**📂 PROJECT BRIEF — SmartOps Insight Suite**

**📌 Project Title:**

**SmartOps Insight Suite: Profitability & Retention Dashboard for Supply Chain**

**🏢 Client / Company Background:**

**SmartOps Pvt. Ltd.** is a mid-sized, rapidly growing company in the **supply chain and order fulfillment space**, serving B2C and B2B clients across **four major regions of India**: North, South, East, and West.

The company handles **thousands of product shipments monthly** and operates across multiple product categories (Electronics, Furniture, Office Supplies). SmartOps uses a centralized ordering platform and maintains a relational database to store all operational data.

The **leadership team wants to transition to data-driven decision-making**, especially in identifying:

* Which regions and product categories are most/least profitable
* Which customer segments offer highest long-term value
* How to reduce return rates and improve retention
* Where operations are leaking revenue (discounts, returns, low AOV)

You have been brought in as a **Data Analyst** to deliver an **insights system** using **SQL, Excel, Power BI, and DAX**.

**🎯 Business Problem Statement:**

“Our leadership needs an interactive BI solution to understand **region-wise profitability**, **customer retention patterns**, and **overall operational health**.

The goal is to **reduce costs, improve profit margins**, and **increase customer lifetime value** using insights from data.

We need a clean pipeline: from raw SQL data → cleaned CSVs in Excel → fully modeled Power BI dashboard with advanced DAX KPIs and storytelling.”

**🔧 Tools to Use:**

* **SQL (PostgreSQL / MySQL)** – Write queries to join, clean, and pre-aggregate data
* **Excel** – Do sanity checks, quick summaries, formatting before loading into BI
* **Power BI** – Full data model, star schema, dashboards, UX, themes
* **DAX** – Build all business KPIs, trends, retention metrics, and drilldowns

**📁 Raw Tables Provided:**

1. Orders
   * OrderID, OrderDate, CustomerID, Region
2. OrderItems
   * OrderID, ProductID, Quantity, UnitPrice, Discount
3. Customers
   * CustomerID, CustomerName, JoinDate, Segment
4. Products
   * ProductID, ProductName, Category, SubCategory
5. Returns
   * OrderID, ReturnDate, ReturnReason

**✅ What You Need to Deliver (Project Deliverables):**

**📌 PART A – SQL WORK**

Write **SQL queries** to prepare cleaned data for BI.

1. Join all tables as needed to create a **Clean Orders Dataset**
   * Each row = 1 line-item of an order
   * Include: OrderDate, Region, CustomerID, Segment, Category, SubCategory, Quantity, UnitPrice, Discount, ReturnFlag, Profit, NetRevenue
2. Handle the following in SQL:
   * Remove orders with zero quantity or negative price
   * Apply discount logic: NetRevenue = Qty \* Price \* (1 - Discount)
   * Calculate Profit = NetRevenue - (Cost Assumption: 70% of UnitPrice)
   * Add a ReturnFlag column if order is in Returns table
3. Export final output to CSV as CleanedOrders.csv

**📌 PART B – EXCEL WORK**

Open each cleaned CSV in Excel before loading to Power BI.

Perform:

1. Format columns:
   * Dates → YYYY-MM-DD
   * Category, SubCategory → Proper casing
   * Remove extra spaces or NULLs
2. Create a simple Pivot Table:
   * Total NetRevenue by Region and Segment
   * Use this to cross-verify Power BI results later
3. Save cleaned version and re-export as CleanedOrders\_Formatted.csv

**📌 PART C – POWER BI + MODELING**

1. Import cleaned files (or CSVs directly from SQL if connected live)
2. Create relationships:
   * Star schema → Fact Table = Orders, Dim Tables = Customers, Products, Calendar
3. Create a Calendar table for time intelligence
4. Mark OrderDate as Date table
5. Add calculated columns:
   * Month-Year, Year, Month, etc.

**📌 PART D – DAX MEASURES**

Build the following **key measures** in DAX:

**🔹 Sales & Profit Metrics**

* Total Sales
* Total Profit
* Profit Margin %
* Total Discount Given

**🔹 Customer Metrics**

* Total Customers
* New Customers This Month
* Returning Customers
* Retention Rate %
* Churn Rate %

**🔹 Operational Metrics**

* Orders Count
* Average Order Value (AOV)
* Return Rate %
* Top 5 Profitable Products
* Top 3 Regions by Sales

**🔹 Time Intelligence**

* YTD Sales, MoM Growth %, Running Total Sales

**📌 PART E – FINAL POWER BI DASHBOARD**

Build a **professionally styled, interactive dashboard** with these pages:

**1️⃣ Executive Summary**

* KPIs: Sales, Profit, Retention %, Return Rate
* Filters: Date Range, Region, Segment

**2️⃣ Region-wise Profitability**

* Map or Bar Chart by Region
* Profit Margin %, Return Rate per Region
* Table: Top 5 profitable customers per region

**3️⃣ Product Performance**

* Sales by Category/SubCategory
* Top 5 Products by Profit
* Filter by Segment or Region

**4 Returns Analysis**

* Returns by Category and Region
* Common Return Reasons
* % of Returned Orders vs Total

**📌 PART F – FINAL STORYTELLING SLIDES**

Add a **Power BI storytelling page** or export as PDF to explain:

* Key insights
* Where profits are being lost
* Which regions or segments to target
* Suggestions for improving retention
* Any anomalies or red flags

**🔚 FINAL OUTPUT PACKAGE:**

You’ll deliver the following:

* ✅ Cleaned SQL Query Scripts
* ✅ Excel file with checks and pivots
* ✅ Power BI .pbix file
* ✅ Final exported dashboard PDF
* ✅ One-page summary of business insights (storytelling)

**🕒 Estimated Time:**

**2 Days (12–15 working hours)** for a real MNC analyst

**📩 Submission Format:**

Create a final folder named:  
SmartOps\_Insight\_Suite\_[YourName]

Inside:

* SQL\_Cleaning\_Scripts.sql
* CleanedOrders.csv
* Orders\_Formatted.xlsx
* SmartOpsDashboard.pbix
* Executive\_Summary\_Insights.pdf
* Storytelling\_Notes.docx (or .txt)

**🧠 Reminder:**

This project will be used in:

* **Your LinkedIn / GitHub portfolio**
* Interviews with **Deloitte, Fractal, Tiger Analytics**, etc.
* Your resume as **“Signature Project – End-to-End BI System”**