

Business Problem Statement

The retail business is facing uneven performance across sales and supply chain operations. Sales continue to move, but profit margins, delivery timelines, and shipping costs aren't consistent. Teams don't have a single view of what's happening by product, region, carrier, or supplier because the data is spread out and not easy to analyze.

This creates several issues:

Slower reactions to delivery or supply problems

Higher shipping expenses that reduce profit

Delays that affect customer experience

Limited visibility into which categories or regions are underperforming

Inventory decisions that don't match actual demand

Missed opportunities to improve pricing or logistics

A consolidated analytics solution is needed to clearly show what's driving sales, where operations are falling behind, and where improvements can be made. This will help the business make smarter decisions and run the supply chain more efficiently.

Deliverables

1. Data Preparation & Modeling (Python)

Clean and structure the retail supply chain dataset for analysis by fixing missing values, standardizing date fields, and creating key operational metrics like Profit Margin %, On-Time Delivery %, and Delivery Days. The final dataset is organized and ready for SQL queries and Power BI modeling.

2. Data Analysis (SQL)

Use SQL to shape the data into a usable analytical model and answer core supply chain questions. This includes analyzing carrier performance, supplier delays, shipping cost impact, regional and category sales behavior, and gaps between ordered vs delivered quantities. Queries support real operational decision-making.

3. Visualization & Insights (Power BI)

Build a two-page Power BI dashboard covering sales trends, delivery patterns, shipping cost breakdowns, inventory levels, carrier/supplier performance, and discount impact on profit. The visuals help teams spot bottlenecks, cost issues, and operational inefficiencies quickly.

4. Report & Presentation

Create a clear summary of findings backed by visuals, including an executive overview, sales and logistics insights, delivery trends, and improvement recommendations. Prepare a short presentation highlighting the key takeaways and actions for stakeholders.

5. GitHub Repository

Publish all project files Python scripts, SQL queries, Power BI dashboards, documentation, and mockups in a clean, well-structured repo with a README describing the problem, process, and insights. This provides a complete end-to-end project package. now create me a nice and smooth pdf.