# Prescriptive Analytics Insights Summary

## 1. Discount Strategy

The discount distribution reveals that most products are offered at discounts between 20% to 60%. Discounts below 20% rarely correlate with high ratings, while products with moderate discounts (30%–60%) consistently achieve better ratings and engagement. Discounts above 70% show diminished returns in terms of ratings, possibly signaling overstock or lower perceived product value.

## 2. Impact of Price & Discounts on Ratings

Higher discounted prices generally show a positive correlation with ratings when accompanied by high rating counts. Products with excessively low prices and steep discounts sometimes correlate with lower ratings, possibly due to perceived poor quality. Optimal rating clusters are seen in products priced moderately with fair discounts, validating balanced pricing strategy.

## 3. Category Performance

Categories like Electronics, Home Appliances, and Mobile Accessories show high average ratings (≥ 4.0) and high rating counts, indicating trust and popularity. Categories with lower average ratings and high discounts indicate possible quality or expectation mismatches.

## 4. Prescriptive Insights

- Focus investments and promotions on categories with a proven track record of high ratings and review volume.  
- Apply discounts in the optimal band (30%-60%) for best rating outcomes.  
- Bundle and upsell top-rated products in trending categories.  
- Identify underperforming categories and reevaluate marketing or sourcing strategies.

## 5. Product Segmentation (K-Means Clustering)

The K-Means model grouped products into 3 segments:  
- Cluster 0: Budget products with lower ratings and fewer reviews  
- Cluster 1: Mid-range, high-performing products (ideal target for promotion)  
- Cluster 2: Premium priced products with stable review engagement  
This segmentation allows targeting customers with personalized campaigns based on product price sensitivity and performance.

## 6. Customer Review Sentiment

Top Positive Words include ‘good’, ‘great’, ‘perfect’, ‘fast’, and ‘quality’ which is indicating satisfaction around performance and delivery.  
Top Negative Words include ‘bad’, ‘poor’, ‘broken’, and ‘waste’—highlighting common issues with durability or value perception.  
These sentiments can guide customer service priorities and product redesign decisions.

## 7. Review Word Cloud

Frequent keywords around ‘charging’, ‘fast’, ‘delivery’, ‘value’, and 'quality' indicate what matters most to customers. Highlighting these features in product listings can help increase conversions and trust.