FedEx Logistics Performance Dashboard – Project Report

1. Project Overview
This project focuses on analyzing logistics shipment performance data for FedEx Logistics to evaluate delivery reliability, delay patterns, and operational efficiency. The objective was to build an interactive Power BI dashboard that enables analysts and operations teams to monitor KPIs and identify areas requiring action.

2. Tools & Technologies Used
• Python (Pandas, NumPy) – Exploratory Data Analysis (EDA) and data validation
• PostgreSQL (pgAdmin) – Business logic and KPI computation using SQL
• Power BI – Interactive dashboard creation and data storytelling

3. Data Understanding & Preparation (Python)
• Verified dataset structure and grain (shipment line-item level)
• Converted date and numeric columns to appropriate data types
• Analyzed missing values and retained NULLs where they represented valid business states
• Checked and confirmed absence of duplicate records

4. Business Logic & KPI Definition (SQL)
A SQL view was created to define business-truth metrics:
• Delivery Status (On-Time / Delayed)
• Delay Flag (is_delayed)
• Delay Days (difference between actual and scheduled delivery)
• Lead Time Days (PO sent date to delivery date)

Key KPIs derived:
• On-Time Delivery % (OTD %)
• Average Lead Time (Days)
• Average Delay Days

5. Dashboard Design (Power BI)
The dashboard follows a clear analytical flow:
• KPI Cards – Overall delivery performance snapshot
• Bar Charts – OTD % by Country and Shipment Mode (diagnostic insights)
• Action Table – Delayed shipments grouped for operational follow-up
• Interactive Slicers – Country, Shipment Mode, Vendor

6. Key Insights
• Overall OTD performance is high (~88%), indicating strong delivery reliability
• When delays occur, the average delay duration is significant (~21 days)
• Certain countries and shipment modes contribute disproportionately to delays

7. Conclusion
This project demonstrates an industry-aligned analytics workflow where Python is used for exploration, SQL for defining business logic, and Power BI for visualization and storytelling. The resulting dashboard supports both high-level interpretation and actionable decision-making.