table

Enhance product-related searches, categorization, and reporting.

- **product_id**: Speeds up lookups.
- **product_category_name_English**: Improves filtering by category.

3. Indexes on DimOrderReview Table

Optimize queries analyzing reviews and customer feedback.

- **review_id,order_id**: Ensures fast lookups and joins.
- **review_score**: Speeds up queries that analyze scores.

4. Indexes on DimSeller Table

Improve performance of queries related to seller details.

- **seller_id**: Optimizes joins.
- **seller_city**: Enhances queries filtering by city.
- **seller_name**: Speeds up searches.

5. Indexes on FactOrderItem Table

Enhance performance of fact table queries related to orders.

- **customer_id_sk**: Optimizes joins.
- **seller_id_sk**: Speeds up lookups for seller-related transactions.
- **product_id_sk**: Improves filtering based on products.
- **order_purchase_timestamp_datekey**: Enhances performance for date-based queries.

6. Indexes on FactOrderPayments Table

Improve performance of payment-related queries.

- **order_id**: Speeds up searches.
- **payment_sequential**: Optimizes filtering.
- **payment_type**: Improves filtering by payment type.

Summary

These indexes were implemented to enhance query performance across dimension and fact tables in the data warehouse. Proper indexing ensures efficient data retrieval, reduces query execution time, and optimizes reporting performance.

Handling Unknown or Missing Data

Handling NULL values in foreign key relationships in data warehousing is crucial for ensuring referential integrity. The following insert statements introduce default records into the **DimOrderReview** and **DimDate** tables to address missing or unknown data. This technique prevents foreign key violations and ensures smooth data processing in ETL pipelines and analytical queries.

Default Record in **DimOrderReview** (For Missing Reviews)

Purpose:

- Creates a default record (**review_id_sk = -1**) for cases where an order **has no review** or review data is unavailable.
- Prevents **foreign key constraint failures** in **FactOrderItem** when referencing a missing review.
- Ensures consistency when performing **joins and aggregations**.

SQL Statement:

```
INSERT INTO
  DimOrderReview
  (review_id_sk, review_id, order_id, review_score, review_status,
   review_creation_date, review_answer_timestamp, is_current,
   start_date, end_date)
VALUES (-1, 'UNKNOWN', 'UNKNOWN', NULL, 'No Review', NULL, NULL, 0,
        GETDATE(), NULL);
```

Default Record in DimDate (For Missing Dates)

Purpose:

- Ensures that **date-based foreign keys** always have a valid reference, even if the actual date is unknown.
- Uses a conventionally **reserved "unknown" date** (**1900-01-01**).
- Prevents NULL-related errors in queries that involve **date dimensions**.

SQL Statement:

```
INSERT INTO DimDate (DateSK, Date, Day, DaySuffix, DayOfWeek, DOWInMonth,
DayOfYear, WeekOfYear, WeekOfMonth, Month, MonthName, Quarter, QuarterName, Year)
VALUES
(-1, '1900-01-01', '01', 'st', 'Monday', 1, 1, 1, 1, '01',
'January', 1, 'Q1', 1900);
```

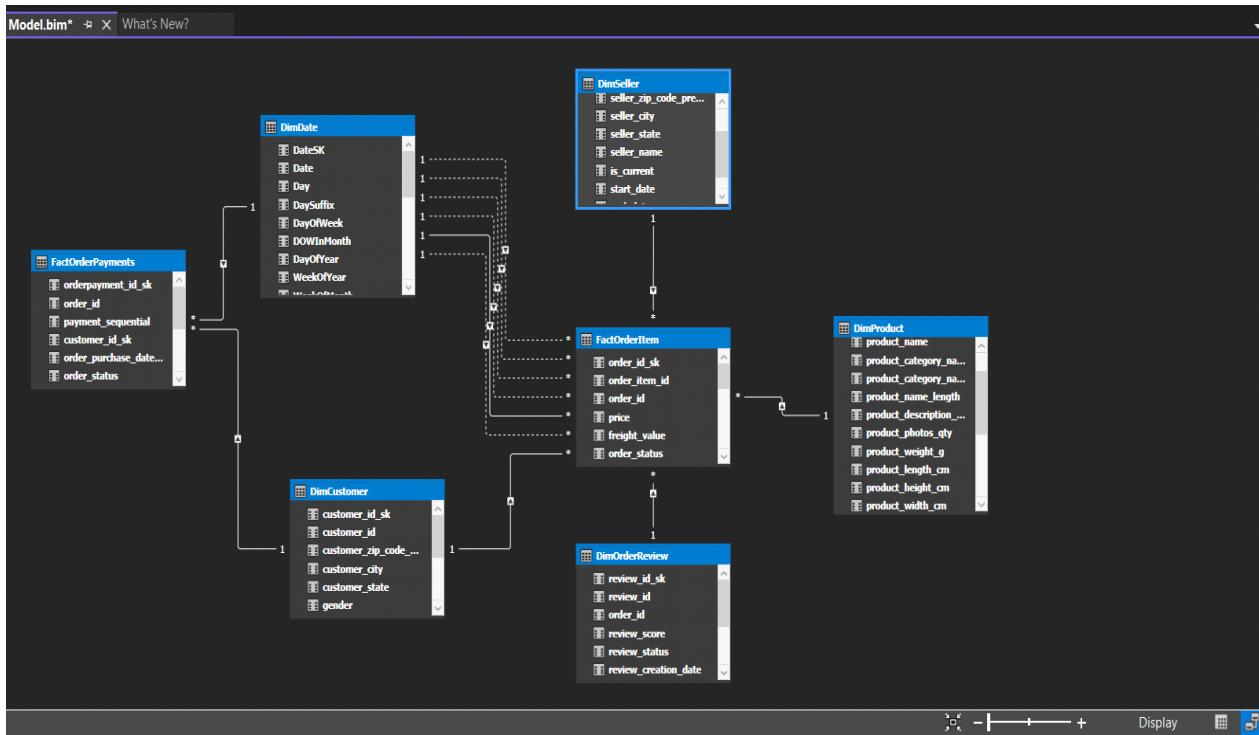
Why This Approach?

- Clearly defines **why default records are needed** in a data warehouse.
 - Helps future developers understand the **reason behind using -1 values**.
 - Ensures **data integrity and smooth ETL processes** without breaking relationships.
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SSAS

Implementing an SSAS Tabular Model for Olist E-commerce

To enhance data analysis and OLAP capabilities, we developed a SQL Server Analysis Services (SSAS) Tabular Model for the Olist E-commerce Project. This model enables efficient reporting, trend analysis, and business intelligence insights.



Why SSAS Tabular Model?

- We chose the SSAS Tabular Model over the SSAS Multidimensional Model due to several key benefits:
 - 1. Performance & Speed** – The Tabular Model uses VertiPaq compression and in-memory processing, enabling fast query performance, even on large datasets.
 - 2. Ease of Development** – It is easier to design and implement compared to the multidimensional model, requiring fewer complex data modeling.
 - 3. DAX for Powerful Calculations** – The Data Analysis Expressions (DAX) language allows for dynamic aggregations, KPIs, and time intelligence functions, making analytics more flexible.
 - 4. Seamless Power BI Integration** – The Tabular Model integrates directly with Power BI, Excel, and other reporting tools, enabling real-time interactive dashboards.

Data Sources and Integration

The dataset includes order transactions, customer demographics, seller information, product categories, and payment details. Data is extracted from transactional databases, preprocessed in SQL Server, and structured in a Galaxy schema for optimized querying.

Model Implementation

Tables & Relationships: The model includes fact tables such as FactOrders, FactPayments, and FactReviews, alongside dimension tables like DimCustomers, DimSellers, DimProducts, and

DimDates.

Measures & KPIs: We developed DAX measures to calculate key business metrics

DimCustomer Table Measures

These measures are part of the **Customers Table** in the SSAS Tabular Model, providing key insights into customer demographics and engagement.

customer_id	customer_zip_code_prefix	customer_city	customer_state	gender	customer_login_type	age	is_current	start_date	end_date
59	0029bd580d3...	8225	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
379	00fb8f6787f6...	3186	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
647	01aae089a9f7...	5445	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
810	022ac7dfecd0...	1508	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
865	024e448ec86...	4363	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
1762	04b2af3c93e4...	2281	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
2336	063d3c82b96...	5641	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
3438	08fbcc1dee82...	3802	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
4515	0be0726fd70...	1453	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
4651	0c3dbe24339...	2739	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
4979	0d36922553a...	5323	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
5061	0d605df144...	3582	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
5400	0e58d0234d2...	1536	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
5832	0f7b20aa5489...	2991	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
5881	0f959f179a34...	3211	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
6464	11115c24313...	4841	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
6514	11362d76a6f...	4241	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
6637	11859b0a875...	8370	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
7018	128e8489c7d...	8032	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
7151	12e7867bb47...	1227	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
7274	13394f69747...	2256	sao paulo	SP	Male	Member	27	1	2/27/2025 ...
No. customers: 96096	No. active customers: 95420	Avg Age: 41	No. Male Customers: 54765	NO. Female Customers: 41331	No. non-active customers: 676	No. CustomerCity: 4118	No. CustomerState: 27	Female Customers Percent%: 43.01%	Male Customers Percent%: 56.99%

Key Metrics:

- Total Customers:** 96,096
- Active Customers:** 95,420
- Non-Active Customers:** 676
- Average Age:** 41
- Male Customers:** 54,765 (56.99%)
- Female Customers:** 41,331 (43.01%)
- Customers per City:** 4,118
- Customers per State:** 27

DimProduct Table Measures

These measures are part of the **Products Table** in the SSAS Tabular Model, providing key insights into product attributes and categorization.

product_i...	product_id	product_name	product_category_name_English	product_category_name	product_name_length	product_description_length
45	0067f97995...	Deluxe Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	59	412
417	036bcd084f...	Deluxe Furniture ...	furniture_room	moveis_quarto	61	1961
612	05216a143a...	Professional Fashi...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	53	353
670	05869034bc...	Deluxe Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	49	731
679	059d3cf4de...	Essential Automot...	automotive	automotivo	58	824
807	065a46b0be...	Essential Fashion ...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	53	1359
1008	07d56eb519...	Essential Fashion ...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	56	1447
1743	0d78435088...	Deluxe Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	48	1359
2305	11810c1eaa...	Deluxe Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	50	1359
2690	146df82d2ff...	Classic Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	47	731
2760	1514ddb04f...	Premium Pet Sh...	pet_shop	pet_shop	54	282
2801	15557c5349...	Premium Watch...	watches_gifts	relogios_presentes	28	188
2833	1582e72435...	Professional Fashi...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	48	1359
2931	1632189d4c...	Premium Fashion...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	56	1474
2953	165948b2c4...	Premium Fashion...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	55	89
4789	242eb53ca3...	Premium Fashion...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	44	1357
5237	2797d3826d...	Premium Pet Sh...	pet_shop	pet_shop	36	142
5814	2c28b6fd45...	Essential Fashion ...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	52	1431
5835	2c5f07b082f...	Deluxe Fashion B...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	52	73
6338	30b159b653...	Professional Fashi...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	49	1398
6646	331aad9546...	Professional Fashi...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	46	1359
7011	35f00e354f3...	Professional Fashi...	fashion_bags_e_acessorios	fashion_bolsas_e_acessorios	54	1386
No. Products: 32951	Average Product length: 16.94	Average Product height: 16.94	No. Brands: 13	Average Product Weight: 2.28	No. Brand website: 13	No. Products Category: 74

Key Metrics:

- Total Products:** 32,951
- Average Product Name Length:** 16.94
- Average Product Description Length:** 16.94
- Total Brands:** 13
- Average Product Weight:** 2.28
- Total Brand Websites:** 13
- Total Product Categories:** 74

DimSeller Table Measures

seller_id	seller_name	is_current	s
8	Rose and Sons	1	
10	Miller-Harris	1	
12	Hernandez-Hill	1	
27	Morgan, Luce...	1	
28	Davis-Moore	1	
43	Herrera-John...	1	
55	Jones LLC	1	
57	Smith-Nguyen	1	
62	Santiago LLC	1	
66	Riley-Thomps...	1	
68	Caldwell-Michael	1	
75	Phillips, Smith ...	1	
81	Johnson, Du...	1	
87	Johnston, Fo...	1	
89	Kennedy-Ngu...	1	
94	Gibbs and Sons	1	
95	Brown Group	1	
96	Floyd and Sons	1	
97	Wagner-Archer	1	
99	Harvey Group	1	
103	Shaw, Bush a...	1	
118	Gilmore, Russ...	1	
No. Sellers: 3095	Avg Products Sold by Seller: 44	Avg Revenue per Seller: \$4,410.96	Total Sales: \$13,651,923.4611
			NO. seller City: 611 NO. seller State: 23 No. active sellers: 3095

These measures are part of the **Sellers Table** in the SSAS Tabular Model, providing key insights into seller performance and distribution.

