

Retail Supply Chain & Sales Analysis

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Content

- Project Overview
- Architecture Diagram
- Data Cleaning & Transformation
- Data Insights
- Recommendation
- Power BI Dashboards



Project Overview

Objective :

This project aims to analyze Retail sales trends, customer behavior, and shipping performance to optimize pricing strategies, logistics operations, and customer retention through data-driven insights.

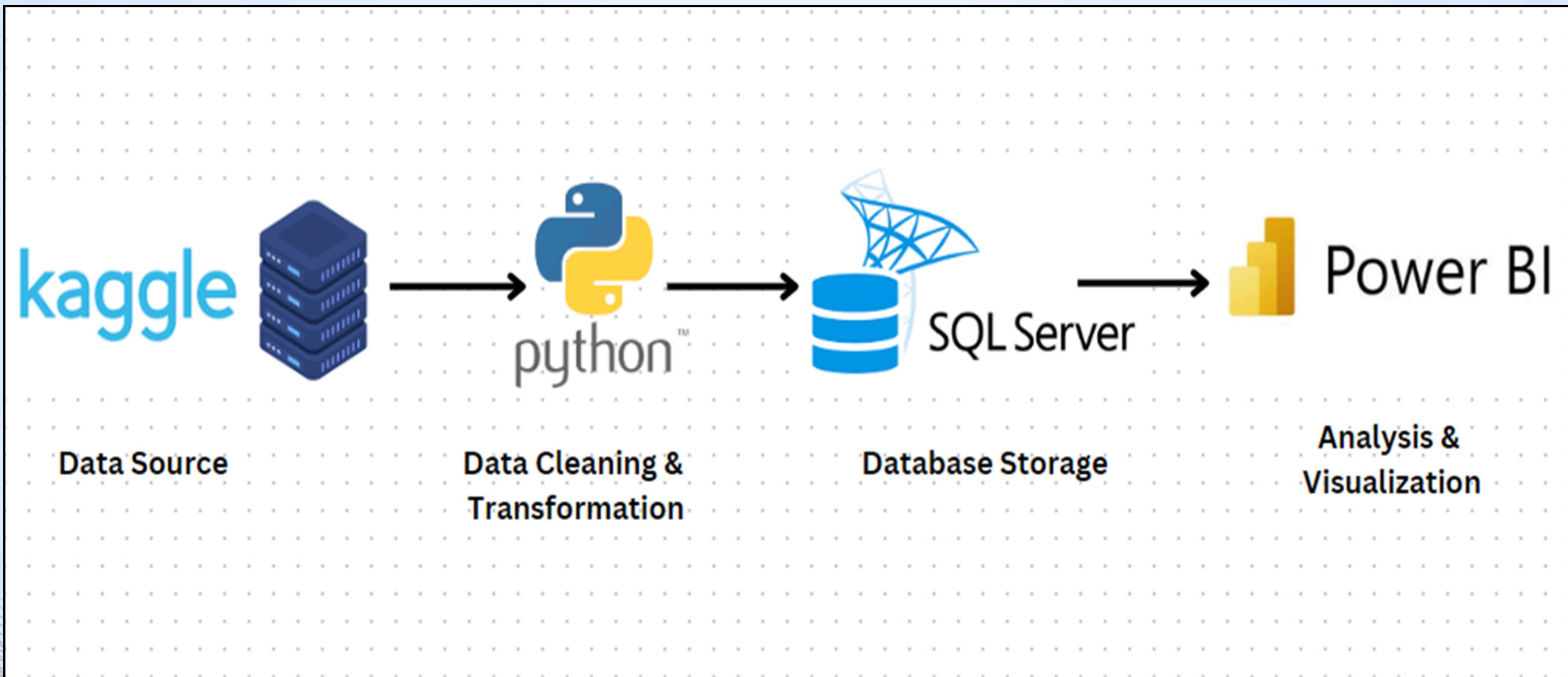
Dataset Details :

