Internship Project on Electronic Product Report Analysis

01 Executive Summary:

This report presents the findings from a Power BI project focused on analyzing a dataset of electronic products. The primary objective was to extract actionable insights about product performance, customer ratings, and pricing trends to optimize inventory management and marketing strategies. Visualizations created in Power BI helped uncover patterns and actionable insights for business improvement.

02 Introduction:

The electronics industry is highly competitive and diverse, with products ranging from affordable devices to high-end equipment. This Power BI project analyzes product performance, customer feedback, and pricing strategies across a range of electronics products to identify key trends and make data-driven recommendations.

Objectives:

- Analyze Product ratings to identify top-performing products.
- Evaluate the impact of discount pricing.
- Provide insights to optimize inventory and marketing strategies.

Scope

This analysis focuses on product categories, customer ratings, pricing (both actual and discounted), and product popularity. The findings are based on visualizations created in Power BI and focus on the insights derived from various metrics.

03Dataset Description:

The dataset consists of products with variables like product name, category, price, and ratings.

04 Experimental Learning:

Data collection and Preparation

The dataset used for this project includes the following key variables:

- Name
- Main Category
- Sub Category
- Image
- Link
- Ratings
- Number of Ratings
- Discount Price
- Actual Price

Data cleaning and preparation involved in handling missing values, outliers and ensuring data consistency to maintain the quality of the analysis.

05 Analytical Tools and Techniques:

Descriptive Analytics:

Used to summarize and describe the main features of the data set, providing a clear overview of electronics products and their respective ratings.

Analytical Tools:

Power BI as the primary tool used and list key techniques like Descriptive Analytics and Price Distribution analysis.
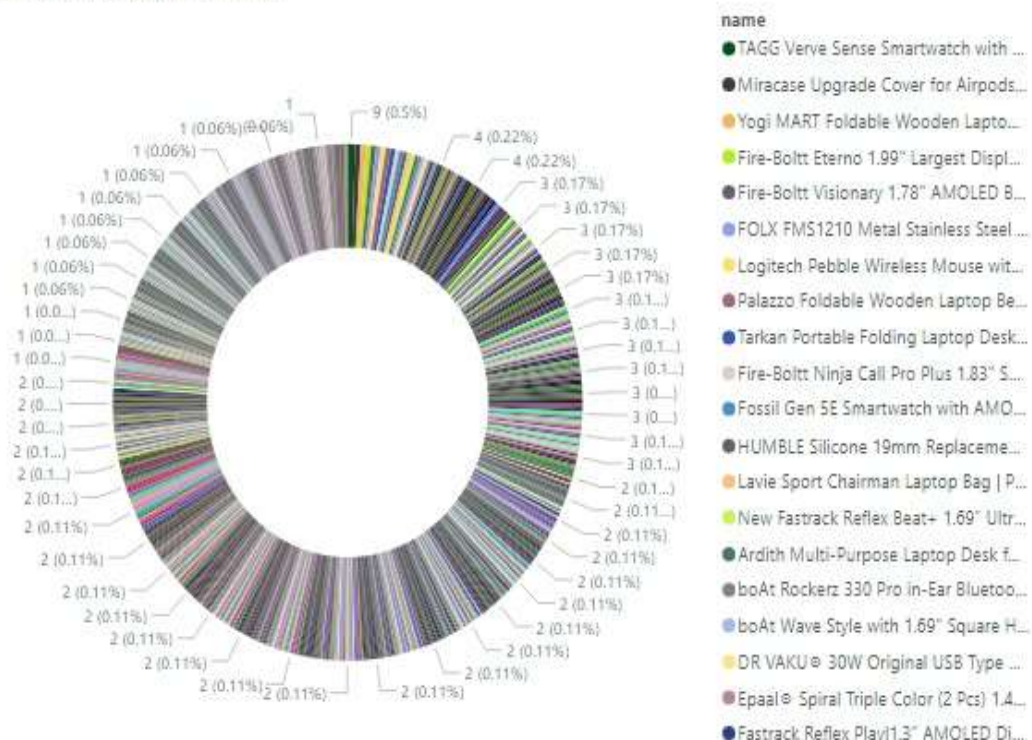
06 Findings and Insights:

- **Price Analysis:** The analysis revealed that the major difference between the average actual price and the average discounted price. This price range indicates the company's attempt to target both budget-conscious and premium customers.

