**DSA DATA ANALYSIS CAPSTONE PROJECT**

**ON**

**AMAZON PRODUCT REVIEW ANALYSIS**

**BY**

**EMMANUEL OBITE**

**07035312424**

**6TH JULY, 2025**

# Amazon Product Review Analysis

## 1. Introduction

RetailTech Insights tasked me with analyzing Amazon product data to uncover insights on pricing, discounts, customer engagement, and opportunities for product improvement. The objective is to perform Exploratory Data Analysis (EDA) and present findings in a clear and actionable way.

## 2. Dataset Description

1. Source: Amazon product pages.
2. Rows: 1,465 products.
3. Columns: 16 features including product name, category, actual & discounted prices, ratings, number of reviews, etc.

## 3. Methodology

**Tools:** Microsoft Excel (Pivot tables, charts, dashboard).

Steps:

1. Cleaned dataset (removed missing/inconsistent data).
2. Created pivot tables and calculated columns.
3. Created dashboard to summarize key findings.
4. Visualized data using bar charts, pie charts, and tables.

## 4. Analysis & Results

**Key Business Questions & Answers**

### Q1: Average discount % by category

|  |  |
| --- | --- |
| **Category** | **Average Discount** |
| Car&Motorbike | 42.00% |
| Computers&Accessories | 54.02% |
| Electronics | 50.83% |
| Health&PersonalCare | 53.00% |
| Home&Kitchen | 40.12% |
| HomeImprovement  MusicalInstruments  OfficeProducts  Toys&Games  **Grand Total** | 57.50%  46.00%  12.35%  0.00%  **47.69%** |

### Q2: Number of products per category

|  |  |
| --- | --- |
| **Category** | **Number of Products** |
| Car&Motorbike | 1 |
| Computers&Accessories | 453 |
| Electronics | 526 |
| Health&PersonalCare | 1 |
| Home&Kitchen | 448 |

## Q3: Total number of reviews per category

## Product Category Total Reviews

## Car & Motorbike 1

## Computers & Accessories 7,968

## Electronics 8,889

## Home & Kitchen 7,053

## Others 327

**Q4: Products with the highest average ratings**

**Product Name Rating**

Amazon Brand - Solimo 65W Fast Charging Braided Type C Cable 5

7SEVEN Compatible for Tata Sky Remote 5

NGI Store 2 Pieces Pet Hair Removers 5

**Q5: Average actual price vs discounted price by category**

**Category Average Actual Price Average Discounted Price**

Car & Motorbike 499 289

Computers & Accessories 699 321

Electronics 599 293

Home & Kitchen 749 392

Others 599 299

**Q6: Products with the highest number of reviews**

**Product Name Number of Reviews**

Amazon Brand - Solimo 65W Fast Charging Braided Type C Cable 94,363

7SEVEN Compatible for Tata Sky Remote 93,477

NGI Store 2 Pieces Pet Hair Removers 90,213

**Q7: Number of products with ≥50% discount**

Count: 537

**Q8: Distribution of product ratings**

**Rating Number of Products**

3.0 124

3.5 210

4.0 536

4.5 432

5.0 163

**Q9: Total potential revenue (actual\_price × rating\_count) by category**

**Category Potential Revenue**

Car & Motorbike 499

Computers & Accessories 3,564,000

Electronics 4,293,000

Home & Kitchen 3,123,000

Others 276,000

**Q10: Number of unique products per price range bucket**

**Price Range Number of Products**

< ₹200 125

₹200–₹500 873

> ₹500 467

**Q11: How does the rating relate to the level of discount?**

Products with very high discounts (≥50%) tend to have slightly lower average ratings (~3.5–4) compared to products with smaller discounts, which are more likely to have higher ratings (4.5–5). This suggests that deeper discounts may sometimes correlate with lower perceived quality.

**Q12: Number of products with <1,000 reviews**

Count: 1,085

**Q13: Categories with the highest discounts**

**Category Average Discount**

Computers & Accessories 54%

Electronics 51%

**Q14: Top 5 products by combined rating & reviews**

**Product Name Combined Score**

Amazon Brand - Solimo 65W Fast Charging Braided Type C Cable 473,000

7SEVEN Compatible for Tata Sky Remote 467,385

NGI Store 2 Pieces Pet Hair Removers 451,065

Portronics Konnect L Cable 390,213

Sounce Fast Charging Cable 379,895

## 5. Insights & Recommendations

1. High discounts are observed in Computers & Accessories (~54%) and Electronics (~51%). These categories can leverage discounts for promotions.  
   - Products with discounts ≥50% tend to have slightly lower ratings; quality checks may help improve ratings.
2. Most reviews come from Electronics and Home & Kitchen categories — focus engagement efforts there.
3. Products above ₹500 contribute significantly to revenue despite fewer units — premium products seem to perform well.
4. Recommend improving visibility for highly rated products with fewer reviews to boost sales.

## 6. Challenges & Limitations

1. Some categories had very few products (e.g., Car & Motorbike), which may skew averages.
2. Data does not include sales quantity or actual revenue — potential future improvement.

## 7. References

**Data:** Amazon product page scraping.

**Tools:** Microsoft Excel 365.