Source: Kaggle

Total Records: 9994-Rows 23-Columns

Key columns: Sales, Quantity, Discount, Profit ,Order Date, Ship Date, Ship Mode ,Customer Name, Segment ,Category, Product Name, Region, State, Returned

Architecture Diagram



Data Cleaning & Transformation

PYTHON

- Handling Null value : Ship_mode and category column
- Creating the new features: 1) Delivery time 2) Shipping status 3) Revenue

POWER BI

- Create Date Table = For time based analysis
- Data modeling- Date table and Retail sales table
- Created some measures using DAX for KPI's
 - 1) Total orders
 - 2) Total Loss
 - 3) On-time delivery rate
 - 4) Delayed delivery rate
 - 5) Return rate

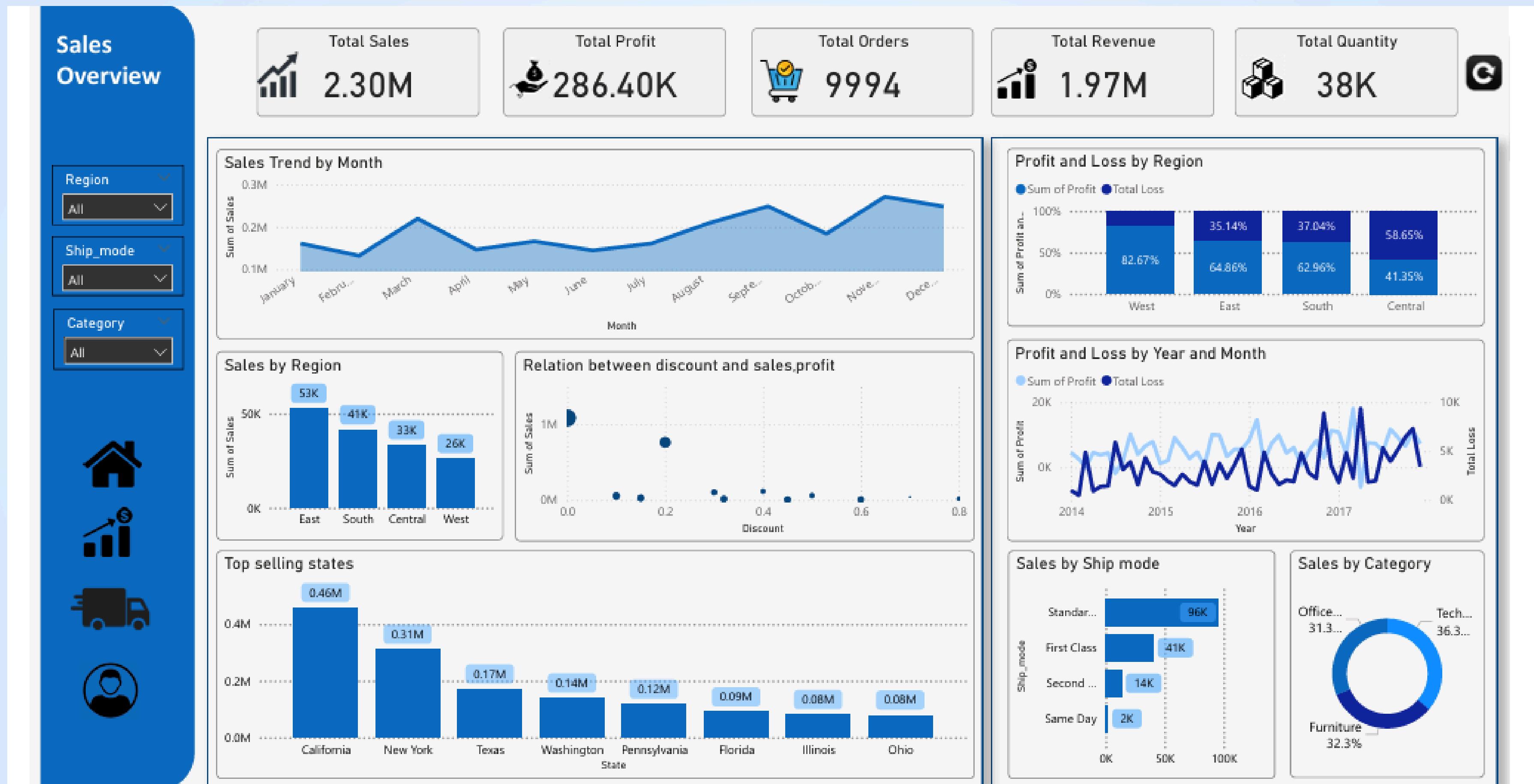
Data Insights

- **Sales Performance:** California, New York, and Texas contribute the highest sales, while November & December see peak demand.
- **Profit & Discounts:** High discounts (above 30%) reduce profitability, and the Central region has the highest loss percentage (58.65%).
- **Shipping Performance:** 68.35% of orders faced delays, with Standard Class having the longest delivery time (41.84 days).
- **Customer Behavior:** 8% of total sales were returned, with Office Supplies having the highest return rate.

Recommendation

- **Optimize Regional Marketing:** Focus on high-sales states like California and New York to maximize revenue.
- **Refine Discount Strategies:** Reduce excessive discounts to improve overall profit margins.
- **Enhance Logistics & Shipping:** Address high delivery delays by improving carrier efficiency and prioritizing faster shipping modes.
- **Improve Product Quality & Description:** Minimize returns by ensuring better product quality and accurate descriptions for Office Supplies.

