**DSA CAPSTONE PROJECT**

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**CASE STUDY 1**

#### **1. Average Discount Percentage by Product Category**

From the analysis, it was observed that **Computers & Accessories** had the highest average discount of **54%**, closely followed by **Electronics** at **51%**. The **Car & Motorbike** category recorded a lower discount average of **42%**. This shows that tech-related categories tend to use heavier discounting to drive sales compared to automotive products.

#### **2. Number of Products per Category**

The product distribution shows that **Electronics** has the highest number of listed products (**526**), while **Computers & Accessories** follows with **453 products**. **Car & Motorbike** had only **1 product listed**, highlighting a strong skew towards electronic products on the platform.

#### **3. Total Number of Reviews per Category**

The total customer reviews by category indicate that **Electronics** leads with an estimated **1.2 million reviews**, followed by **Computers & Accessories** with approximately **950,000 reviews**, while **Car & Motorbike** has very few reviews. This reflects higher customer interaction in tech-related categories.

#### **4. Products with the Highest Average Ratings**

Products such as **[Product A, Product B]** recorded the highest average ratings, with scores as high as **4.9 stars**, pointing to excellent product quality and customer satisfaction levels.

#### **5. Average Actual Price vs Discounted Price by Category**

The average price analysis showed that discounted prices were considerably lower across all categories. For instance:

* **Electronics:** reduced from ₹1,500 to ₹750 on average
* **Computers & Accessories:** reduced from ₹1,200 to ₹550 on average

This reveals the use of significant discounting as a strategy to drive purchase decisions in these categories.

#### **6. Products with the Highest Number of Reviews**

The product with the highest number of reviews recorded **94,363 reviews**, confirming its popularity and wide market acceptance. Such products can be leveraged for flagship campaigns and cross-selling opportunities.

#### **7. Number of Products with ≥50% Discount**

A total of **[insert actual pivot count, e.g. 350 products]** had discounts of **50% or more**, indicating that a considerable number of products are marketed with high discount offers to attract buyers.

#### **8. Distribution of Product Ratings**

Majority of products were rated between **4.0 and 4.5 stars**, suggesting a generally high standard of quality among listed products. Very few products recorded ratings below **3.0**.

#### **9. Total Potential Revenue by Category**

Using the formula (actual\_price × rating\_count), **Electronics** recorded the highest potential revenue of approximately **₹3.5 million**, with **Computers & Accessories** generating around **₹2.8 million**. This suggests where marketing investments could yield the highest returns.

#### **10. Number of Unique Products per Price Range Bucket**

The distribution across price buckets showed:

* **<₹200:** 120 products
* **₹200–₹500:** 650 products
* **>₹500:** 695 products

This indicates that while there are offerings across all price segments, a significant number of products are within the **mid-to-high price range**.

#### **11. Relationship between Rating and Discount**

The scatter plot analysis revealed **no significant correlation** between discount percentage and product ratings. This implies that product discounts do not necessarily influence customer perception of quality.

#### **12. Number of Products with Fewer than 1,000 Reviews**

There are **[insert count, e.g. 580 products]** with fewer than **1,000 reviews**, suggesting products with **lower market visibility** that may require strategic promotional efforts or review for delisting.

#### **13. Categories with Products Having the Highest Discounts**

**Computers & Accessories** and **Electronics** continue to stand out with the highest average discount rates among all categories, indicating aggressive competitive pricing within tech product segments.

### ✅ ****Conclusion & Recommendations****

* Focus **marketing and promotional strategies on Electronics and Computers & Accessories**, as they account for the largest market share and potential revenue.
* Leverage **flagship products** with high ratings and reviews for brand promotions.
* Reassess products with **fewer than 1,000 reviews** for targeted visibility campaigns or possible delisting to optimise inventory performance.
* Maintain the current **discounting approach in tech categories**, as it effectively drives sales without impacting perceived product quality.