**ZEOTAP ASSIGNMENT**

**Business Insights Based on Data Analysis**

**1.Customer Segmentation & Loyalty**

The analysis reveals two key customer segments: **Loyal Customers** and **High-Value Customers**. David Li, Gerald Hines, Abigail Jones, Paul Parsons, and William Adams exhibit high transaction frequency, making them **loyal customers** who consistently engage with purchases. Additionally, Bruce Rhodes, Gerald Hines, Aimee Taylor, Paul Parsons, and William Adams contribute significantly to total revenue, classifying them as **high-value customers**. These groups should be targeted with personalized loyalty programs, exclusive deals, and retention strategies to enhance customer lifetime value.

**2.Product Performance & Best Sellers**

Several products demonstrate strong sales performance based on total revenue generated. **Top-performing products** include the *ActiveWear Jacket, TechPro Headphones, TechPro Cookbook, HomeSense Novel, and ActiveWear Rug*. These products should be prioritized in marketing campaigns, restocking strategies, and bundle offers.

**Sales & Seasonal Trends**

**Peak Sales Months:**

* **January 2024 & July 2024** exhibited the highest transaction volumes, indicating strong seasonal demand.
* Promotional campaigns, targeted discounts, and inventory planning should be aligned with these periods to maximize revenue.

**Lowest Sales Months:**

* **December 2023 & October 2024** saw the least customer activity, signaling a potential demand drop.
* Consider introducing limited-time promotions, festive discounts, or customer engagement initiatives to counteract these downturns.

**3.Correlation Insights for Pricing Strategy**

* A **strong positive correlation (0.92)** between *Total Value* and *Quantity* suggests that increasing sales volume significantly boosts revenue. This indicates potential benefits in bulk discounting or promotional pricing strategies.
* A **moderate correlation (0.57)** between *Total Value* and *Price* highlights that pricing influences revenue, but not as significantly as quantity.
* A **weak correlation (0.28)** between *Price* and *Quantity* suggests that higher prices don’t necessarily deter bulk purchases, possibly due to segment-based demand or bundled discounts.

**4.Category-Based Pricing Insights**

Among the **top 50 high-priced commodities**, books consistently ranked as the **most expensive**, whereas **home decor items were among the lowest-priced categories**. This pricing distribution suggests that books may be positioned as premium items, while home decor may target a budget-conscious segment.

**5.Clothing Market Trends**

The clothing category includes significant price variations, with *SoundWave T-shirts* priced as high as **$481.78**, while *ActiveWear Running Shoes* start as low as **$18.82**. This indicates a broad pricing strategy that caters to diverse customer segments. Additionally, the presence of both *ActiveWear* and *SoundWave*-branded products highlights potential cross-branding or partnership opportunities.

**6.Customer Signup Patterns & Hypotheses Validation**

* **2024 saw the highest customer signups**, confirming a growing customer base.
* **April 2024 & November 2024 had the highest signup rates**, suggesting seasonal or campaign-driven customer acquisition peaks.
* **North America & Asia show lower engagement**, indicating an opportunity to strengthen marketing efforts in these regions.
* **Recurring seasonal patterns** in signups suggest that customer acquisition strategies should align with peak months to optimize engagement.

**7.Data Integrity & Potential Issues**

A discrepancy was identified with **66 unique product names but 100 unique product IDs**, indicating possible data inconsistencies such as duplicate products or incorrect identifiers. Cleaning and validating this data is essential to ensure accurate reporting and analysis.