Key Metrics:

- **Total Sellers:** 3,095
- **Active Sellers:** 3,095
- **Total Sales:** \$13,651,923.64
- **Average Revenue per Seller:** \$4,410.96
- **Average Products Sold per Seller:** 44
- **Number of Seller Cities:** 611
- **Number of Seller States:** 23

FactOrderItem Table Measures

These measures provide insights into **order processing, sales, and delivery performance** in the SSAS Tabular Model.

order_id_sk	order_item_id	order_id	price	freight_value	order_status	device_type	customer_id_sk	seller_id_sk	product_id_sk
516	1	044cd7ff...	19.9	15.1	delivered	Web	72350	4	12770
2102	1	057e837e...	19.9	15.1	delivered	Web	47927	647	13985
2679	1	099c1abf...	19.9	15.1	delivered	Web	17894	293	11240
2954	1	00c8be06...	19.9	15.1	delivered	Web	58224	214	12106
3822	1	0e4e2b4f...	19.9	15.1	delivered	Web	65651	647	1371
4733	1	06de1652...	19.9	15.1	delivered	Web	57750	1837	30279
5155	1	0683849d...	19.9	15.1	delivered	Web	75120	1296	26190
5418	1	15bbe82a...	19.9	15.1	delivered	Web	73579	647	1371
5522	1	08090fcc...	19.9	15.1	delivered	Web	7731	1837	14455
7943	1	150dc175...	19.9	15.1	delivered	Web	39401	2846	23386
8510	1	13276f43...	19.9	15.1	delivered	Web	59577	1529	6926
9057	1	05ea910f...	19.9	15.1	delivered	Web	18175	1837	30279
10377	1	16f4a05a...	19.9	15.1	delivered	Web	69141	647	1371
11049	1	1a62946a...	19.9	15.1	delivered	Web	89483	647	1371
11268	1	219c7d52...	19.9	15.1	delivered	Web	88450	1545	20679
11306	1	1af002e4...	19.9	15.1	delivered	Web	60815	732	29961
11717	1	19dc3961...	19.9	15.1	delivered	Web	38904	2147	3289
11884	1	1a7da20c...	19.9	15.1	delivered	Web	63185	647	1371
13727	1	23575ff1c...	19.9	15.1	delivered	Web	19730	647	1371
14251	1	1acdb4e49	19.9	15.1	delivered	Web	47400	647	1271
Total Sales Amount: \$13,651,923.47	Total Freight: \$2,263,948.85	Total Items Sold: 112761	Average Order Value: \$138.37	Avg Freight value: \$19.98	No. Order Status: 7	Total Orders: 98666	OnTime_Delivery_Rate (%): 93.38%	Avg Order Processing Time: 10.31	Avg Order Delivery Time: 9.28

Key Metrics:

- Total Sales Amount:** \$13,651,923.47
- Total Freight:** \$2,263,948.85
- Total Items Sold:** 112,761
- Total Orders:** 98,666
- Average Order Value:** \$138.37
- Average Freight Value:** \$19.98
- Number of Order Status Types:** 7
- On-Time Delivery Rate:** 93.38%
- Average Order Processing Time:** 10.31 days
- Average Order Delivery Time:** 9.28 days

Fact Payments Table Measures

orderpayment_id_sk	order_id	payment_sequential	customer_id	order_purchase_dat...	order_status	device_type	payment_type	payment_installments	bank_name	payment_value
96	00137e17...	1	21387	20171124	delivered	Web	boleto		1 Banco do Brasil	421.65
612	00275bce...	1	74347	20171124	delivered	Web	boleto		1 Banco do Brasil	293.36
4536	09ed65e3...	1	25545	20171124	delivered	Web	boleto		1 Banco do Brasil	138.21
5702	0de63dfb...	1	32099	20171124	delivered	Web	boleto		1 Banco do Brasil	108.1
6247	0cc25005...	1	71421	20171124	delivered	Web	boleto		1 Banco do Brasil	35.77
7534	10f288cd...	1	5382	20171124	delivered	Web	boleto		1 Banco do Brasil	41.84
10002	1ce004e5...	1	52203	20171124	delivered	Web	boleto		1 Banco do Brasil	30
11170	23259ed6...	1	46611	20171124	delivered	Web	boleto		1 Banco do Brasil	75.17
11800	19ed81a2...	1	14740	20171124	delivered	Web	boleto		1 Banco do Brasil	155.26
13804	1f2d7480...	1	70916	20171124	delivered	Web	boleto		1 Banco do Brasil	113.35
14300	3196a24f...	1	5382	20171124	delivered	Web	boleto		1 Banco do Brasil	32.85
14918	25eb0761...	1	80011	20171124	delivered	Web	boleto		1 Banco do Brasil	142.26
16684	347af76e...	1	68156	20171124	delivered	Web	boleto		1 Banco do Brasil	81.5
19289	2f44c5c9...	1	9819	20171124	delivered	Web	boleto		1 Banco do Brasil	84.23
19723	32e839df...	1	74276	20171124	delivered	Web	boleto		1 Banco do Brasil	124.88
20562	36420a14...	1	66976	20171124	delivered	Web	boleto		1 Banco do Brasil	77.03
20666	37041e47...	1	88831	20171124	delivered	Web	boleto		1 Banco do Brasil	127.22
21135	3967044b...	1	93744	20171124	delivered	Web	boleto		1 Banco do Brasil	42.33
No. Transactions: 103886	No. Available Banks: 10	No. Canceled Orders: 625	Order Cancellation Rate: 0.63%	Order delivered Rate (%): 97.78%	Credit Card Payment %: 73.92%					
Avg Payment Installments: 3	No. Available Payment Methods: 5	Total Payment: \$16,008,872.12	NO. Delivered Orders: 96477	Payments Per Order: 162.25	Customer Lifetime Value: 142.07					

These measures provide insights into **payment transactions, order cancellations, and financial performance** in the SSAS Tabular Model.

Key Metrics:

- Total Transactions:** 103,886
- Total Payment Amount:** \$16,008,872.12
- Total Delivered Orders:** 96,477
- Total Canceled Orders:** 625
- Order Cancellation Rate:** 0.63%
- Order Delivery Rate:** 97.78%
- Number of Available Banks:** 10
- Number of Available Payment Methods:** 5
- Average Payment Installments:** 3
- Payments Per Order:** 162.25
- Credit Card Payment Share:** 73.92%
- Customer Lifetime Value:** 142.07

DimOrderReview Table Measures

These measures provide insights into **Review Counts, Bad Review, and Good Review** in the SSAS Tabular Model.

review_id_sk	review_id	order_id	review_score	review_status	review_creation_date	review_answer_timestamp	is_current	start_date
498	0141189a6...	e53a8a67...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 9:48:14 AM	1	2/27/2025 ...
933	026da68b6...	ca186afb2...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 1:58:22 AM	1	2/27/2025 ...
1321	038403c9b...	984e0373...	5	positive	8/28/2018 12:00:00 AM	8/31/2018 6:05:06 PM	1	2/27/2025 ...
1553	041502b6...	2ea2d6cf4...	5	positive	8/28/2018 12:00:00 AM	8/31/2018 1:17:43 AM	1	2/27/2025 ...
1647	0448682c0...	b44e4934...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 8:46:39 PM	1	2/27/2025 ...
2187	05ab0cea4...	7a3d9b3a...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 2:16:56 AM	1	2/27/2025 ...
2629	06e0e48f8...	3b2c1076...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 7:09:36 PM	1	2/27/2025 ...
2836	075cc5d41...	d77f5a01...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 9:35:33 PM	1	2/27/2025 ...
2901	07882d9ee...	04ebe10a...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 10:11:04 PM	1	2/27/2025 ...
3465	0914ea08d...	4ac4fb9e2...	5	positive	8/28/2018 12:00:00 AM	8/31/2018 2:14:28 AM	1	2/27/2025 ...
4439	0b8a02959...	f2fc3e958...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 12:36:51 AM	1	2/27/2025 ...
4502	0bb9c2f5c...	8d593913...	5	positive	8/28/2018 12:00:00 AM	8/30/2018 7:12:45 PM	1	2/27/2025 ...
5316	0db7cf64b...	92b7ad3b...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 12:20:49 PM	1	2/27/2025 ...
6496	10bb3170e...	72b2fcda...	5	positive	8/28/2018 12:00:00 AM	8/31/2018 2:38:14 PM	1	2/27/2025 ...
6797	118437bad...	9e12d0b2...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 11:27:06 AM	1	2/27/2025 ...
7264	12cbb5461...	82ee5cb3...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 12:24:49 PM	1	2/27/2025 ...
7716	13ffca5026...	c8e8f8ab0...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 7:19:13 PM	1	2/27/2025 ...
8520	15fbfce2b5...	ab95c133...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 8:28:47 PM	1	2/27/2025 ...
9185	17a567a20...	f7a8ec3f6...	5	positive	8/28/2018 12:00:00 AM	8/28/2018 11:03:07 PM	1	2/27/2025 ...
10211	1a614de54...	ca207209...	5	positive	8/28/2018 12:00:00 AM	8/29/2018 12:33:16 AM	1	2/27/2025 ...
10739	1bb5bf201...	8d5ac178...	5	positive	8/28/2018 12:00:00 AM	9/2/2018 9:29:35 AM	1	2/27/2025 ...
No. Reviews: 98411	Avg Review Score: 4	Min Score: 1	Reviewed orders: 98674	No. Bad Reviews: 20304	No. good Reviews: 78106			

Key Metrics:

- Total Reviews:** 98411
- Average Review Score:** 4
- Minimum Review Score:** 1
- Total Reviewed Orders:** 98674
- Total Bad Reviews:** 20304
- Total Good Reviews:** 78106

SSRS Reports

Customer Satisfaction Report

Analyzes customer satisfaction through key metrics such as Average CSAT, Positive/Negative Review Percentage, and identifies the Most/Least Satisfied Seller. Provides a tabular view of insights to help improve customer experience.

2.

The screenshot shows a software interface for generating reports. At the top, there are buttons for 'Design' and 'Preview'. Below that, a toolbar includes 'Start Date' (3/13/2017), 'End Date' (12/13/2019), and a 'View Report' button. The main content area is titled 'Customer Satisfaction Report' and contains a table with the following data:

Average CSAT	No Customers	Positive Review Percentage	Negative Review Percentage	Most Satisfied Seller	Least Satisfied Seller
4	95346	79	20	Mendoza Inc	Knight Group

Seller Performance Report

Evaluate seller effectiveness by tracking Total Revenue, Number of Orders, and Sold Units across different brands and product categories. Includes a trend analysis chart to monitor revenue fluctuations over time.

The screenshot shows a software interface for generating reports. At the top, there are buttons for 'Design' and 'Preview'. Below that, a toolbar includes 'seller name' (Johnson, O'Neill and Mack), 'End Date' (12/13/2019), and a 'View Report' button. The main content area is titled 'Seller Performance Report' and contains a table with the following data:

Product ID	Brand	Category	Sub-Category	Count	Total Revenue	Sold Units
001cca7ae9 ae17fb1cae d9dfb10948 31	Johnson, O'Neill and Mack	ToolPro	Premium Construction Tools Construction Pro F783	1	129.9	1
001cca7ae9 ae17fb1cae d9dfb10948 31	Johnson, O'Neill and Mack	ToolPro	Premium Garden Tools Elite D896	14	1914	16
001cca7ae9 ae17fb1cae d9dfb10948 31	Johnson, O'Neill and Mack	ToolPro	Professional Garden Tools Elite N824	46	5257	53

Below the table is a line chart titled 'Total Revenue' showing the trend from 2017 to 2018. The Y-axis ranges from 0 to 25,000. The X-axis shows the years 2017 and 2018. The chart shows two data points: 21,638 in 2017 and 3,442 in 2018.

Payment Method Report

Assesses revenue distribution across various payment methods, highlighting Total Revenue and Number of Transactions per method. A bar chart provides a visual comparison for better decision-making.

The screenshot shows a report interface with a toolbar at the top. The toolbar includes 'Design' and 'Preview' buttons, date selection fields ('Start Date: 4/13/2017' and 'End Date: 12/13/2019'), a 'View Report' button, and navigation buttons. Below the toolbar is a table titled 'Payment Method Report' with the following data:

Payment Method	Total Revenue	No Transactions
not_defined	0	3
debit_card	211391.52	1466
voucher	352855.0500000001	5302
boleto	2660966.84999999	18339
credit_card	11672483.38999995	71852

To the right of the table is a bar chart titled 'Total Revenue Per Payment Method'. The chart displays the total revenue for each payment method. The bars are blue with numerical values labeled above them: boleto (2,661), credit_card (11,672), debit_card (211), not_defined (0), and voucher (353).