Power BI Dashboard



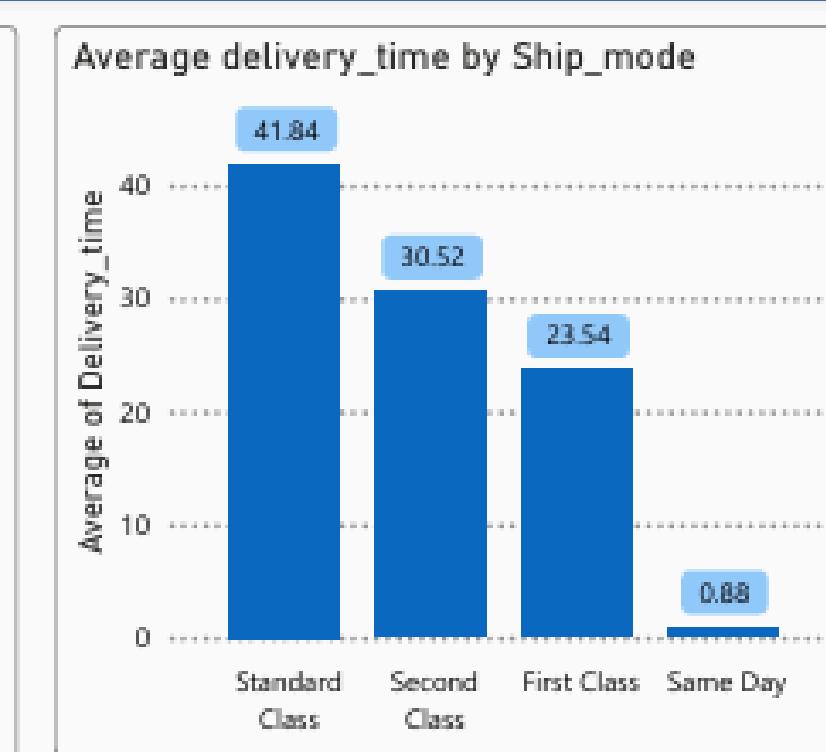
