Acadia

Yearly Sales Trends: Department and Customer Analysis

Business & Technical Requirements

May 2014

Contents

Introduction

This document outlines the Business and Technical Requirements for the "Yearly Sales Trends: Department and Customer Analysis" Finding Report which examines the evolving trends in departmental sales, exploring how customer segments and profiles influence purchasing behaviors over consecutive years. This Business and Technical Requirements document serves as both technical documentation and a reference for the entire project team, facilitating client validation and supporting those involved in the report solution.

Business Requirements

Project Overview

- **Purpose**: The project aims to analyze simulated sales data over two years for a retail company to identify key trends, customer behavior patterns, and actionable marketing strategies.
- **Scope**: The analysis will cover sales data aggregated by department, year, customer segment, and profile.

Business Objectives

- To understand year-over-year sales trends.
- To identify significant shifts in customer purchasing behaviors.
- To recommend marketing strategies that capitalize on trends to increase sales.

Stakeholders

- Retail Company Executives
- Marketing Department
- Sales Department

Requirements

1. **Analytical Requirements**:
    - Identify key trends in sales across various departments.
    - Segment analysis based on customer transaction behaviors and demographic profiles.
    - Analysis of customer acquisition, retention, and attrition.
2. **Reporting Requirements**:
    - Develop a presentation summarizing the analysis, findings, and recommendations.
    - Ensure the presentation is self-sufficient and comprehensible without additional explanation.

Technical Requirements

Data Requirements

- **Data Sources**:
  - Departmental sales data over two years.
  - Departmental description information.
  - Customer segments based on transaction behavior.
  - Customer profiles based on demographics.
- **Data Processing**:
  - Data aggregation and segmentation by department, year, and customer traits.
  - Handling of data variations across different customer segments and profiles over time.

Analysis Tools and Techniques

- **Software and Tools**:
  - Extract, Load, Transformation (Big Query)
  - Data visualization tools (Power BI)
- **Techniques**:
  - Trend analysis for year-over-year sales comparisons.

Presentation and Delivery

- **Format**: 20-minute PowerPoint presentation designed for clarity and impact.
- **Visuals**: Use of charts, graphs, and tables to represent data insights.
- **Accessibility**: Ensure the presentation can be understood by stakeholders without technical expertise.

Security and Compliance

- Ensure all data handling and processing comply with relevant data protection regulations (e.g., GDPR).

Resources

- https://hbr.org/2007/02/understanding-customer-experience
- https://hbr.org/2007/02/understanding-customer-experience
- https://www.forbes.com/advisor/business/customer-retention-strategies/

Tables Schema

CSV files were imported into Big Query tool.

Dept Data

fullname	mode	type
DepartmentID	NULLABLE	STRING
Year	NULLABLE	INTEGER
SegmentID	NULLABLE	INTEGER
ProfileID	NULLABLE	FLOAT
Sales	NULLABLE	FLOAT
Customers	NULLABLE	INTEGER

Departments

fullname	mode	type
DepartmentID	REQUIRED	STRING
Department Description	REQUIRED	STRING

Segments

fullname	mode	type
SegmentID	NULLABLE	INTEGER
Segment Description	NULLABLE	STRING

Profiles

fullname	mode	type
ProfileID	NULLABLE	INTEGER
Profile Description	NULLABLE	STRING

ETL

The data provided was already well-prepared for analysis, free of errors, and properly organized into facts and dimensions. I uploaded the data into BigQuery and connected it to Power BI for any necessary table transformations. To create the table visual in Power BI, I needed to create DAX measures. Since the model utilizes a performative star schema, some measures for visuals and charts are more efficient with DAX. SQL is used primarily for ETL processes when Power Query is unsuitable or for complex measures that require implementation as columns. For the majority of this project, however, we focused on creating measures rather than columns.

Technical Support Files

I'm sending a zipped file with all technical files. I've also included a sample of SQL queries that could be performed. However, as mentioned earlier, it is more efficient to execute these measures in Power BI when they are not complex and require a column in the fact table.

Name	Status	Date modified	Type	Size
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DAX-Measures.xlsx	✓	5/26/2024 7:40 PM	Microsoft Excel W...	13 KB
Presentation.pbix	✓	5/26/2024 7:48 PM	Microsoft.Microso...	601 KB
SQL-Measures.sql	✓	5/26/2024 7:22 PM	SQL Text File	2 KB

Figure 1 *All Files Available*

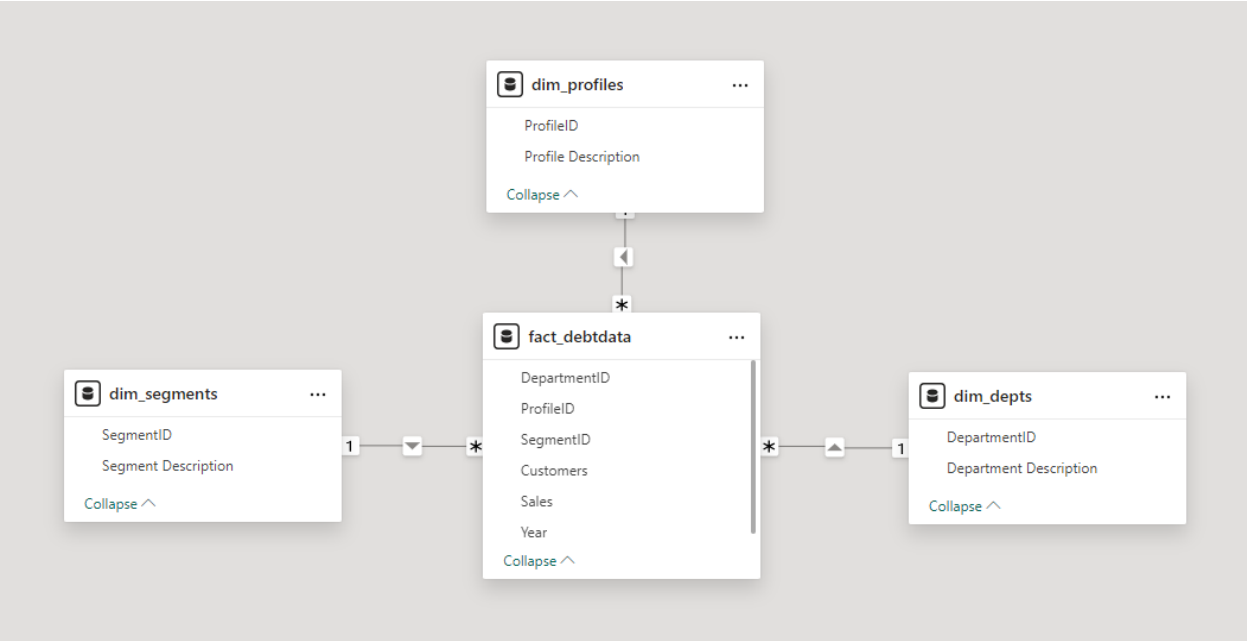

Figure 2 *Star Schema Model*

Figure 3 *Key Columns to Join*