Product Performance Report

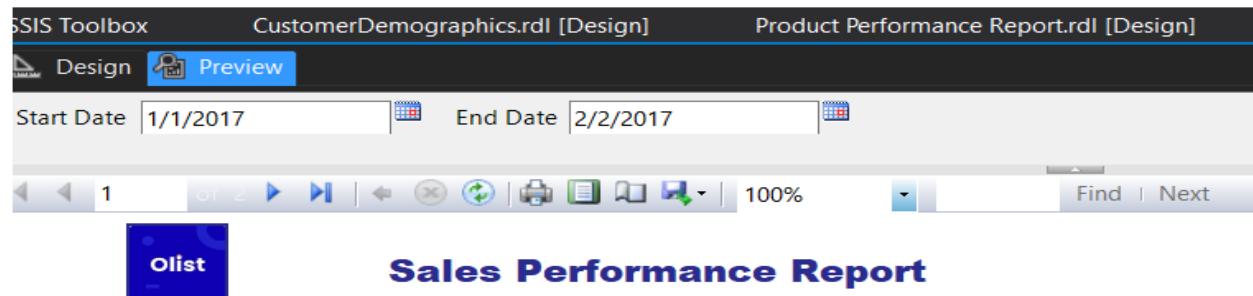
This report provides details on a specific product's sales performance, including product ID, name, brand, seller, category, number of units sold, and total revenue.

The screenshot shows a report interface with a toolbar at the top. The toolbar includes 'Design' and 'Preview' buttons, date selection fields ('Start Date: 9/1/2016' and 'End Date: 12/31/2018'), a search field ('product name: Essential Cool Stuff Max'), and navigation buttons. Below the toolbar is a table titled 'Product Performance Report' with the following data:

Product ID	Product Name	Brand Name	Seller Name	Product Category	No. Units Sold	Total Revenue
00126f27c813 603687e6ce4 86d909d01	Essential Cool Stuff Max D156	SmartHome	Guerrero-Lee	cool_stuff	2	498

Sales Performance Report

This report tracks revenue and sales metrics over time, showing order dates, total revenue, order volume, and average order value.



The screenshot shows the SSIS Toolbox interface with three tabs at the top: 'SSIS Toolbox', 'CustomerDemographics.rdl [Design]', and 'Product Performance Report.rdl [Design]'. The 'Preview' tab is selected. Below the tabs, there are date selection fields for 'Start Date' (1/1/2017) and 'End Date' (2/2/2017), followed by a toolbar with various icons. The main area displays a report titled 'Sales Performance Report' with a logo for 'Olist'. The report contains a table with four columns: Order Date, Total Revenue, Order Volume, and Avg Order Value. The data is as follows:

Order Date	Total Revenue	Order Volume	Avg Order Value
1/5/2017 12:00:00 AM	396.9	32	12.403125
1/6/2017 12:00:00 AM	916.38	4	229.095
1/7/2017 12:00:00 AM	1351.9	4	337.975
1/8/2017 12:00:00 AM	709.58	6	118.263333333333
1/9/2017 12:00:00 AM	673.79	5	134.758
1/10/2017 12:00:00 AM	1434.87	6	239.145
1/11/2017 12:00:00 AM	2776.16	12	231.346666666667
1/12/2017 12:00:00 AM	2234.58	13	171.890769230769
1/13/2017 12:00:00 AM	2505.58	11	227.78
1/14/2017 12:00:00 AM	1112.69	18	61.816111111111
1/15/2017 12:00:00 AM	2199.57	14	157.112142857143

- Customer Demographics Report

This report presents customer location-based sales data, including the number of customers, number of orders, and total sales.

Design Preview

Start Date 1/1/2017 End Date 2/2/2017

Customer Demographics Report

Customer Location	No Customers	No Orders	Total Sales
AC, rio branco	1	2	589.6
AL, arapiraca	1	1	514.99
AL, colonia leopoldina	1	1	263.98
AL, penedo	1	1	129.99
BA, curaca	1	1	30
BA, fatima	1	1	92.1
BA, feira de santana	3	3	245.7

Top N Selling Products Report

This Report shows the **top 5 best-selling products** based on total sales. It includes a table listing **Product ID**, **Product Name**, **Product Category**, **Total Sales**, and **Number of Units Sold**, along with a pie chart visualizing unit sold per product category.

Top Selling Products.rdl [Design] X Product Performance Report.rdl [Design] SalesReport.rdl [Design] CustomerDemographics.rdl [Design]

Design Preview

Top N 5 View Report

100% Find Next

Top Selling Products

Product ID	Product Name	Product Category	Total Sales	No Units Sold
aca2eb7d00ea1a7b8 ebd4e68314663af	Deluxe Furniture Decoracao Standard R436	furniture_decoracao	37608.9000000003	527
99a4788cb24856965 c36a24e339b6058	Professional Bed Table Bath Plus Y828	bed_table_bath	43025.5600000004	488
422879e10f46682990 de24d770e7f83d	Premium Garden Tools Plus J175	garden_tools	26577.2200000002	484
389d119b48cf3043d 311335e499d9c6b	Classic Garden Tools Max B207	garden_tools	21440.59	392
368c6c730842d7801 6ad823897a372db	Professional Garden Tools Max A617	garden_tools	21056.8000000001	388

No. Units Sold Per Product Category

Category	Units Sold
bed_table_bath	488
furniture_decoracao	527
garden_tools	1264

No. Units Sold Per Product Category

Category	Units Sold
bed_table_bath	488
furniture_decoracao	527
garden_tools	1264

Reporting and Analysis

After implementing the **SSAS Tabular Model** and generating **Reports** using SQL Server Reporting Services (**SSRS**), the project's reporting capabilities are further enhanced through the use of **Power BI**, **Tableau**, and **Excel**. These tools provide interactive dashboards, advanced analytics, and flexible reporting options.

Power BI

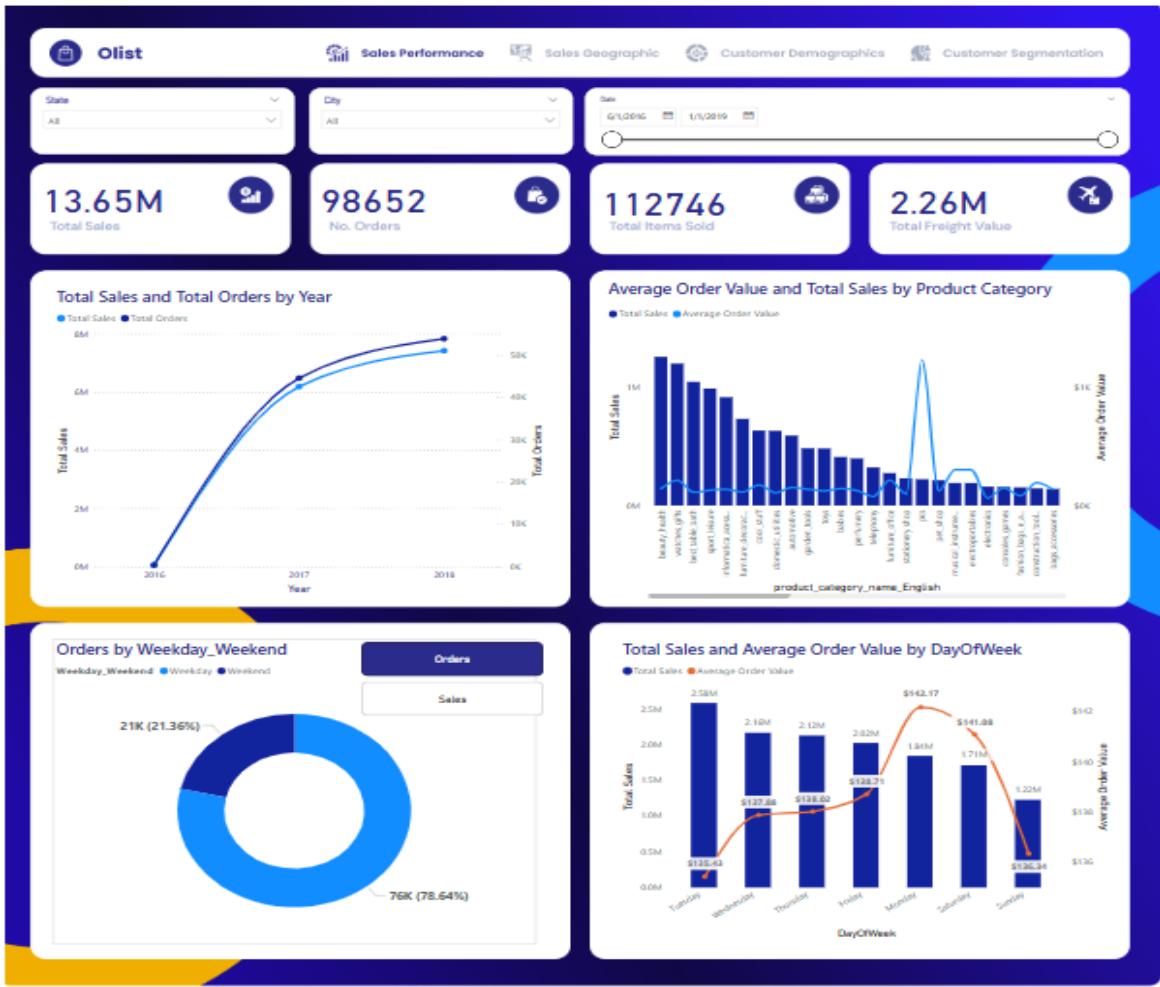
Power BI is used to create interactive dashboards that provide real-time insights into key performance indicators (KPIs). These dashboards allow users to visualize data, explore trends, and make data-driven decisions. Power BI connects seamlessly to the SSAS Tabular Model, enabling the creation of dynamic and interactive reports.

