Task – 6

End-to-End Business Dashboard – 19 Feb 2026

Tool Used: Power BI

Dataset Source: Kegel (Sales, Customers, Returns, Targets)

Task description:

This project focuses on designing and developing a complete **End-to-End Business Intelligence Dashboard** by integrating multiple business datasets into a unified analytical model.

The dashboard enables senior management to monitor:

- Revenue growth
- Profitability trends
- Customer performance
- Product contribution
- Returns impact
- Target achievement

By implementing a structured **Star Schema Data Model**, the solution ensures accurate calculations, optimized performance, and scalable reporting.

The final dashboard provides an executive-level overview along with detailed drill-down analysis for operational decision-making.

Dataset Overview

The analysis is based on four interconnected datasets provided by Kegel:

1. **Sales Dataset**

   Contains transactional-level data including:

   - Order ID
   - Order Date
   - Product & Category
   - Quantity Sold
   - Sales Amount
   - Profit
   - Customer ID
   - Region

   This dataset forms the primary fact table for revenue and profit calculations.

2. **Customers Dataset**

   Includes customer master information:

- Customer ID
- Customer Segment
- Geographic Location
- Demographic Classification

This dataset supports customer-level analysis and segmentation insights.

3. **Returns Dataset**

   Captures:

   - Order ID
   - Product ID
   - Return Indicator
   - Return Count

   This dataset is critical for identifying revenue leakage and quality/service issues.

4. **Targets Dataset**

   Includes:

   - Monthly Sales Targets
   - Regional Targets
   - Category-level Goals

   Used to compare actual business performance against planned expectations.

Data Cleaning & Transformation

Data preparation was performed using Excel and Power Query before loading into Power BI.

Steps Implemented:

- Removed duplicate transaction records
- Standardized date formats (YYYY-MM-DD)
- Ensured consistent region/category naming
- Handled missing/null values
- Created calculated columns for:
  - Profit Margin
  - Return Rate
  - Target Achievement %
- Validated data integrity across datasets

These steps ensured data reliability and analytical accuracy.

Data Modeling – Star Schema Implementation

A structured **Star Schema Model** was implemented for optimized reporting.

1. **Fact Tables**
    - **Fact_Sales** → Revenue, Profit, Quantity
    - **Fact_Returns** → Return Indicators
    - **Fact_Targets** → Target Values
2. **Dimension Tables**
    - Dim_Date
    - Dim_Product
    - Dim_Customer
    - Dim_Region

Relationships were defined as:

- One-to-many from dimension tables to fact tables
- Date table used as central slicer
- Proper cardinality and cross-filter direction maintained

Benefits of Star Schema:

- Improved performance
- Clean filtering logic
- Reduced data redundancy
- Accurate KPI aggregation

Executive KPIs Developed

The dashboard includes the following high-level metrics:

- **Total Sales** – Overall revenue generated
- **Total Profit** – Net profitability
- **Profit Margin (%)** – Profit efficiency indicator
- **Total Orders** – Business volume indicator
- **Return Rate (%)** – Revenue leakage metric

- **Target Achievement (%)** – Performance against plan
- **Monthly/Yearly Growth (%)** – Trend performance

These KPIs provide quick executive visibility into overall business health.

Dashboard Visualizations & Business Purpose

1. Sales Trend Analysis (Line Chart)

Shows monthly/quarterly revenue trends.
Helps identify:

- Seasonal patterns
- Growth trajectory
- Revenue fluctuations

2. Category & Product Performance (Bar Chart)

Compares:

- Sales by Category
- Profit by Product

Helps detect:

- High revenue but low margin products
- Top-performing product segments

3. Customer Segment Contribution (Donut/Bar Chart)

Displays sales and profit contribution by customer segment.
Enables:

- Segment-focused marketing strategies
- Profitability comparison across customer groups

4. Returns Impact Analysis

Measures return count and return rate.
Identifies:

- High-return categories
- Regions with operational challenges

- Profit impact due to returns

5. **Target vs Actual Comparison (Combo Chart)**

Compares actual revenue against planned targets.
Highlights:

- Target gaps
- Overachievement regions
- Underperforming periods

6. **Regional Performance Analysis (Map/Bar Chart)**

Visualizes geographic revenue distribution.
Supports:

- Region-based strategic planning
- Market expansion decisions

Key Insights & Observations

Based on dashboard analysis:

- Revenue demonstrates consistent performance with noticeable peak periods.
- Certain categories generate high sales volume but lower profit margins, indicating cost or discount pressures.
- Return rate impacts profitability in specific product segments.
- Target achievement varies across regions, suggesting uneven performance.
- Customer segments contribute differently to revenue and profitability, indicating the need for targeted strategies.

Business Impact

This dashboard enables:

- Real-time performance monitoring
- Data-driven strategic decisions
- Revenue optimization
- Margin improvement planning

- Target performance tracking
- Risk identification through return trends

The solution transforms raw transactional data into actionable business intelligence.

Recommendations

1. Investigate high-return categories to reduce revenue leakage.
2. Improve profit margins in low-margin high-volume products.
3. Strengthen performance in underachieving regions.
4. Focus marketing investment on high-profit customer segments.
5. Use historical trends to improve demand forecasting and planning.

Conclusion

The End-to-End Business Dashboard successfully integrates multiple datasets into a unified analytical framework.

Through proper data modeling, KPI development, and structured visualizations, the solution provides a complete 360-degree view of business performance.

The dashboard serves as a strategic decision-support system for management and enhances operational efficiency.