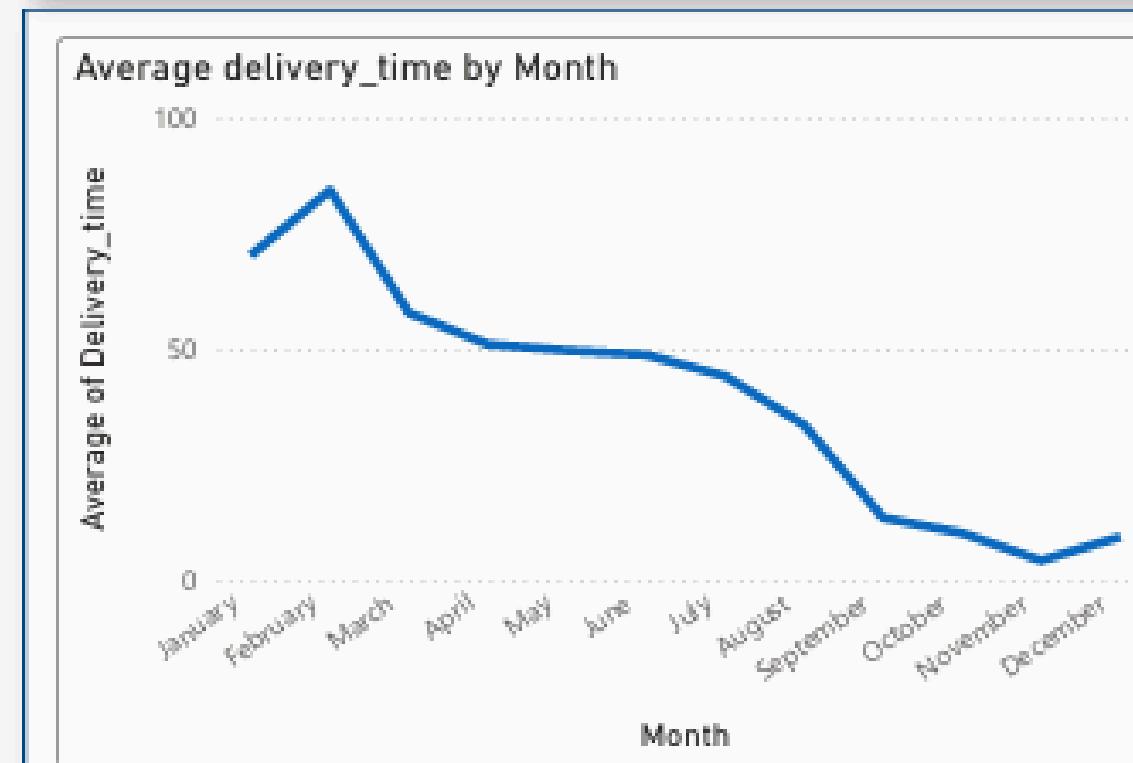
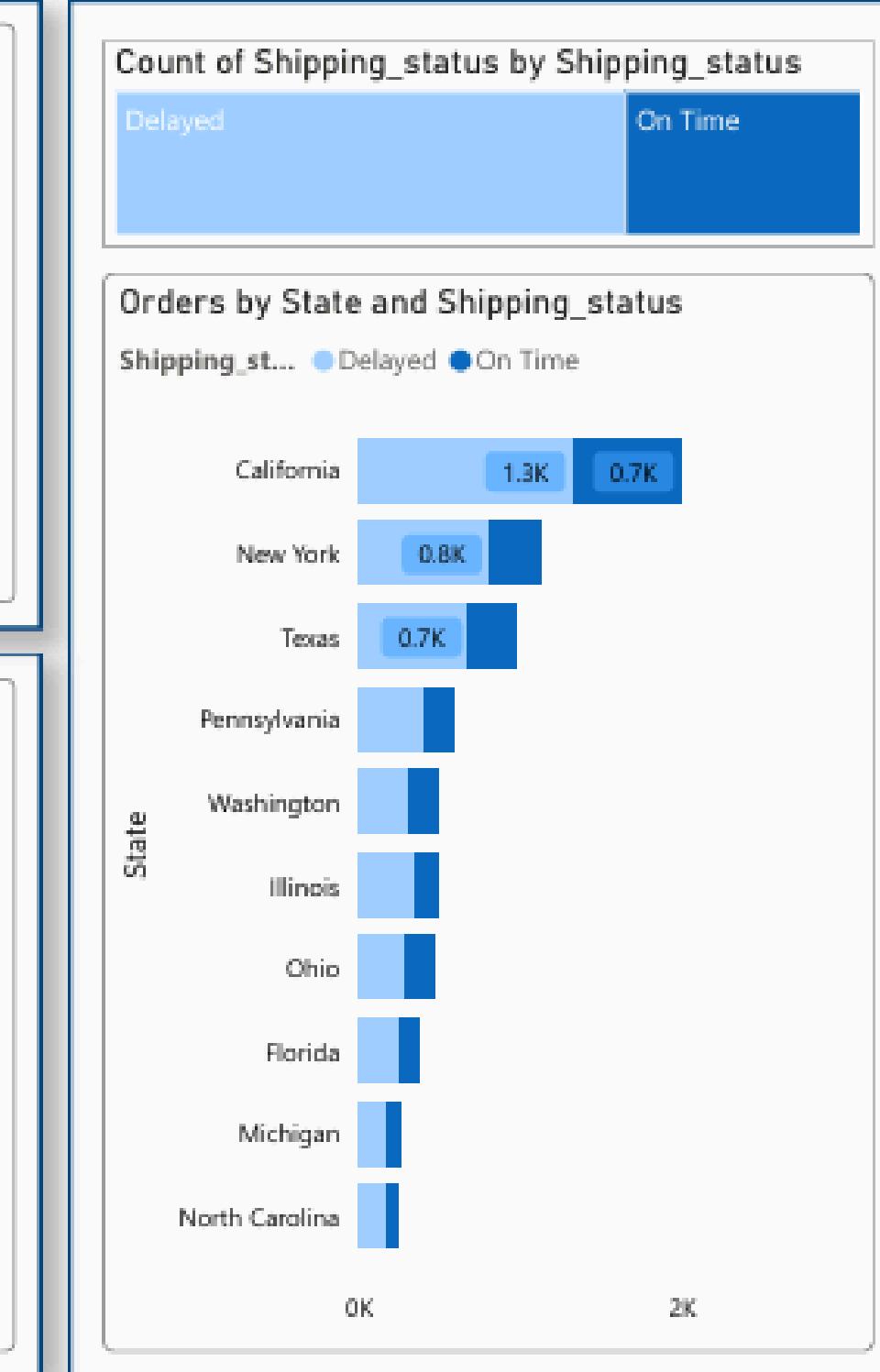
