Amazon Sales Analysis Report

Mohammad Hossein Mirghaderi

2025

Q1: Impact of Discounted Price on Product Ratings

We performed a **Spearman Rank Correlation** test to determine the relationship between discounted price and product ratings.

- Correlation coefficient: **0.080**

- P-value: **0.002**

Interpretation: There is a very weak positive correlation between discounted price and rating, but the result is statistically significant.

Q2: Independence of Category and Rating Level

A **Chi-Square Test for Independence** was conducted to determine whether product category and rating level (High ≥ 4, Low < 4) are independent.

- Chi-square statistic: **406.05**

- P-value: **1.28e-14**

Interpretation: There is a statistically significant relationship between product category and rating level. They are not independent.

Q3: Difference in Ratings Between High and Low Discount Products

An **Independent Samples T-test** was used to compare ratings between high-discount (above 50%) and low-discount (50% or less) products.

- T-statistic: **-4.196**

- P-value: **2.88e-05**

Interpretation: There is a significant difference in ratings between the two discount groups.

Q4: Do Expensive Products Receive Higher Ratings?

We used **ANOVA (Analysis of Variance)** to assess whether the average rating varies significantly among price groups (low, medium, high).

- F-statistic: **0.933**

- P-value: **0.394**

Interpretation: There is no statistically significant difference in ratings based on product price group.

Q5: Normality of Rating Count Distribution

The **Kolmogorov-Smirnov Test** was applied to test the normality of rating count distribution.

- K-S statistic: **0.334**

- P-value: **3.48e-146**

Interpretation: Rating count distribution significantly deviates from normality.