**Final Report: Data Analytics - Week 2\_Day5**

1. **Introduction**

Overview

This report presents an in-depth analysis of the dataset to uncover key business trends, customer behaviours, and revenue patterns. The objectives of this analysis include:

* Understanding product performance and sales trends.
* Segmenting customers based on purchasing behaviour.
* Identifying revenue-driving categories and customer segments.

1. **Data Cleaning & Preparation**

Steps Taken:

* Handled Missing Values: Checked and imputed/removed missing data where necessary.
* Standardized Columns: Renamed inconsistent column names for uniformity.
* Data Type Corrections: Ensured numerical fields were correctly formatted.
* Feature Engineering: Created new columns such as Total Revenue, Average Order Value (AOV), and customer segments.

1. **Analysis & Key Insights**
2. Revenue & Sales Trends

* Top-Selling Products: The highest revenue-generating products were from categories X and Y.
* Seasonality: Sales peaked during Month A and dipped in Month B.

1. Customer Segmentation

* Low-Value Customers: 10,265 customers contributed to the lowest revenue bracket.
* Mid-Value Customers: 8,206 customers had moderate engagement.
* High-Value Customers: Only 2,053 customers drove the majority of revenue, emphasizing the Pareto Principle (80/20 rule).

1. **Visual Storytelling**
2. Key Charts & Graphs

* Revenue Trends by Month: Showcasing seasonal demand fluctuations.
* Customer Segments vs. Revenue Contribution: Visualizing the importance of high-value customers.
* Product Category Breakdown: Analyzing which product categories generate the most revenue.

1. **Conclusion & Recommendations**
2. **Summary of Findings**

* The majority of revenue comes from a small percentage of high-value customers.
* Certain product categories significantly outperform others in revenue generation.
* Sales exhibit seasonal trends, highlighting the importance of peak season strategies.

1. **Recommendations**

* Customer Retention: Focus on retaining high-value customers with personalized offers.
* Marketing Strategy: Target mid-value customers with incentives to increase spending.
* Inventory Optimization: Align stock levels with demand trends to maximize efficiency.