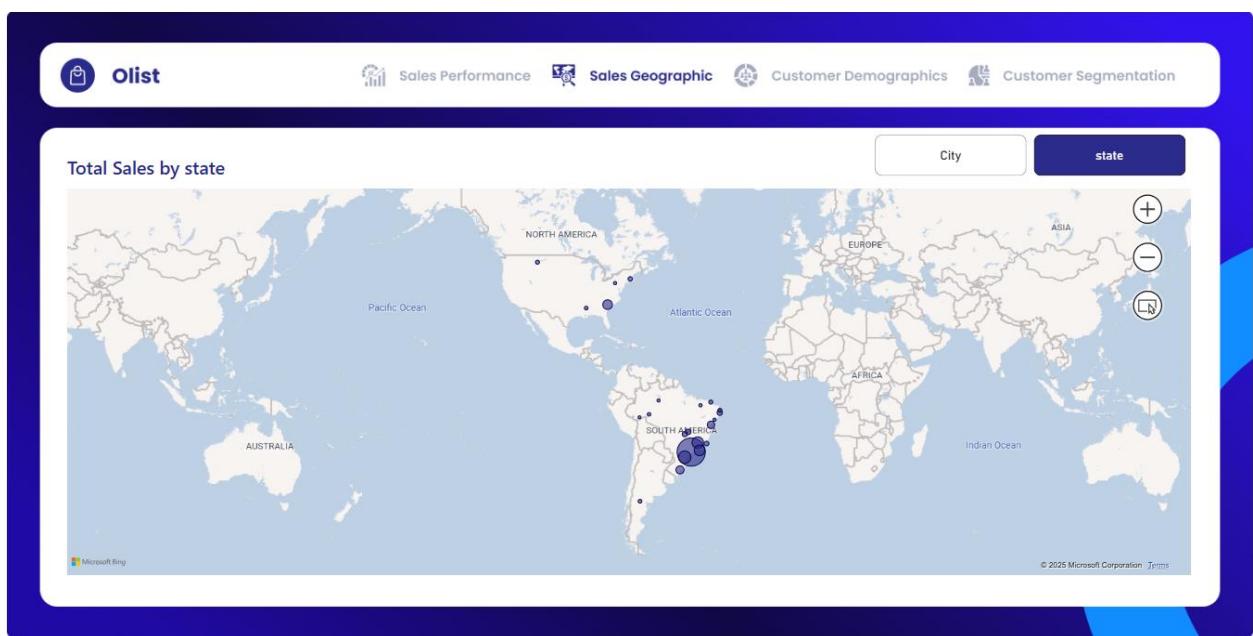
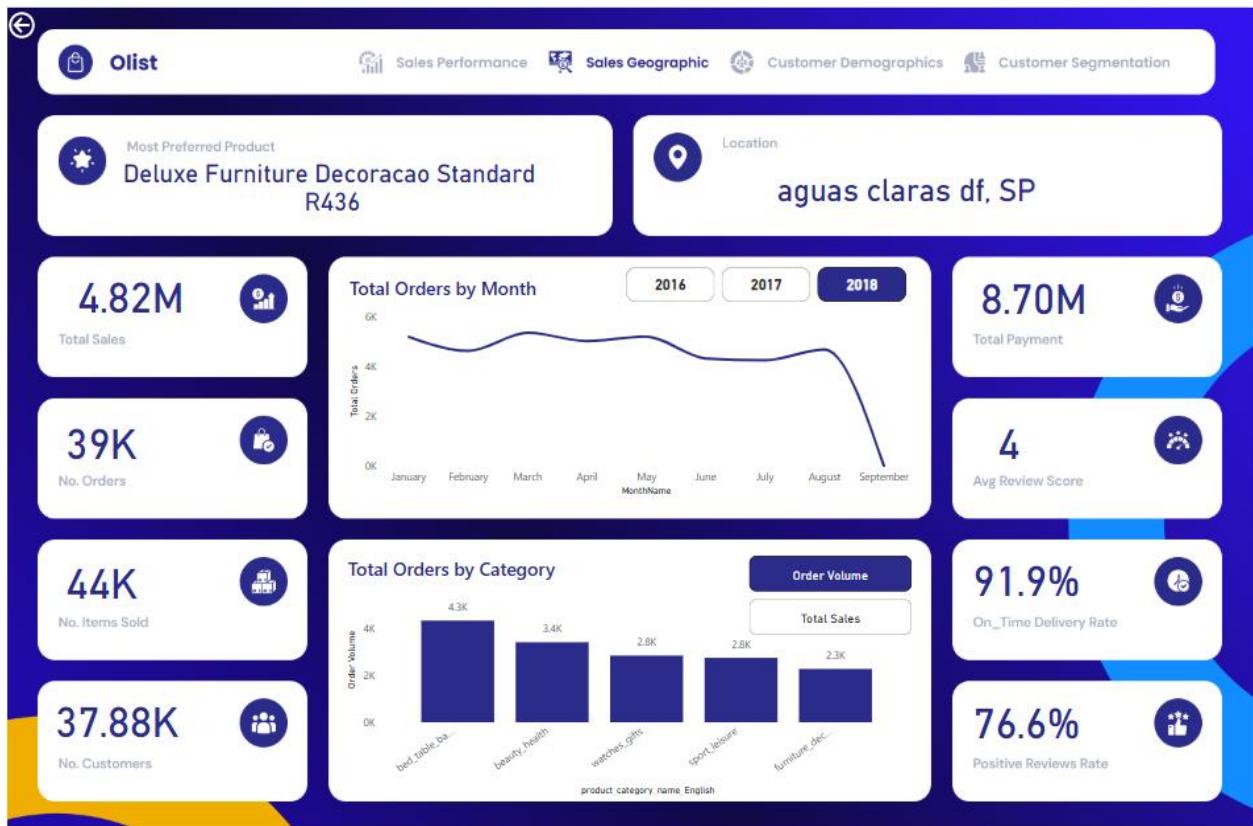
- **Key Features and Benefits:**
 - Interactive dashboards with drill-down capabilities
 - Data visualization and exploration
 - Real-time data updates
 - Integration with SSAS Tabular Model
 - Mobile access for on-the-go insights

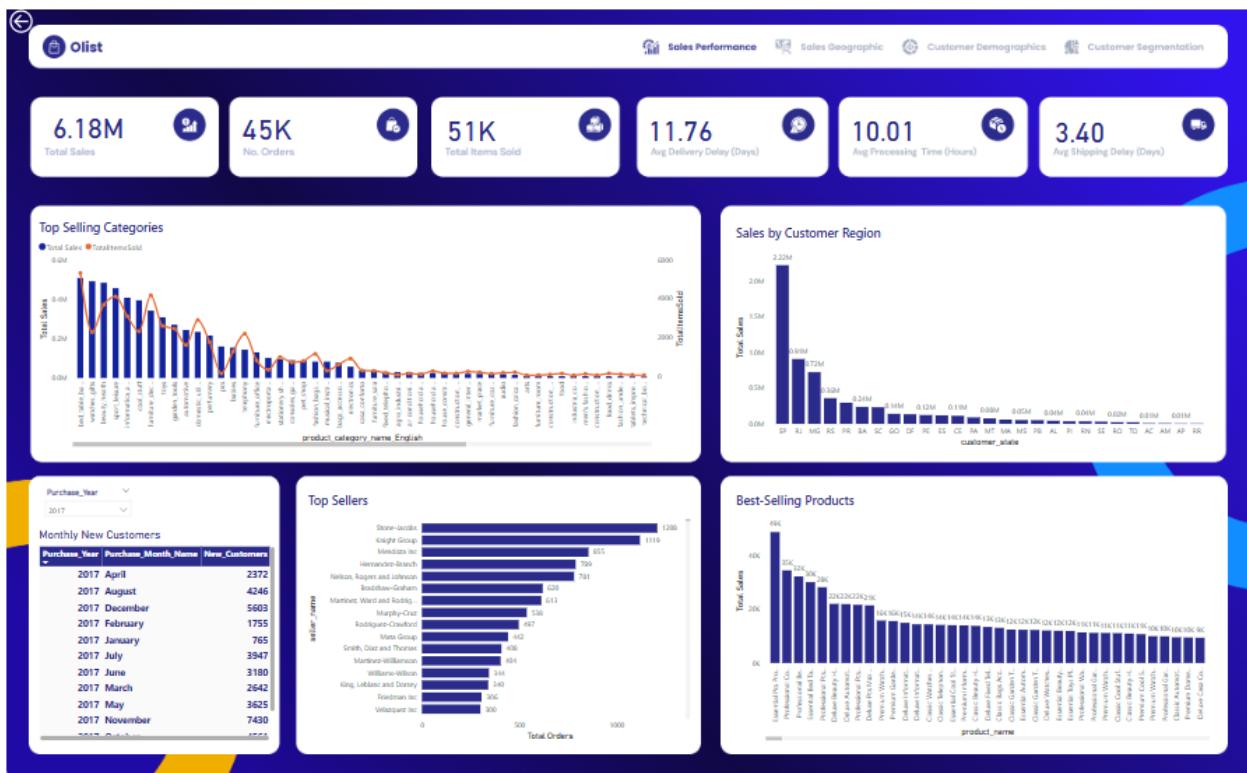
Power BI Dashboards

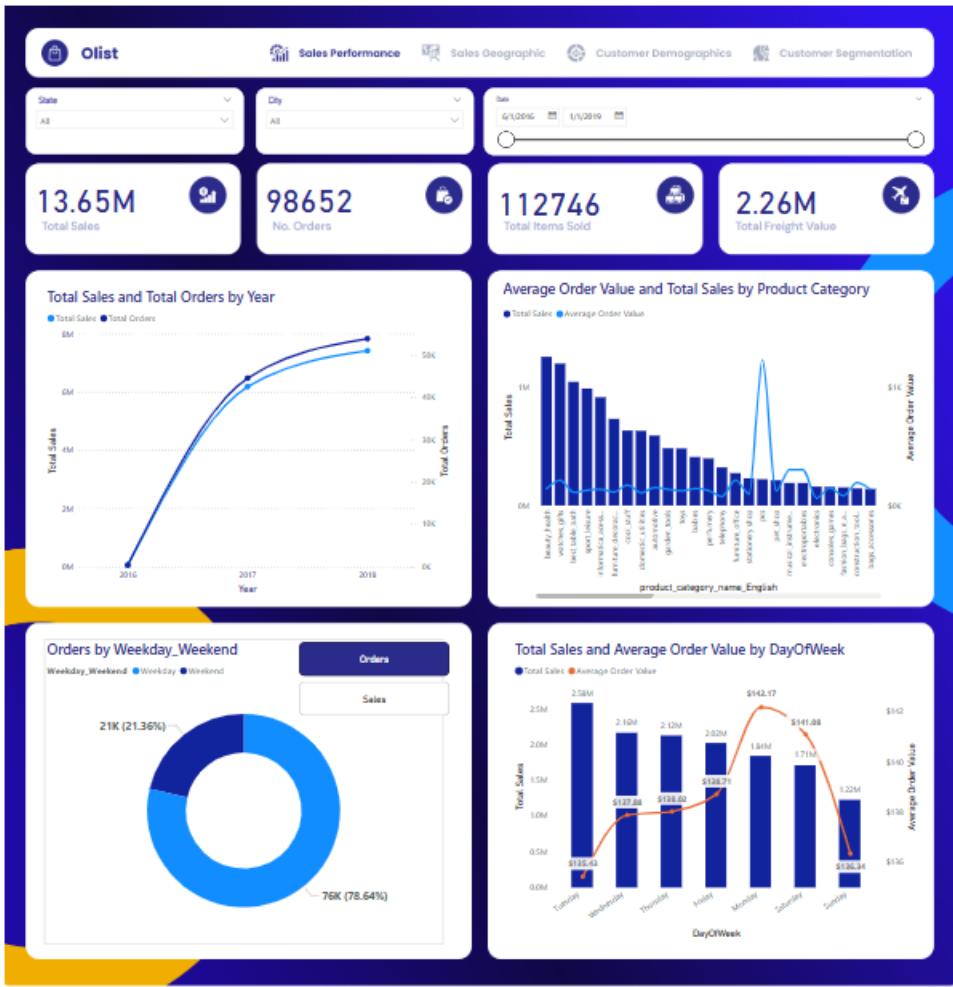
Sales Performance & Geographic Sales Dashboard

This dashboard provides insights into total orders, sales, and average order value, highlighting trends across different time periods. The geographic analysis feature helps identify sales performance across different states and cities to optimize business strategies.