- **Top Rated Products:** Several products have achieved high ratings indicating high customer satisfaction. These products tend to be either well-priced or unique, adding value for customers.

- **Rating Distribution:** The average rating across products is 4.08 stars, indicating overall positive customer feedback in this category.

- **Category Insights :** All products in this dataset belong to the "tv, audio & cameras" category, which highlights a strategic focus on this type of consumer electronics. This focus could either be due to high demand in this category or existing brand strength in audio-visual electronics. Although all products fall under one main category, the variety in price points and product types suggests an attempt to cater to diverse customer needs within this space, from budget-friendly items to premium offerings.

I found the following insights:

1) What is the distribution of products categories in the "All Electronics" database

Count of sub_category by name

name
- TAGG Verve Sense Smartwatch with ...
- Miracase Upgrade Cover for Airpods...
- Yogi MART Foldable Wooden Lapto...
- Fire-Boltt Eterno 1.99" Largest Displ...
- Fire-Boltt Visionary 1.78" AMOLED B...
- FOLX FMS1210 Metal Stainless Steel ....
- Logitech Pebble Wireless Mouse wit...
- Palazzo Foldable Wooden Laptop Be...
- Tarkan Portable Folding Laptop Desk...
- Fire-Boltt Ninja Call Pro Plus 1.83" S...
- Fossil Gen 5E Smartwatch with AMO...
- HUMBLE Silicone 19mm Replaceme...
- Lavie Sport Chairman Laptop Bag | P...
- New Fastrack Reflex Beat+ 1.69" Ultr...
- Ardith Multi-Purpose Laptop Desk f...
- boAt Rockerz 330 Pro in-Ear Bluetoo...
- boAt Wave Style with 1.69" Square H...
- DR VAKU® 30W Original USB Type ...
- Epaal® Spiral Triple Color (2 Pcs) 1.4...
- Fastrack Reflex Play|1.3" AMOLED Di...

2) Which sub-categories have the highest average ratings in the electronics data dataset

File	Home	Insert	Modeling	View	Optimize	Help

Clipboard — Data — Queries — Ins

ratings	First sub category	Sum of ratings
2.10	All Electronics	6.30
2.20	All Electronics	8.80
2.30	All Electronics	6.90
2.40	All Electronics	14.40
2.50	All Electronics	17.50
2.60	All Electronics	23.40
2.70	All Electronics	18.90
2.80	All Electronics	50.40
2.90	All Electronics	72.50
3.00	All Electronics	132.00
3.10	All Electronics	136.40
3.20	All Electronics	195.20
3.30	All Electronics	336.60
3.40	All Electronics	540.60
3.50	All Electronics	703.50
3.60	All Electronics	1,090.80
3.70	All Electronics	1,439.30
3.80	All Electronics	2,283.80
3.90	All Electronics	3,042.00
4.00	All Electronics	3,780.00
4.10	All Electronics	4,563.30
4.20	All Electronics	4,817.40
4.30	All Electronics	5,224.50
4.40	All Electronics	3,520.00
4.50	All Electronics	2,425.50
4.60	All Electronics	1,039.60
4.70	All Electronics	423.00
4.80	All Electronics	187.20
4.90	All Electronics	44.10
5.00	All Electronics	475.00
Total	All Electronics	36,643.70

