

Data Cleaning and Preparation Steps before performing EDA (prepared in Snowflake):

For every review the lowest category was extracted from the electronics metadata for example:

ASIN	PARENT_ASIN	RATING	HELPFUL_VOTE	VERIFIED_PURCHASE	REVIEW_TIMESTAMP	CATEGORIES	MAIN_CATEGORY	LOWEST_CATEGORY
B08SW8TR3Y	B08SW8TR3Y	1	1	TRUE	27/07/2021	["Electronics", "Camera & Photo", "Video Surveillance", "Surveillance Cameras", "Dome Cameras"]	Camera & Photo	Dome Cameras
B07KKCYT6L	B07KKCYT6L	3	1	TRUE	6/12/2022	["Electronics", "Computers & Accessories", "Computer Accessories & Peripherals", "Cables & Accessories", "Cables & Interconnects", "VGA Cables"]	All Electronics	VGA Cables

Step 1 Filter Reviews

1. Get all reviews and join with product categories
2. Keep reviews where main category and lowest category are present
3. Only include **verified purchases** with at least 1 helpful vote
4. Only include reviews from the last 3 years

Step 2 Identify Top Main Categories

1. Count reviews per main category
2. Keep the **top 1000 categories** with the most reviews

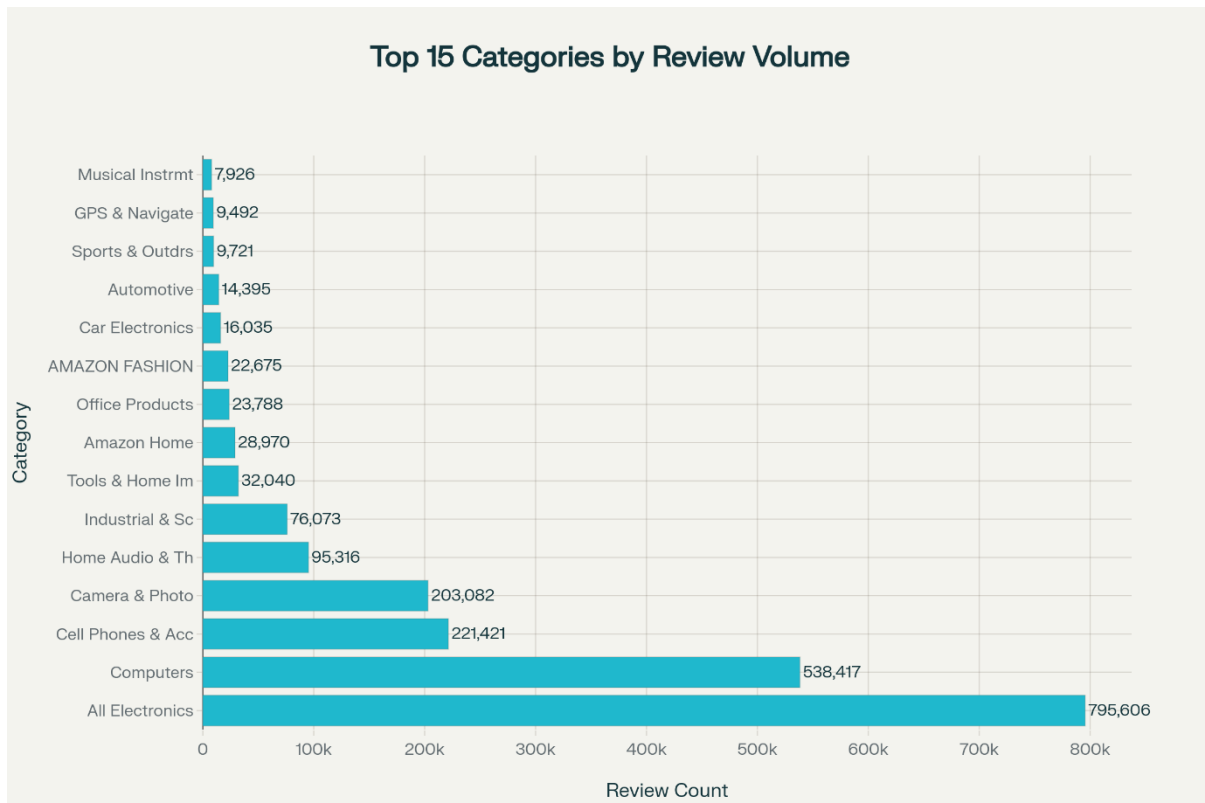
Step 3 Get Lowest Category: For the top categories, count reviews per lowest category

Step 4 Count Reviews by Rating: For each main category and lowest category, count how many reviews have each rating (0–5)

Step 5 Pivot Ratings: Transform rating counts into **separate columns** for each rating (0,1,2,3,4,5) per category-subcategory.