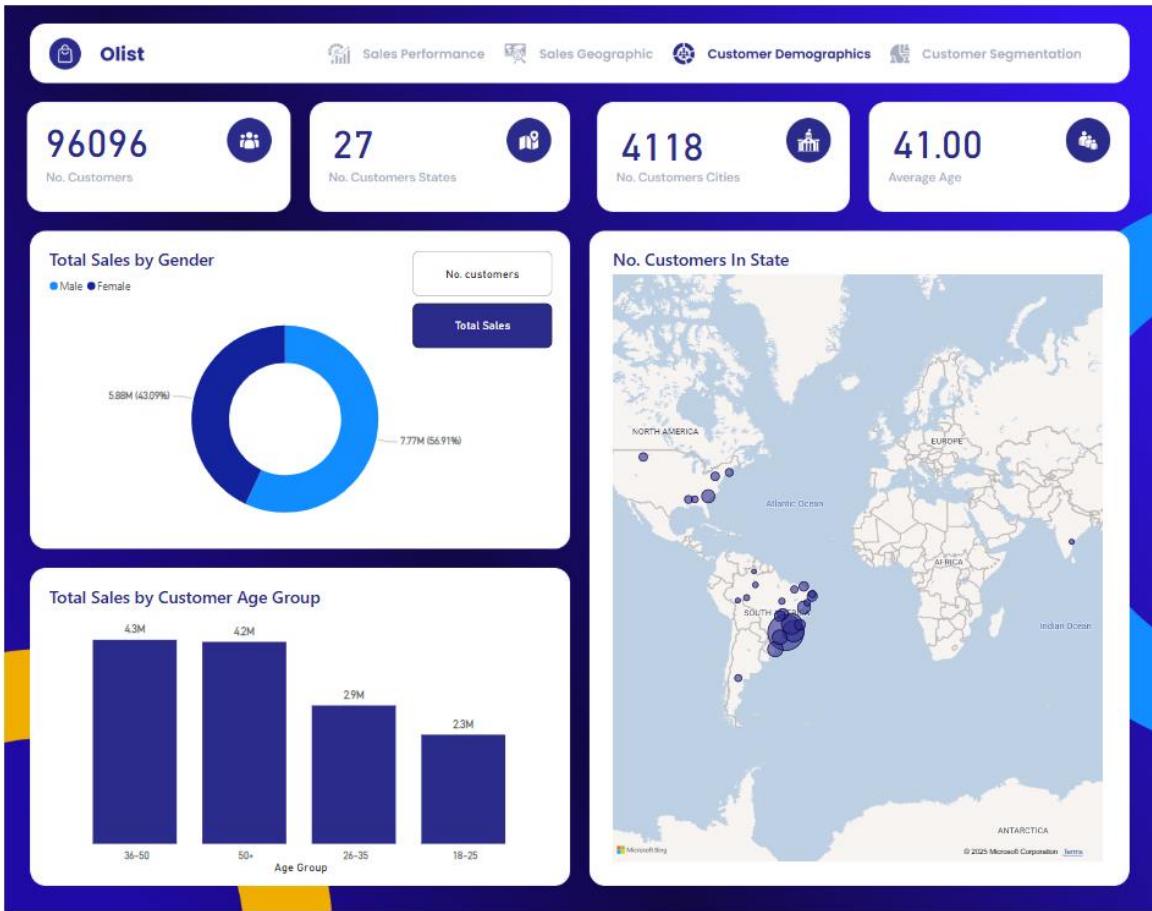






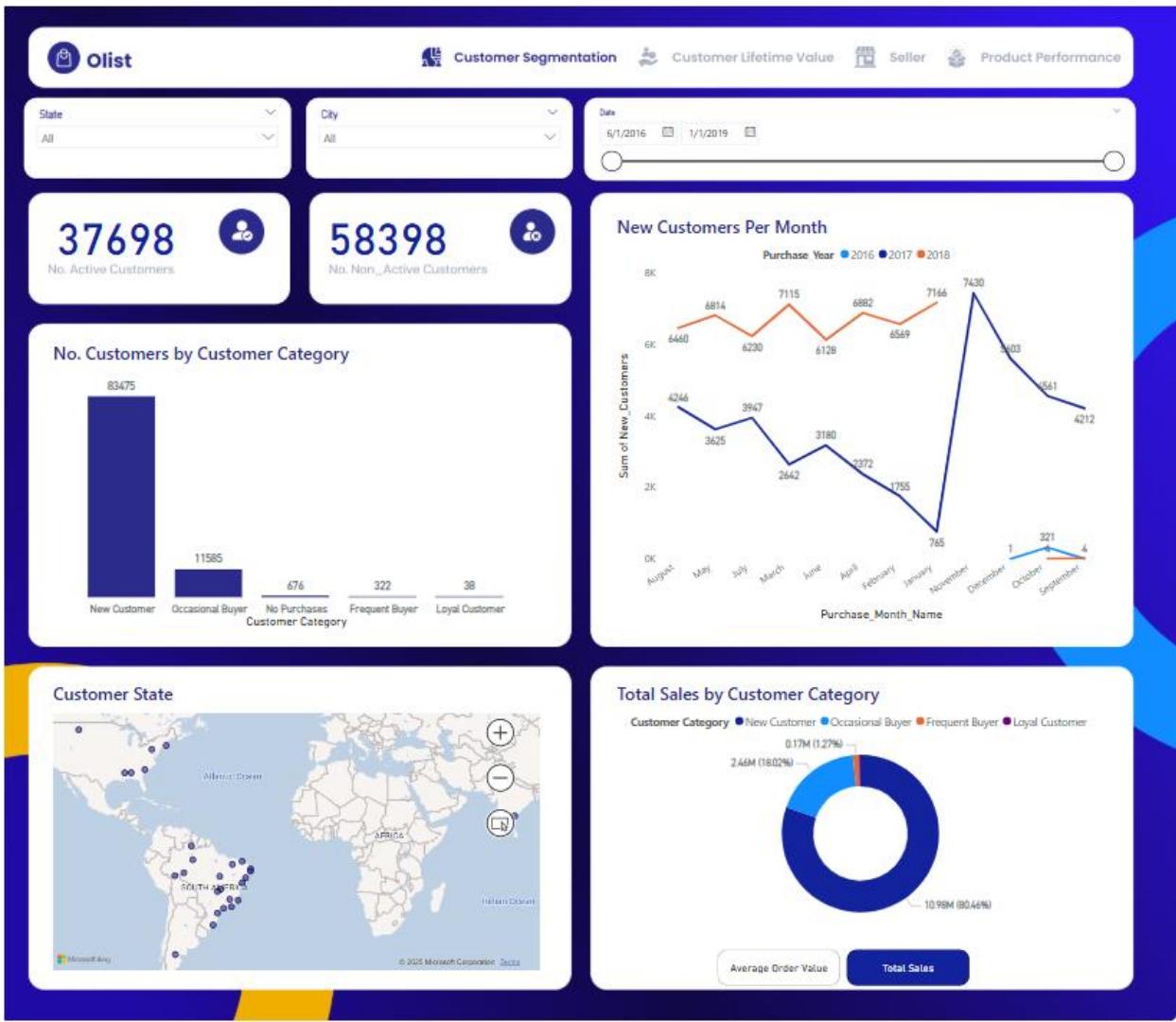
Customer Demographics Dashboard

Analyzes customer behavior based on login type, gender, and age group. It helps businesses refine sales strategies and enhance customer engagement.



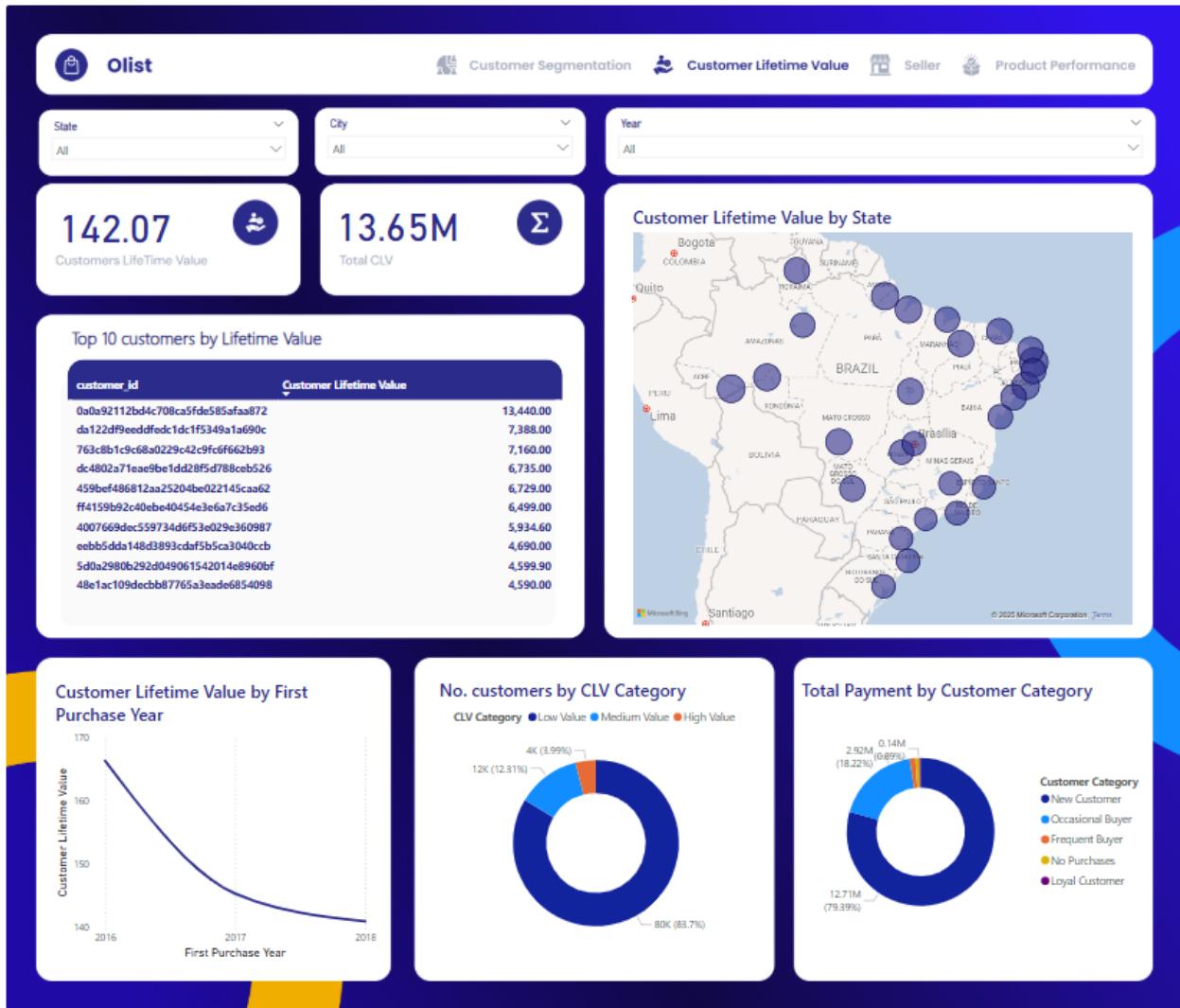
Customer Segmentation Dashboard

Segments customers based on behavior patterns to identify high-value customers and optimize targeted marketing campaigns.



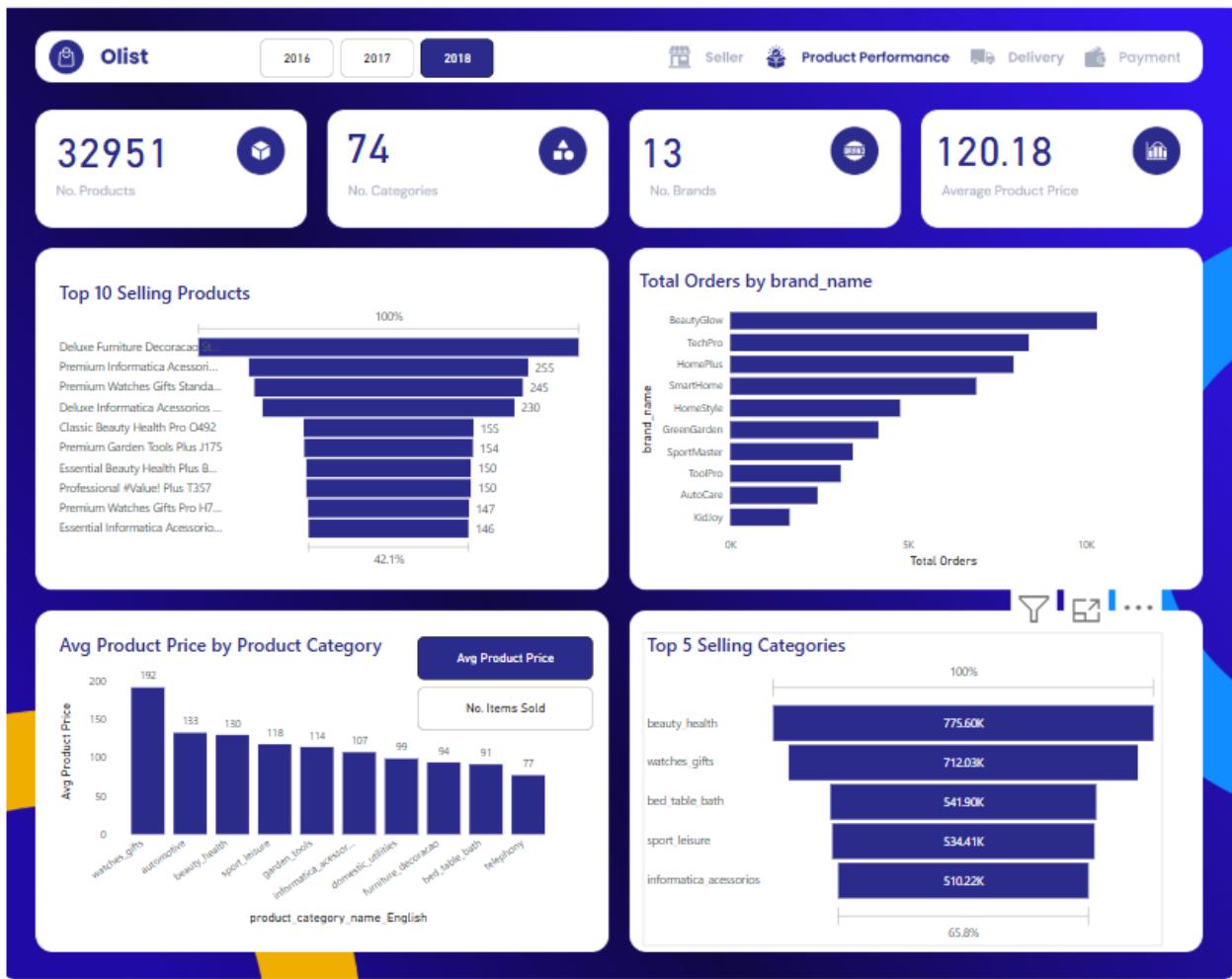
Customer Lifetime Value (CLTV) Dashboard

Tracks customer value over time, segmented by Customer Category and geographic location, to analyze long-term profitability and retention trends.