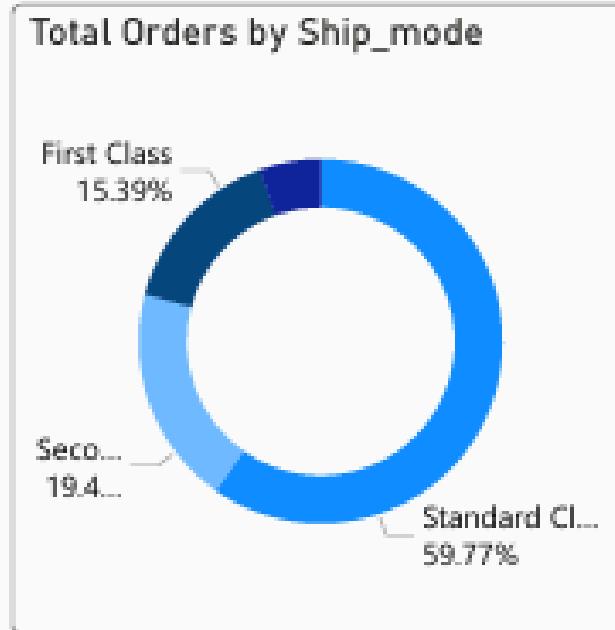
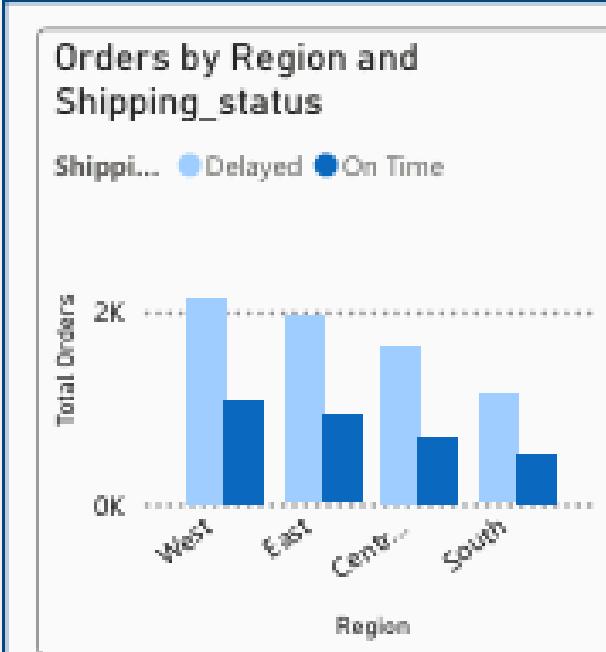
Power BI Dashboard

