Project Documentation

1.Executive Summary

This project represents a collaborative effort to analyze the 360- degree performance of AdventureWorks, a multinational manufacturing and retail company. Instead of a traditional technical split, our team adopted a Domain-Driven Architecture. Each team member acted as a lead analyst for a specific business vertical, owning the entire data pipeline—from writing custom SQL queries to extract and model data, to designing interactive Power BI dashboards for specific stakeholders.

The result is a comprehensive suite of 5 interconnected dashboards covering B2C Sales, B2B Partnerships, Product Inventory, Financial Operations, and Customer Insights.

2.Data Architecture & Methodology

To ensure consistency across the 5 modules, the team followed a unified standard:

Source Data: The AdventureWorks Data Warehouse (SQL Dump).

The Workflow (Applied by All Members):

SQL Layer: Each analyst wrote optimized SQL scripts to create relevant Views and aggregate data specific to their domain.

Modeling Layer: Built specialized Star Schemas suitable for each business question.

Visualization Layer: Developed Power BI reports with a unified design language (Theme) but tailored KPIs.

3.Team Structure & Domain Responsibilities

Here is the breakdown of each member's end-to-end contribution:

1.Sales Performance Analyst (B2C)

Focus: Internet Sales & E-commerce Performance.

SQL Scope: Extracted data from FactInternetSales and DimCustomer. Analyzed online order frequency and cart abandonment rates.

Power BI Deliverable: A dashboard tracking Online Revenue, Website Conversion Rates, and Average Order Value (AOV) for individual consumers.

2.Sales Performance Analyst (B2B)

Focus: Reseller & Distributor Partnerships.

SQL Scope: Extracted data from FactResellerSales and DimReseller. Built logic to classify resellers by business type (Warehouse vs. Value Added Reseller).

Power BI Deliverable: A dashboard monitoring Wholesale Performance, Bulk Order Trends, and Reseller Profitability by region.

3.Product & Inventory Analyst

Focus: Supply Chain & Product Lifecycle.

SQL Scope: Joined DimProduct, FactProductInventory, and Sales tables to track stock levels versus sales velocity.

Power BI Deliverable: A report highlighting Stock-Turnover Ratios, identifying Slow-Moving Inventory, and analyzing profitability per Product Line (Bikes, Components, Clothing).

4.Financial & Operational Performance Analyst

Focus: The Bottom Line & Operational Efficiency.

SQL Scope: Consolidated data from FactFinance and FactCallCenter to correlate operational costs with service quality.

Power BI Deliverable: A strategic dashboard showing Net Profit vs. Budget, Expense breakdowns, and Call Center Service Grades (Good/Normal/Bad).

5.Customer & Market Insights Analyst

Focus: Demographics & Customer Segmentation.

SQL Scope: Utilized DimGeography and DimCustomer to perform RFM Analysis (Recency, Frequency, Monetary) using SQL queries.

Power BI Deliverable: A dashboard visualizing Customer Personas, Regional Market Penetration, and Churn Risk factors.

4.Technical Highlights

Advanced SQL: Usage of Window Functions (RANK, LEAD, LAG) and CTEs (Common Table Expressions) across all modules to prepare data.

DAX Mastery: Implementation of Time Intelligence functions (YTD, YoY) and dynamic segmentation logic in Power BI.

Cross-Functional Insights: Although dashboards were built individually, the data model allows for cross-filtering (e.g., seeing how B2B Sales impact Inventory levels).

5.Conclusion

By assigning ownership of specific business domains to each analyst, the [Team Name] team has delivered a holistic BI solution that mirrors a real-world enterprise environment. The project demonstrates not just technical proficiency in SQL and Power BI, but also deep business acumen in each respective field.