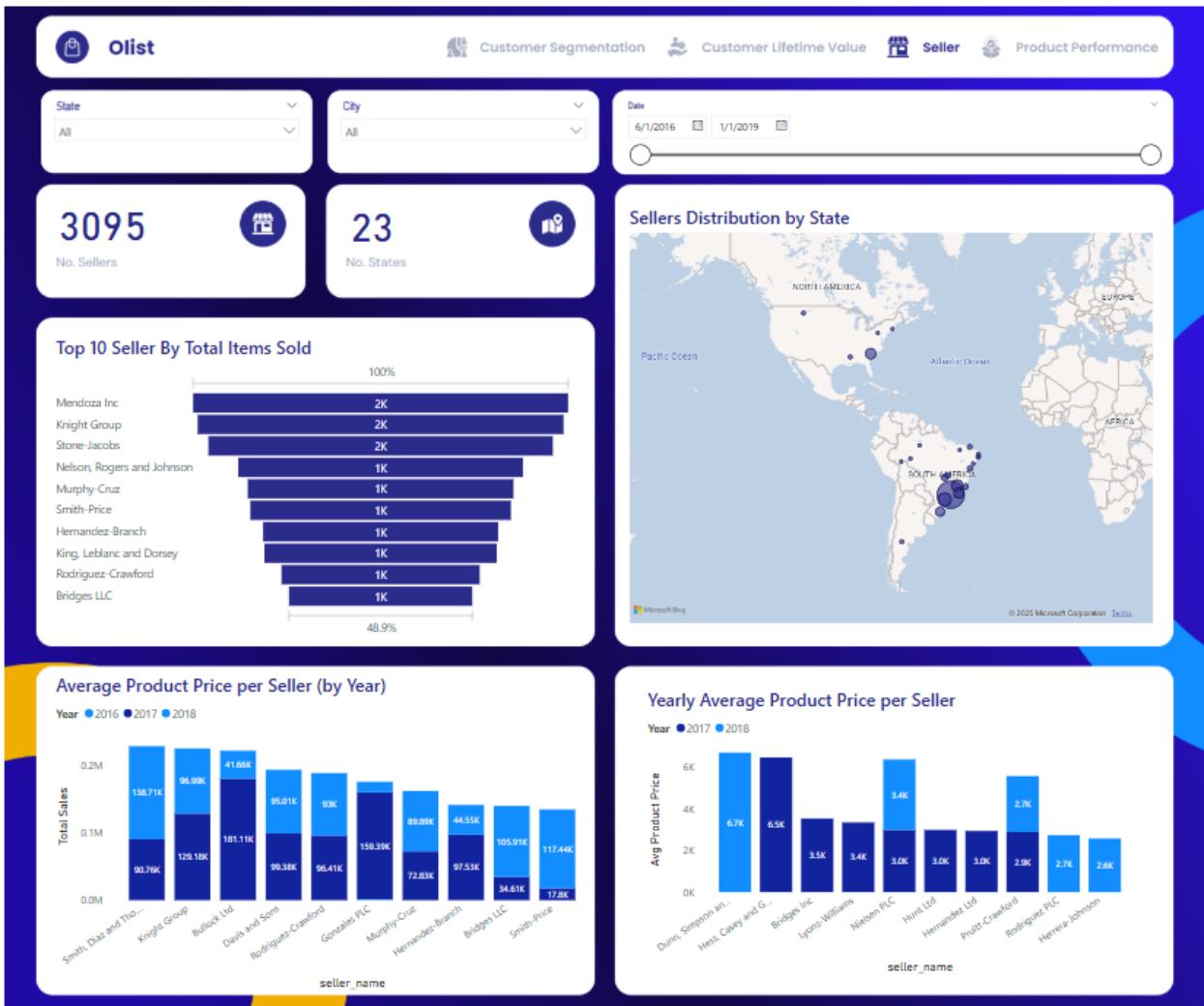
Product Performance Dashboard

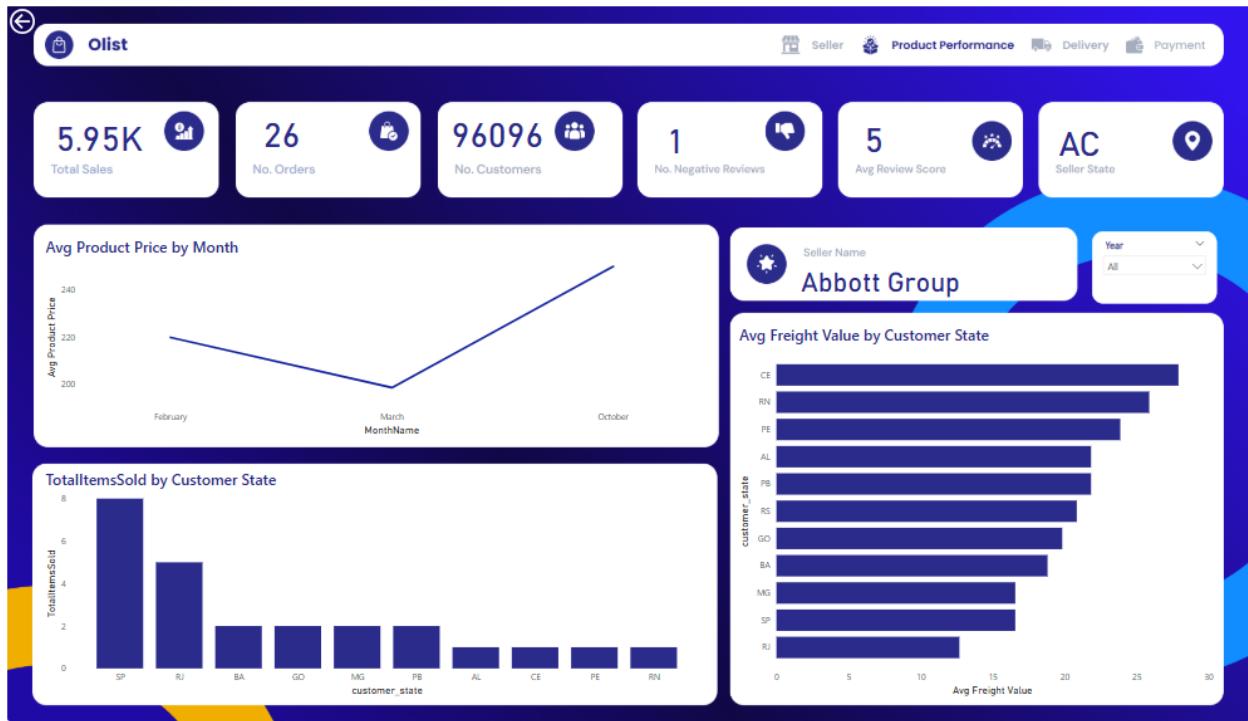
Highlights top-selling products, sales by category, and brand performance, providing insights for inventory and pricing optimization.



Seller Performance Dashboard

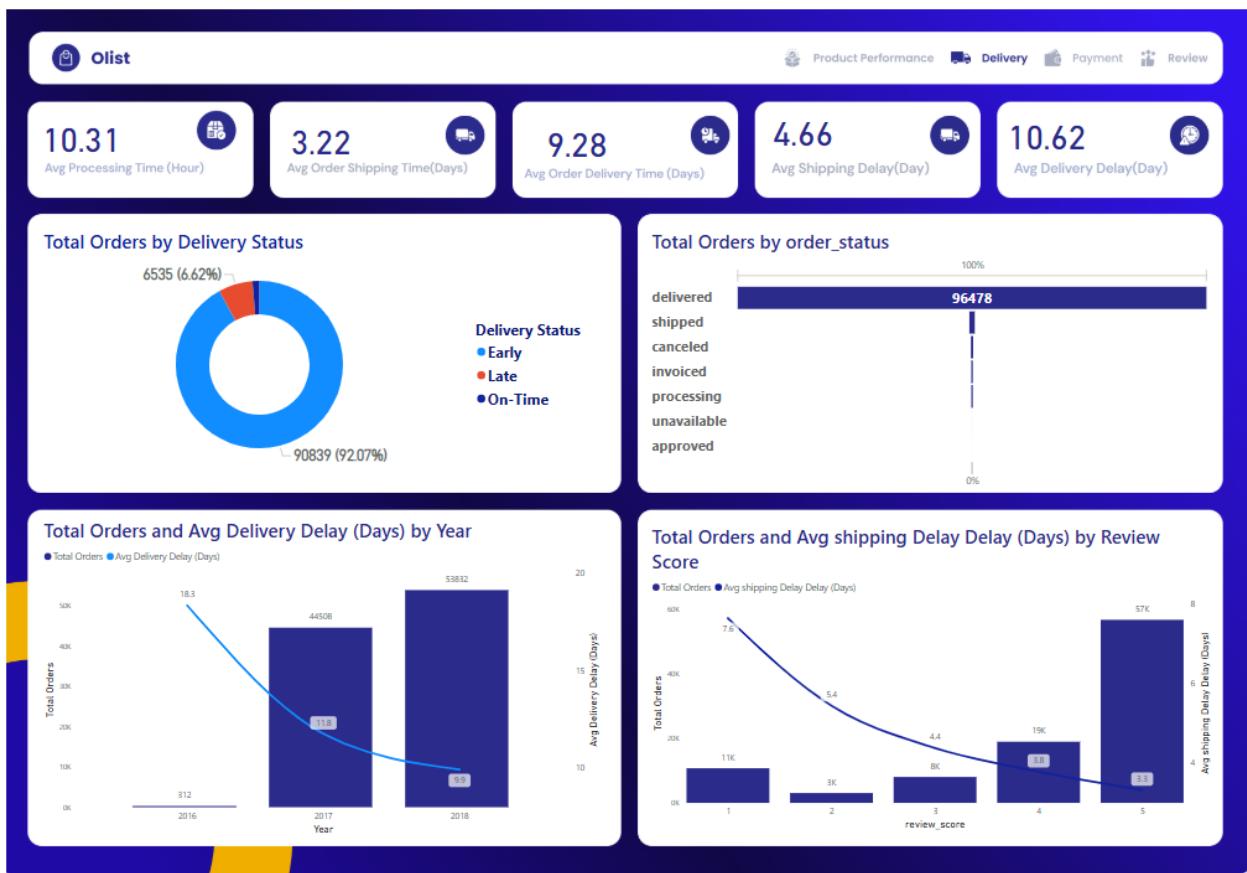
Displays the distribution of sellers across states and cities, showcasing top sellers, total sales, and average product prices.