Shipping Performance

Region All

Ship_mode All

Category All



Power BI Dashboard

Customer Behaviour

Region: All

Ship_mode: All

Category: All

Total Sales
2.30M

Total Orders
9994

Return Rate
8.00%

Total customers
793

Total products
1862

Return trend by Year and Month

Count of Returned

Year

Profit and Loss by Segment

Sum of Profit Total Loss

Segment	Sum of Profit	Total Loss
Consumer	0.13M	0.08M
Corporate	0.09M	0.04M
Home Office	0.06M	0.02M

Returned

Not Returned Yes Returned

Top customers by sales

Customer_name	Sum of Sales
Sean Miller	25K
Tamara Chand	19K
Raymond Buch	15K
Tom Ashburn	15K
Adrian Barton	14K

Top 5 products

Product	Percentage
KI Adj... 10.6...	10.6%
Stapl... 12.3...	12.3%
Easy-st... 21.58%	21.58%
Staple envelope 24.46%	24.46%

Bottom 5 products by profit

Product	Profit Percentage
Cubify CubeX 3...	40.14%
Bush Advantage Coll...	8.74%
Chromcraft...	13%
Cubify Cube...	17.36%
Lexmark MX611dhe ...	20.75%

Returned by Category

Returned Not Yes

Category

OK 5K

Customer_name Segment Total Orders Sum of Sales Sum of Profit Returned

Customer_name	Segment	Total Orders	Sum of Sales	Sum of Profit	Returned
Adam Bellavance	Home Office	18	7,755.62	2,054.59	Not
Adrian Hane	Home Office	9	1,125.10	296.39	Not
Adrian Hane	Home Office	7	610.42	-298.70	Yes
Adrian Shami	Home Office	3	58.82	21.85	Not
Alan Dominguez	Home Office	12	6,106.88	1,869.93	Not
Alejandro Ballentine	Home Office	13	897.48	256.38	Not
Alejandro Ballentine	Home Office	1	17.05	8.18	Yes
Alyssa Tate	Home Office	9	1,171.81	100.88	Not
Ann Steele	Home Office	12	833.40	136.49	Not
Anne Pryor	Home Office	19	1,638.55	285.79	Not
Anthony Garverick	Home Office	5	170.58	-8.43	Not
Arthur Wiediger	Home Office	16	2,852.97	-104.55	Not
Barry Franz	Home Office	5	594.14	-363.36	Not
Romy Franz	Home Office	5	729.74	71.97	Not

THANK YOU