**Superstore Analysis Documentation**

**1. Project Overview**

* Title: Superstore Data Analysis
* Objective: Comprehensive analysis of sales, profitability, and operations
* Data Period: 2014-2017
* Scope: Sales performance, customer segmentation, shipping efficiency

**2. Data Architecture**

**Database Schema**

* Customers Table
  + CustomerID (PK)
  + CustomerName
  + Segment
  + Region
* Orders Table
  + OrderID (PK)
  + OrderDate
  + ShipDate
  + ShipMode
  + CustomerID (FK)
* Products Table
  + ProductID (PK)
  + Category
  + SubCategory
  + ProductName
* Sales Table
  + SalesID (PK)
  + OrderID (FK)
  + ProductID (FK)
  + Quantity
  + Discount
  + SalesAmount
  + Profit
* Regions Table
  + RegionID (PK)
  + RegionName
  + Country
  + State
  + City
  + PostalCode

**Data Cleaning Steps**

1. Date format standardization
2. Removal of duplicate sales entries
3. Validation of numeric fields
4. Addition of derived columns (IsLoss flag)

**2. Analysis Results**

**Sales & Revenue Analysis**

**Category Performance**

- Technology

- Revenue Contribution: 36.44%

- Profit Contribution: 50.97%

- Highest profit margin: 17.39%

- Furniture

- Revenue Contribution: 32.32%

- Profit Contribution: 6.39%

- Lowest profit margin: 2.46%

- Office Supplies

- Revenue Contribution: 31.24%

- Profit Contribution: 42.64%

- Balanced performance

**Top Performing Products**

1. Canon image CLASS 2200 Advanced Copier

- Revenue: $61,599.83

- Profit: $25,199.94

- Revenue Contribution: 2.68%

2. Fellowes PB500 Electric Punch Plastic Comb Binding Machine

- Revenue: $27,453.38

- Profit: $7,753.06

**Discount Analysis**

**Discount Impact**

- 0% Discount:

- Transactions: 4,788

- Revenue: $1,084,207.54

- Highest profitability

- 10-20% Range:

- Sustainable profitability

- High transaction volume

- Example: 20% discount generated $763,714.49 revenue

- Above 30%:

- Consistent losses

- 40% discount: -$23,057.08 profit

- 80% discount: -$30,539.13 profit

**Shipping Performance**

**Mode Analysis**

1. Standard Class

- Revenue: $1,356,643.42

- Profit: $163,698.46

- Orders: 5,961

- Delay Rate: 62.93%

- Average Shipping Days: 5

2. Second Class

- Revenue: $455,977.69

- Profit: $56,541.24

- Delay Rate: 20.26%

- Average Shipping Days: 3.23

3. First Class

- Revenue: $351,354.75

- Profit: $48,935.32

- Delay Rate: 16.54%

- Average Shipping Days: 2.19

4. Same Day

- Revenue: $128,363.12

- Profit: $15,891.90

- Delay Rate: 0.25%

- Average Shipping Days: 1

**Regional Performance**

- East Region

- Highest profit margin: 15.39%

- Strong overall performance

- West Region

- High total profits

- Consistent performance

- South Region

- Lowest profit margin: 7.46%

- Needs improvement

**Customer Segmentation Results**

Based on RFM (Recency, Frequency, Monetary) Analysis:

- Best Customers: High scores across all metrics

- Loyal Customers: High recency and frequency

- At Risk: Low recency but high monetary value

- Lost Customers: Low scores across all metrics

**3. Key Recommendations**

**Product Strategy**

1. Technology Category

- Maintain focus on high-margin products

- Expand successful product lines

- Example: Promote Canon imageCLASS series

2. Furniture Category

- Review pricing strategy

- Analyze cost structure

- Address low profit margins

3. Office Supplies

- Balance current performance

- Identify high-margin opportunities

**Discount Strategy**

1. Optimal Range (0-20%)

- Focus promotional activities

- Maintain profitability

- Target specific product categories

2. High Discount Mitigation

- Limit discounts above 30%

- Use high discounts only for clearance

- Monitor discount impact

**Shipping Improvements**

1. Standard Class

- Address high delay rate

- Improve efficiency

- Review processes

2. Premium Services

- Promote First Class for valuable shipments

- Expand Same Day delivery where profitable

- Leverage low delay rates

**Regional Focus**

1. Strong Regions (East & West)

- Build on success

- Identify growth opportunities

- Replicate successful strategies

2. Underperforming Regions (South)

- Address efficiency issues

- Review local strategies

- Implement targeted improvements