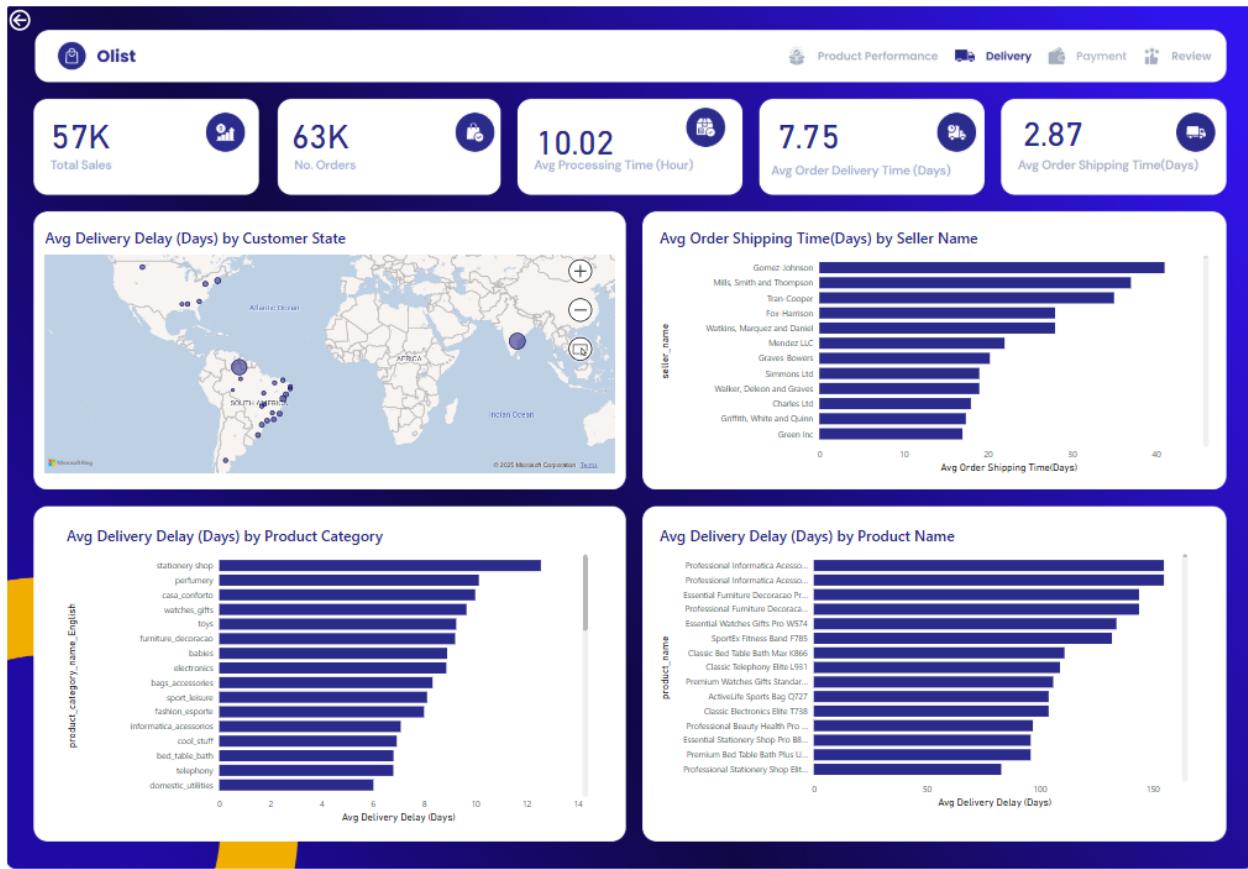




Delivery Performance Dashboard

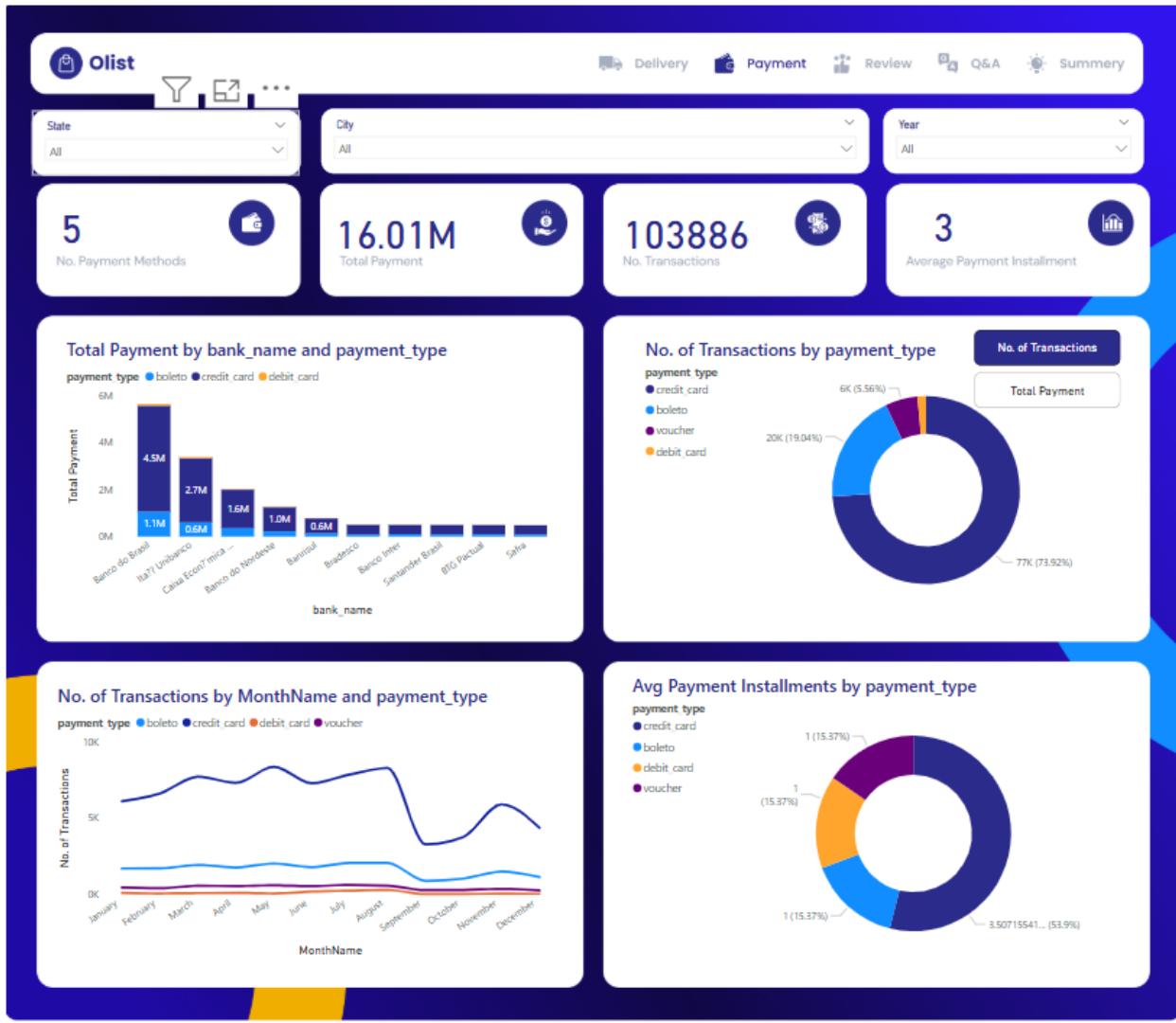
Analyzes delivery efficiency across states and product categories. It tracks delivery times, shipping delays, and their impact on customer satisfaction.





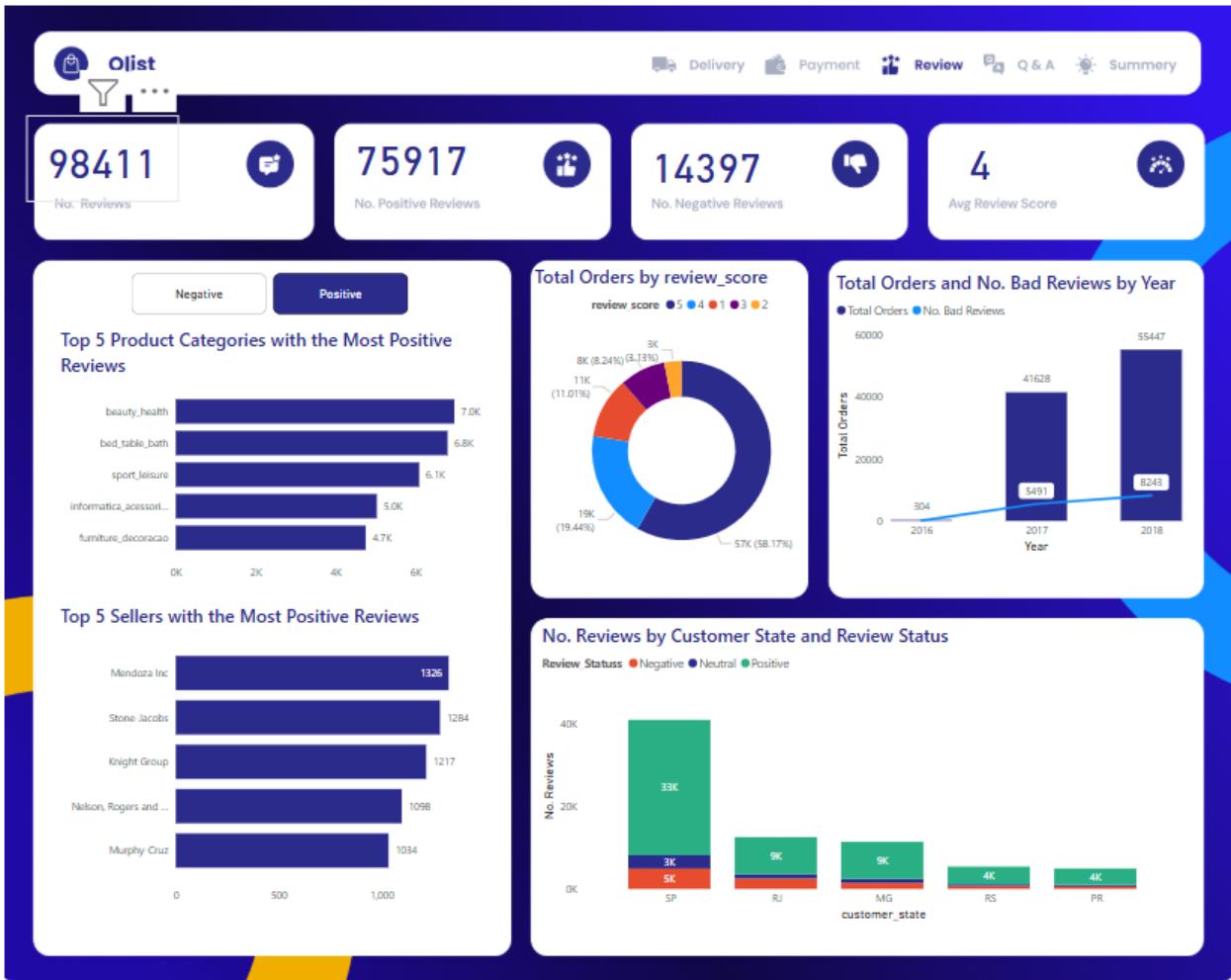
Payment Methods Dashboard

Provides insights into payment trends, transaction volumes, and installment usage, categorized by payment type and bank name.



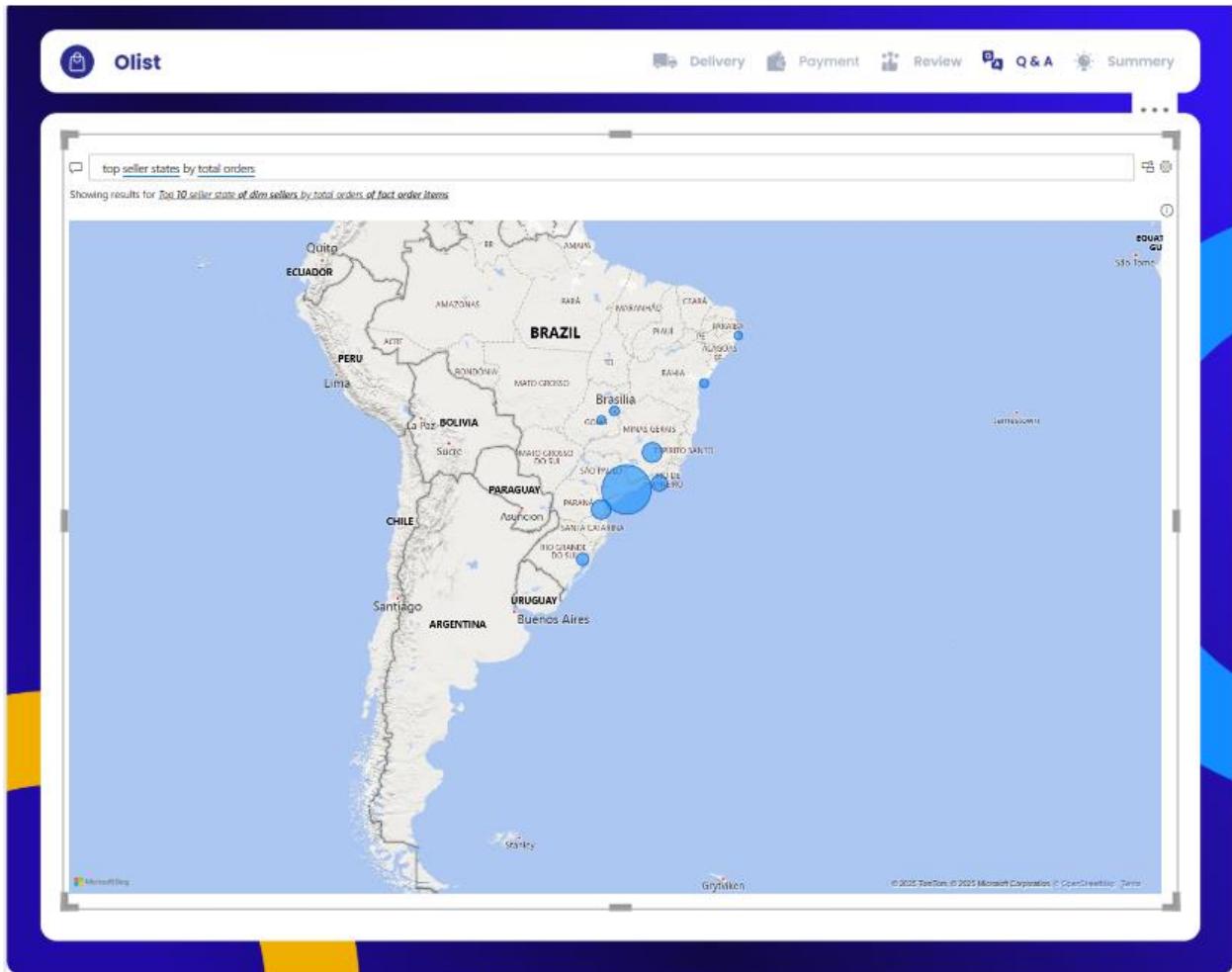
Review Sentiment Analysis Dashboard

Analyzes customer feedback, displaying review scores, order status, and the impact of delivery performance on customer satisfaction.



