Final Report: Advanced Sales Analysis Using Python in Power BI

Project Title:

Advanced Sales Analysis Using Python Integration in Power BI

Objective:

To demonstrate the integration of Python scripting within Power BI for advanced data transformation and visualization, and to analyze profitability, sales patterns, and performance metrics across categories and regions.

Dataset Used:

File: Extended_Sample_Sales_Data.csv

Records: 100 rows

Fields: Order ID, Order Date, Region, Segment, State, Category, Product, Sales, Profit, Quantity, Discount

Tools & Technologies:

Power BI Desktop

Python (Anaconda)

Python Libraries: pandas, matplotlib.pyplot, seaborn

Data Analysis Performed:

1. Data Transformation using Python:

   Profit Margin and Performance categorization script added new calculated columns.

2. Python Visual: Sales by Category

   Used seaborn barplot to show profit margin distribution.

3. Python Visual: Top 10 Most Profitable Products

   Grouped and sorted products by profit using matplotlib + seaborn.

Key Dashboard Elements:

- Total Sales: Rs. 49.2K
- Total Profit: Rs. 10.5K
- Most Profitable Region: West

Final Report: Advanced Sales Analysis Using Python in Power BI

- Most Profitable Category: Office Supplies (35%)

Included Visuals:

- Sales by Region (bar chart)
- Sales by Category (pie chart)
- Profit Margin by Category (Python visual)
- Top 10 Profitable Products (Python visual)
- Slicers: Segment, Performance

Learning Outcomes:

- Integrated Python with Power BI for analytics
- Learned data transformation and visualization techniques
- Developed practical business dashboard
- Gained real-world data storytelling experience

Deliverables:

- Power BI report file (.pbix)
- Extended CSV dataset
- Final report (this document)

Conclusion:

This project showcases the power of Python scripting in Power BI to enable custom analytics and visualizations, providing valuable insights for profit analysis in business environments.