Step 6 Combine with Total Reviews

1. Join the pivoted rating counts with total review counts per subcategory
2. Result: each row shows a category, subcategory, counts of reviews by rating, and total reviews



Top 15 Main Categories by Total Review Volume

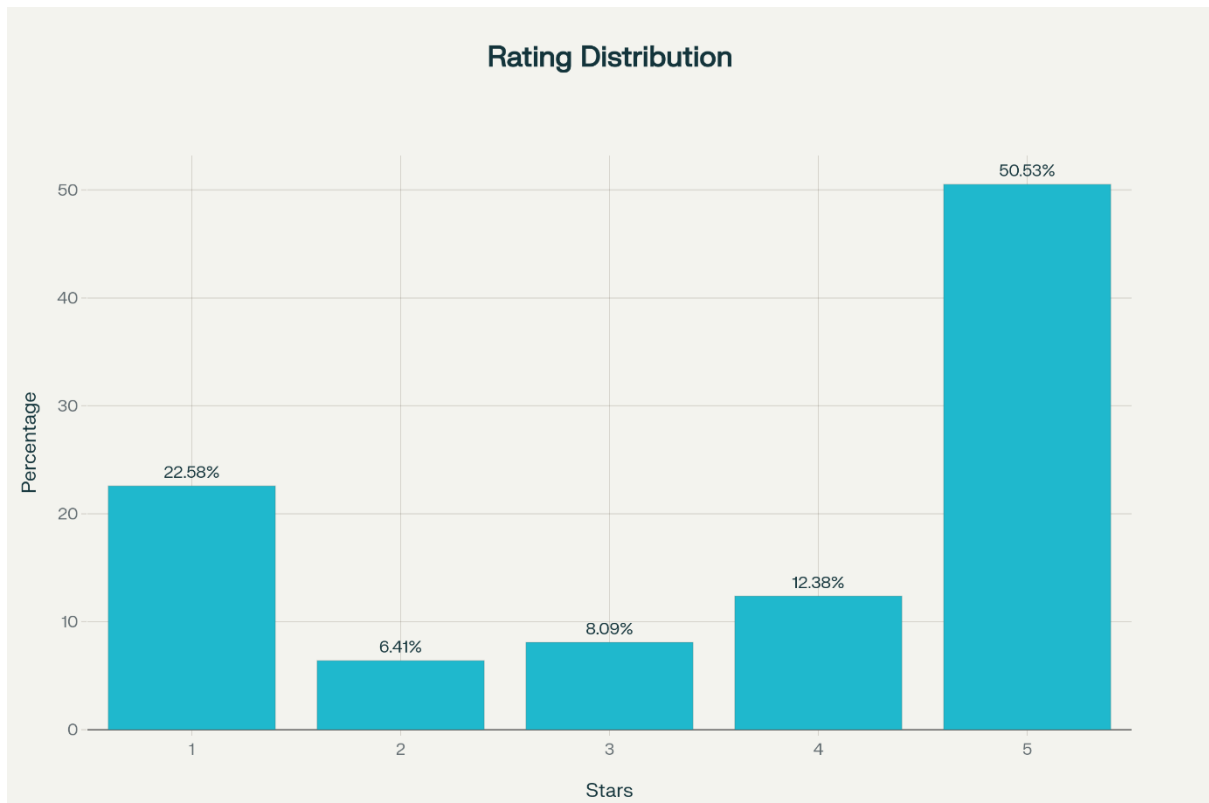
Top-performing categories by review volume:

1. **All Electronics:** 795,606 total reviews (1,204 avg per product)
2. **Computers:** 538,417 total reviews (1,261 avg per product)
3. **Cell Phones & Accessories:** 221,421 total reviews (514 avg per product)
4. **Camera & Photo:** 203,082 total reviews (523 avg per product)
5. **Home Audio & Theater:** 95,316 total reviews (266 avg per product)

High-Engagement Subcategories

Most reviewed individual subcategories:

- **Earbud Headphones** (All Electronics): 110,372 reviews, 3.57 stars
- **Cases** (Cell Phones & Accessories): 47,512 reviews, 3.86 stars
- **Traditional Laptops** (Computers): 41,882 reviews, 3.60 stars
- **Over-Ear Headphones** (All Electronics): 39,429 reviews, 3.65 stars
- **Portable Bluetooth Speakers** (All Electronics): 36,655 reviews, 3.81 stars



- **5-star reviews dominate** at 50.53% of all ratings
- **1-star reviews** represent 22.58% - indicating significant polarization
- **Middle ratings (2-4 stars)** account for only 26.88% combined
- This creates a **bimodal distribution** with ratings concentrated at extremes