**Excel Report**

**Title: Sales Dashboard**

**Executive Summary**

This report documents the development and analysis of a sales dataset using Microsoft Excel, including data cleaning, validation, summary statistics, and visualization through pivot tables. The analysis provides actionable business insights and recommendations to support informed decision-making based on accurately processed data and clear visual outputs.

**Data Preparation and Cleaning**

**Dataset Overview**

* Original dimension: 1000 rows x 21 columns
* After cleaning: 769 rows x 21 columns
* Sheet analyzed: "Orders"

**Data Cleaning Process**

* Columns removed: Postal Code, Product ID (deemed irrelevant)
* Columns Added: Order Date (Month, Year)
* Duplicate records: None found after review
* Missing values: The dataset is complete, with no missing entries
* Error checks: No data entry or formula errors detected
* Data types standardized: Dates and currencies verified for consistency

**Consistency Checks**

* Identified 231 records where Order Date is after Ship Date (logical inconsistency)
* Introduced a "Date Check" column to flag and resolve inconsistencies (using an IF formula)
* Outliers identified:
  + Profit: Notable extremes (-3839.99 to 3177.47), requiring further investigation for business context
  + Sales: Wide range detected, with high values up to 8159.95
  + Quantity: Range from 1 to 14 (generally reasonable, but contextually checked)
  + Discount: Range from 0 to 0.8, aligned with typical discounts

**Data Dictionary**

* Created a list of column names, descriptions, and data types for improved transparency and documentation

**Data Analysis and Visualization**

**Pivot Table Implementation**

* Used pivot tables as primary tools for analysis, enabling aggregation, sorting, and filtering of data for stakeholder-driven queries
* Variables were organized into filters, columns, rows, and value fields to support customized reporting

**Stakeholder Questions & Business Insights**

The report addressed five core business questions, each explored with a dedicated pivot table and visualization. The following structure was applied for each question:

* Stated business question
* Construction of relevant pivot tables
* Creation of charts
* Identification of key findings and insights

*Specific stakeholder questions and results can be added in detail, if required, from the associated pivot tables and chart outputs.*

**Findings and Recommendations**

* The cleaning process improved data quality, but logical date errors and outliers require monitoring or corrective action before operational use
* Outliers in sales and profit may indicate either real exceptional business activity or input errors; further validation with source systems is recommended before making decisions
* Pivot tables provided dynamic, interactive views for diverse stakeholder needs—this approach should be continued and expanded for deeper insights

**Additional Recommendations**

* Consider automating validation steps to continuously flag future data entry errors
* Provide dashboard snapshots or summary tables for each business question to highlight “at-a-glance” trends
* Expand the data dictionary with sample values or allowed value ranges for each column for easier onboarding and auditing
* Perform regular outlier investigations to distinguish genuine trends from anomalies arising from entry issues or rare business events
* Explore advanced Excel features (Power Query, slicers, conditional formatting) to further streamline reporting and highlight actionable results

**Conclusion**

The report showcases a thorough, systematic approach to cleaning and analyzing sales data in Excel, laying the groundwork for reliable, actionable insights. Implementation of the noted improvements will further enhance analytical accuracy and reporting value for key business stakeholders.

**Power BI Report**

**Executive Summary**

This report outlines the design and key findings of the Excel/Power BI dashboard, constructed to facilitate sales, profit, and customer analytics for improved business decision-making. The dashboard leverages multiple visualizations to address headline metrics, trend analysis, category and customer performance, discount-profits correlation, segment analysis, and geographic profitability. All analyses aim to offer actionable insights on revenue growth, profit drivers, and areas for operational enhancement.

**Dashboard and Insights:**

**Scorecards and KPIs**

* Total Profit ($14.5K): Indicates overall profitability across the dataset period. This value helps track the effectiveness of sales and cost management processes.
* Loss Orders Count (75): Shows the total number of orders resulting in negative profit, highlighting either operational inefficiencies or issues with pricing and discounts.
* Average Sales ($224.08): Measures sales per order, supporting benchmarking of transaction sizes and targeting for up-selling initiatives.
* Profit Margin (0.08): Suggests an average profit margin of 8%, which may be considered low compared to typical industry standards, warranting a review of costs and pricing strategies.

**Sales vs. Discount by Sub-Category (Scatter Plot)**

* Findings: Several sub-categories show a wide range of discounts, yet highest sales amounts are typically associated with moderate discount levels. Deep discounts do not always result in higher sales volume, indicating that discounting is not a guaranteed method for boosting sales across all product lines.
* Category Comparison: Accessories, Binders, and Furnishings display the highest sales peaks, while categories like Envelopes and Fasteners contribute far less.
* Action: Evaluate sub-categories where steep discounts fail to drive proportional sales increases.

**Region vs Sales & Profit (Bar Chart)**

* Findings: The West and Central regions dominate total sales, contributing $56K and $53K respectively. However, profits vary sharply—West stands out with highest profit ($8K), while Central dips into negative territory ($-1K).
* Other regions: East and South both post much lower sales and marginal profit values ($32K, $31K sales; $1K, $6K profit).
* Action: Central region’s negative profit, despite high sales, suggests cost or margin issues specific to this area—potentially linked to logistics, discounts, or market dynamics.

**Total Profit by State and Region (Map)**

* Findings: The geographic map visual highlights profitability with color-coded regions. The West and South generally perform well, while Central reveals hot spots for loss or underperformance.
* Action: Target improvement campaigns for loss-heavy states and capitalize on best-performing regions with tailored sales strategies.

**Top 10 Customers (Bar Chart)**

* Findings: Customer concentration is evident—Victoria, Zuschuss, and Yoseph rank as dominant contributors to sales. The distribution gap between the top and bottom of the list suggests a reliance on a core group of customers for revenue stability.
* Action: Focus retention and loyalty initiatives on top customers, and explore strategies to convert lower-tier clients into higher-value relationships.

**Total Profit and Sales by Year and Month (Line Chart)**

* Findings: The visualization reveals clear seasonality—sales and profits surge in specific months, notably mid-2011 and other recurring peaks. There are also visible troughs and volatility, implying cyclical or campaign-driven sales behavior.
* Action: Adjust inventory and promotional planning to align with demand cycles, and investigate causes for periodic profit dips.

**Total Profit by Segment (Pie Chart)**

* Findings: The Consumer segment is responsible for over half of total profit ($7.41K, 51.10%). Corporate and Home Office segments each contribute approximately one-fourth ($3.73K, ~25% each), suggesting balanced segment diversification.
* Action: Further analysis within segments can identify micro-targets for deeper margin optimization.

**Overall Recommendations**

* Improve the margin in low-profit regions and investigate root causes (cost structure, competitive pricing, delivery issues).
* Examine sub-categories with high discounts and low sales for opportunities to refine pricing strategies.
* Utilize time-series insights to optimize campaign timing and resource allocation.
* Enhance loyalty and engagement efforts for top customers while nurturing growth among less active accounts.
* Regularly review the Loss Orders to identify and mitigate recurring issues, such as unprofitable products or operational failures.
* Expand dashboard interactivity, such as enabling dynamic filtering by region, segment, or time period to drive more granular analysis and actionable decisions.

This dashboard delivers a strong foundation for data-driven sales management and highlights actionable areas to boost profitability and operational efficiency