Q&A Dashboard

An interactive section designed to answer business-related questions with data-driven insights.



Summary Dashboard

Provides an overview of key business metrics, including total orders, sales, customer distribution, top-selling categories, and payment trends. It also tracks seasonal sales patterns.



Tableau

Tableau is employed for advanced analytics and visualization, offering powerful tools to explore complex datasets and uncover insights. It allows for the creation of sophisticated visualizations, including charts, graphs, and maps, to present data in a clear and compelling manner.

- **Key Features and Benefits:**
 - Advanced data visualization options
 - Interactive dashboards and stories
 - Powerful analytics and calculations
 - Ability to handle large datasets
 - Cross-platform compatibility

Tableau Dashboards

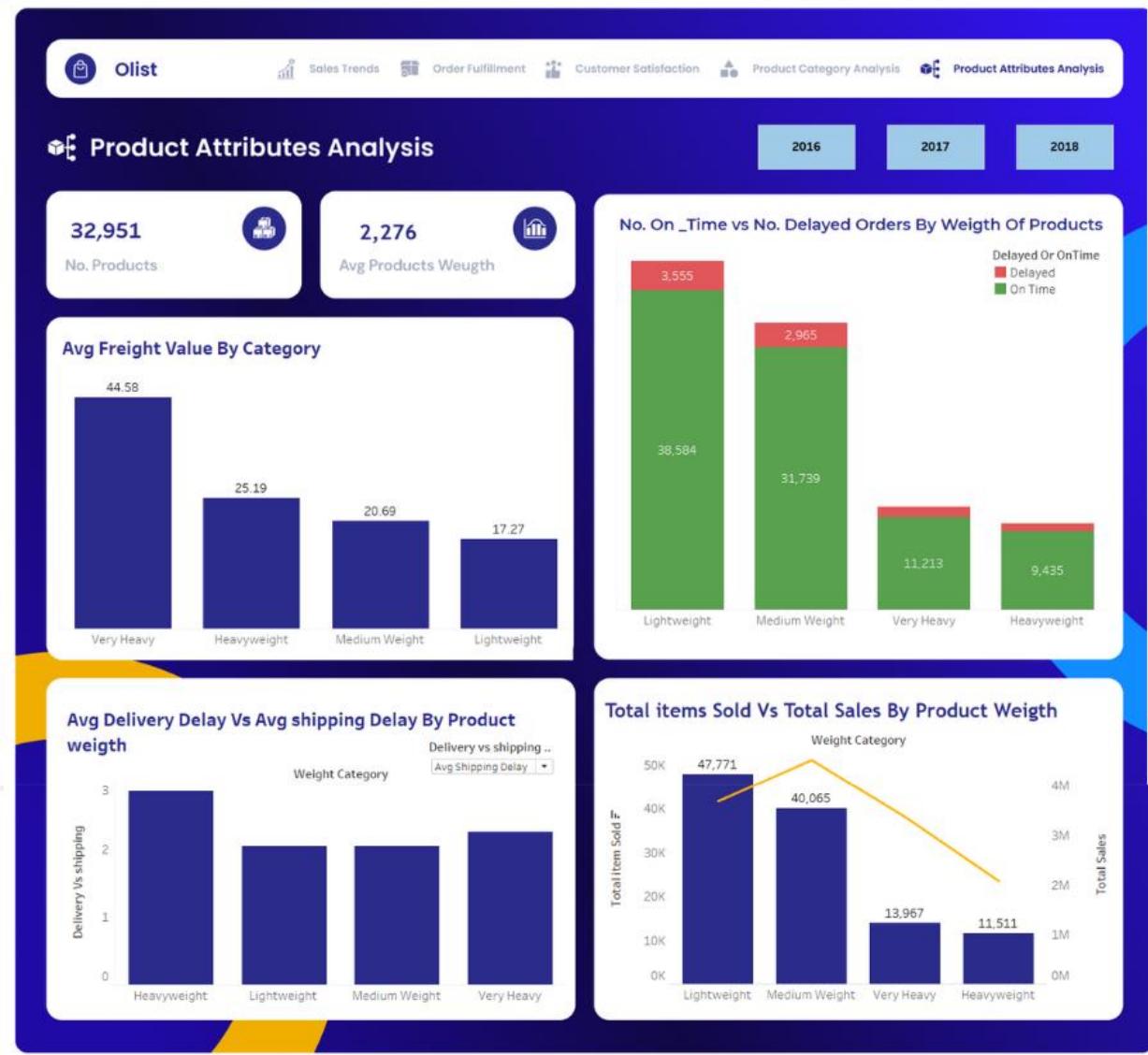
Sales Trend Dashboard



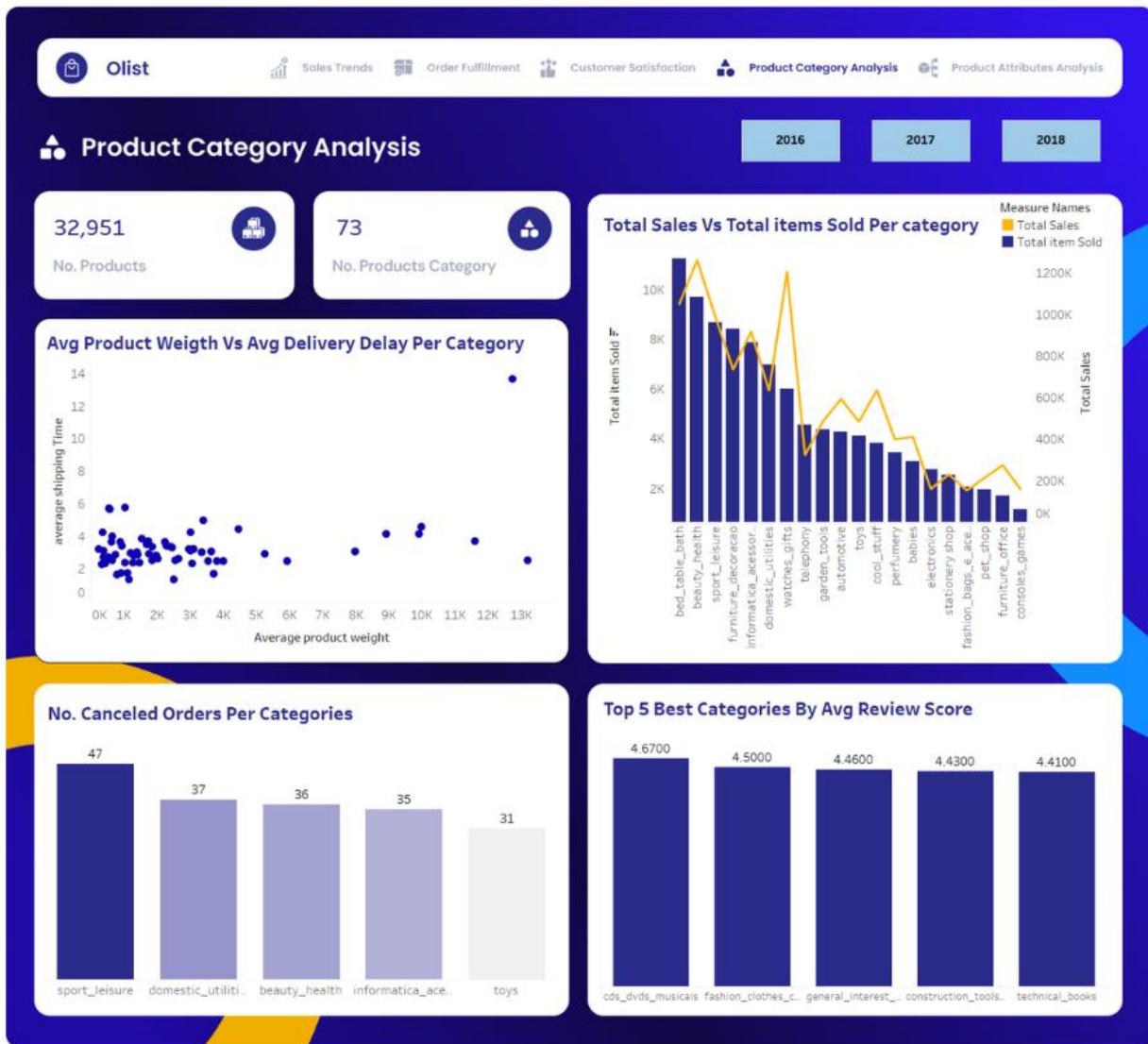
Customer Satisfaction



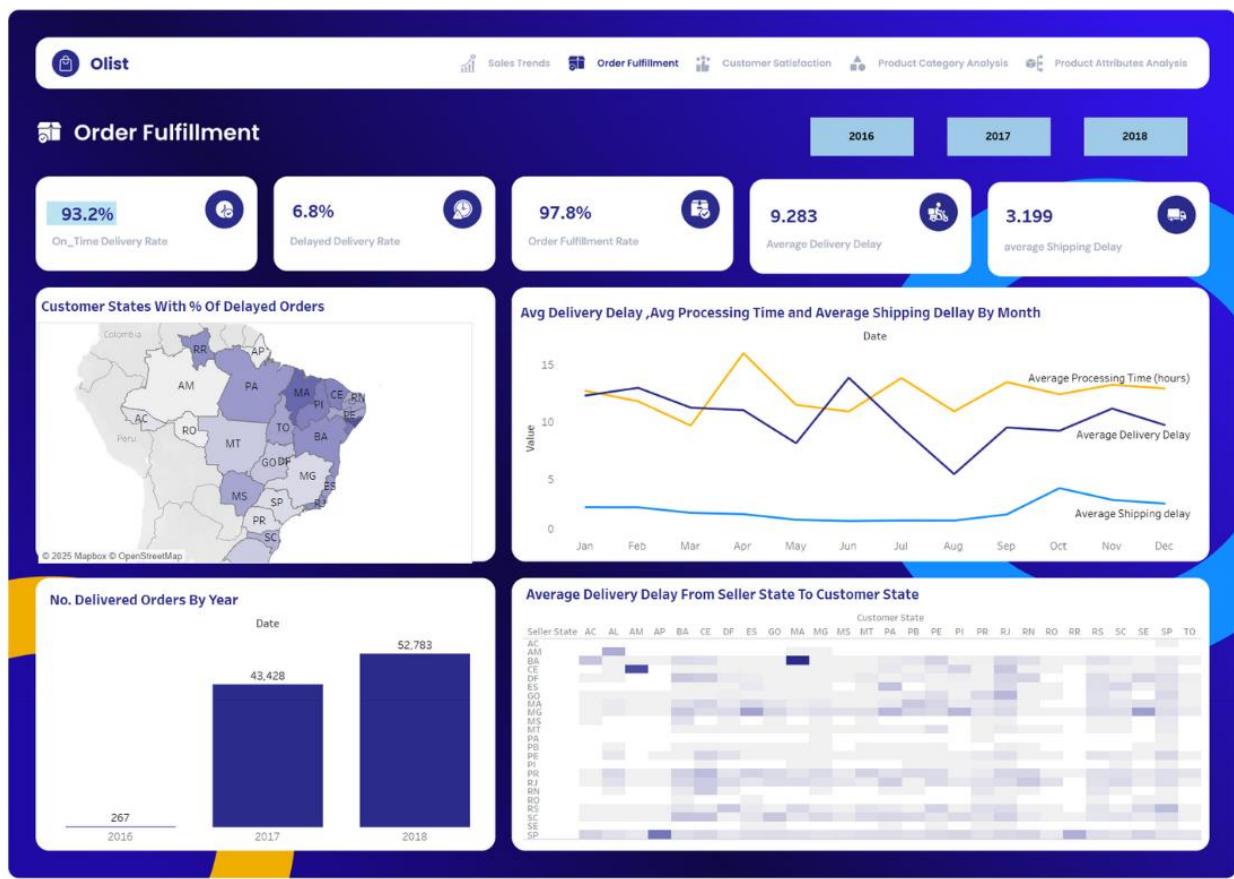
Product Quality Dashboard



Product Category Analysis Dashboard



Order Fulfillment Dashboard



Excel

Excel is utilized for ad-hoc reporting, data analysis, and creating custom reports. It provides a familiar and flexible environment for users to perform data manipulation, calculations, and generate reports tailored to specific needs. Excel can connect to the SSAS Tabular Model to retrieve data and create pivot tables, charts, and other visualizations.

- **Key Features and Benefits:**
 - Flexible data manipulation and analysis
 - Custom report generation
 - Integration with SSAS Tabular Model
 - Pivot table functionality for data summarization
 - Wide range of built-in functions and formulas

Excel Dashboards

Overview Dashboard



Orders Dashboard

