The aim of this analysis is to derive business insights from product listing and customer review data scraped from Amazon. This data includes product categories, pricing (actual and discounted), rating metrics, and review counts.

**AMAZON REVIEW ANALYSIS REPORT**

The project was carried out using Microsoft Excel for data cleaning, analysis, and dashboard creation, and submitted as part of the DSA Data Analytics Program.

**ANALYSIS OBJECTIVES**

* Perform **exploratory data analysis (EDA)** on Amazon product listings
* Identify **category-wise** insights such as pricing, reviews, and discounts
* Highlight top-performing products using a **combined rating × review score**
* Build an **interactive dashboard** using Excel pivot tables and slicers

**DATASET OVERVIEW**

The dataset contained **1,466 product records** with **16 columns**, including:

* product\_name
* product\_category
* actual\_price, discounted\_price, discount\_percentage
* rating, rating\_count
* review\_count, product\_id

Some fields were derived during cleaning, such as:

* Main Category (cleaned/standardized category groups)
* Price Bucket (price range classification)
* Review Volume Bucket (review count grouping)
* Combined Score (rating × number of reviews)

**Data Cleaning Process**

Steps taken:

* Removed missing values in key fields (e.g., product name, price)
* Formatted numeric columns: price, discount, rating count, review count
* Created derived fields using Excel formulas:
  + Discount Percentage Bucket (with a 20% discount percentage range, e.g, 0-20%, 21-40%, etc.)
  + Price Bucket to classify prices as <200, 200–500, >500
  + Combined Score = rating × rating\_count
* Cleaned and grouped long product\_category entries into broader category groups for better pivot analysis
* Removed duplicate category names and handled nulls

**Exploratory Data Analysis (EDA)**

* Using pivot tables and calculated fields, the following business questions were answered:

**Key Questions;**

* What is the average discount by category?

**Home Improvement** and **Computers Accessories** had the highest discounts.

* How many products are listed per category?

There are 1351 unique products listed and **Electronics** category dominated product count.

* Which products have the highest ratings or reviews?

**Amazon HDMI Cables** and **boAt Earphones** lead in volume lead in volume.

* What is the total potential revenue by category?

**Electronics** categories offer the most potential revenue.

* How are products distributed by rating and review volume?

Most fall between *3.5–4.5 rating*; less than *1,000+* products have <1,000 reviews.

* How does discount relate to rating?

No strong pattern — some top-rated products have low or no discounts

**Dashboard Summary**

An interactive Excel dashboard was built using:

* **Pivot tables** for metrics like average discount, product count, total revenue
* **Slicers** for Main Category, Price Range Bucket, and Discount Rate Bucket
* **KPI cards** for:
  + Total Products
  + Average Rating
  + Average Discount
  + Total Reviews
* **Visuals** include:
  + Bar charts for average discounts, prices, total reviews by category
  + Rating distribution and review volume analysis
  + A stacked column chart of top 5 products by combined score

**Key Insights**

* **Amazon Basics products** dominate top performance rankings
* Discounts vary significantly by category but do not predict rating quality
* A large number of products receive low engagement (<1,000 reviews)
* Potential revenue is concentrated in high-volume electronics categories
* Accessories are highly reviewed but often deeply discounted

**Recommendations**

Based on the insights:

* **Promote top-performing products** like Amazon Basics HDMI cables and boAt earphones
* Consider **rebalancing discounts** for high-rated, low-review products to improve visibility
* Investigate **long-tail categories** with many low-review products for optimization or delisting
* Leverage insights from category performance to guide **inventory and marketing decisions**

**Conclusion**

This project provided an in-depth analysis of Amazon product data, revealing how price, discount, and customer engagement metrics relate across different product categories. By combining Excel skills with structured exploratory data analysis, actionable insights were generated to support decision-making in pricing, marketing, and inventory management.

The dashboard created enables stakeholders to dynamically explore product performance, identify key revenue drivers, and spot opportunities for improvement. This case study not only demonstrates technical proficiency in Excel but also showcases practical data storytelling and business-focused interpretation.