3) How are ratings distributed across all electronics products
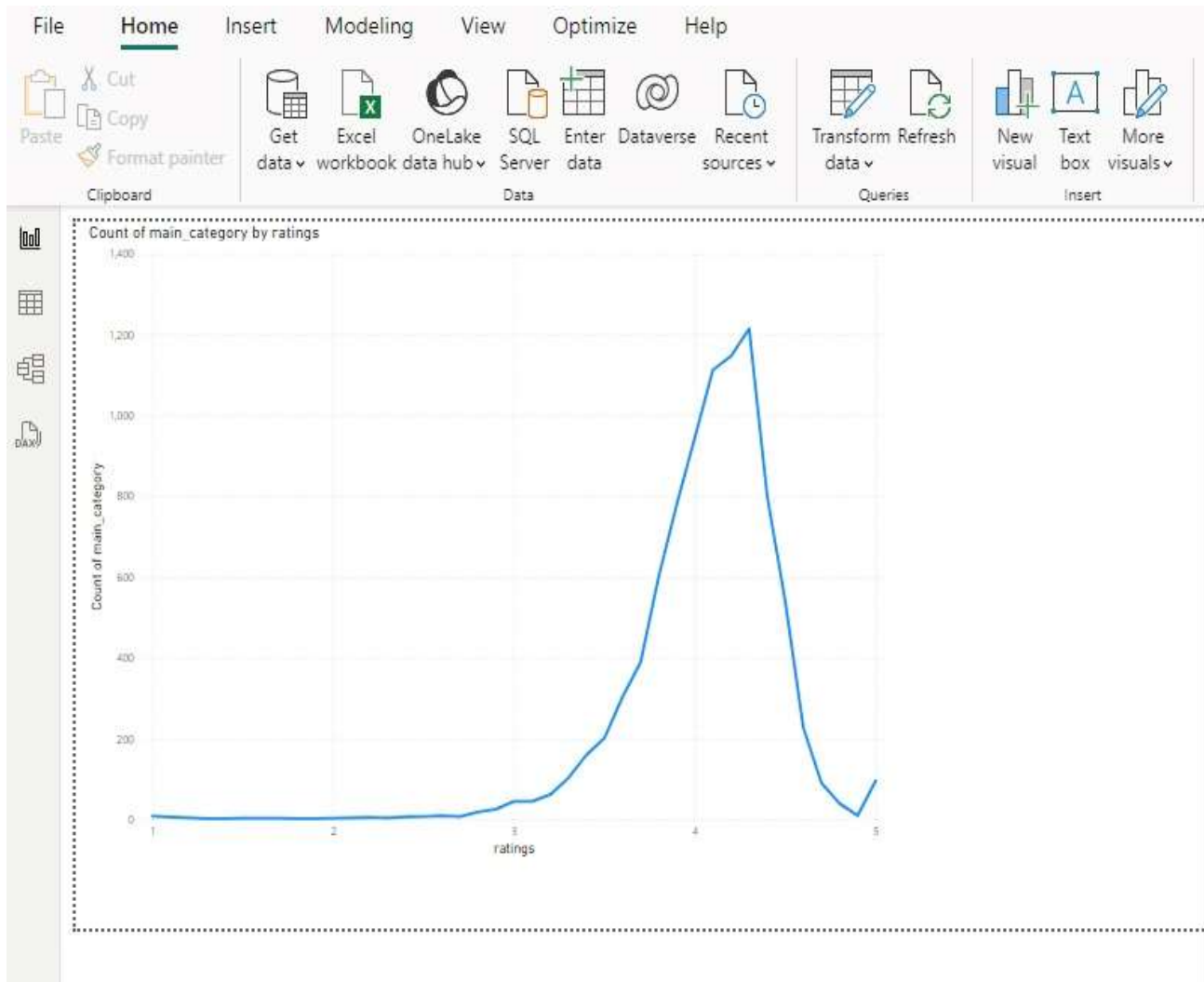
**4) Show actual price vs discounted price and what did you observe**
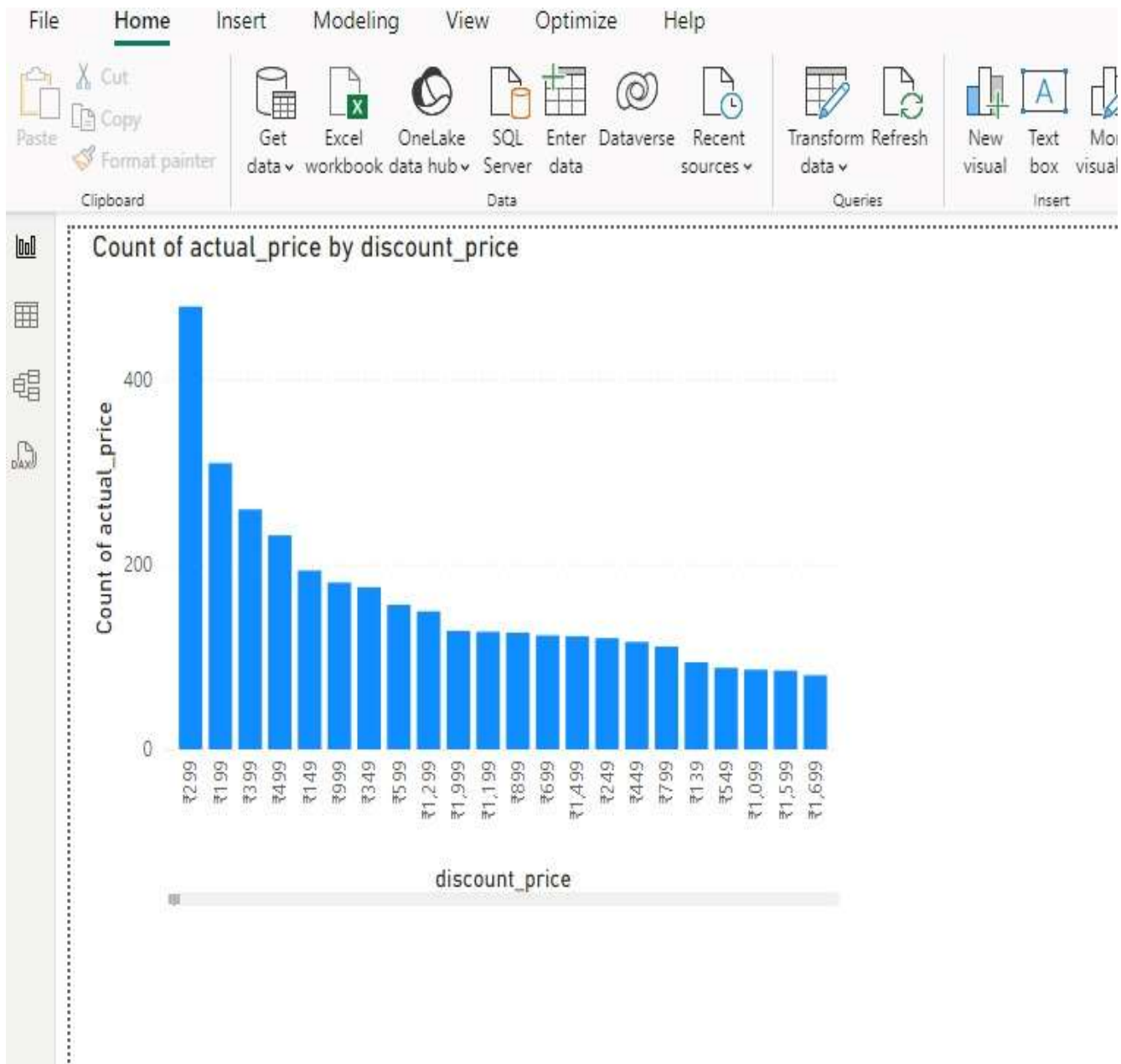
The high average discount (around 40%) across products points to a competitive pricing strategy to attract budget-conscious customers. Additionally, luxury items have smaller discounts, maintaining a high perceived value, while budget products use more aggressive discounts to drive volume sales and capture market share.

5) How did the rating change with respect to the discount price
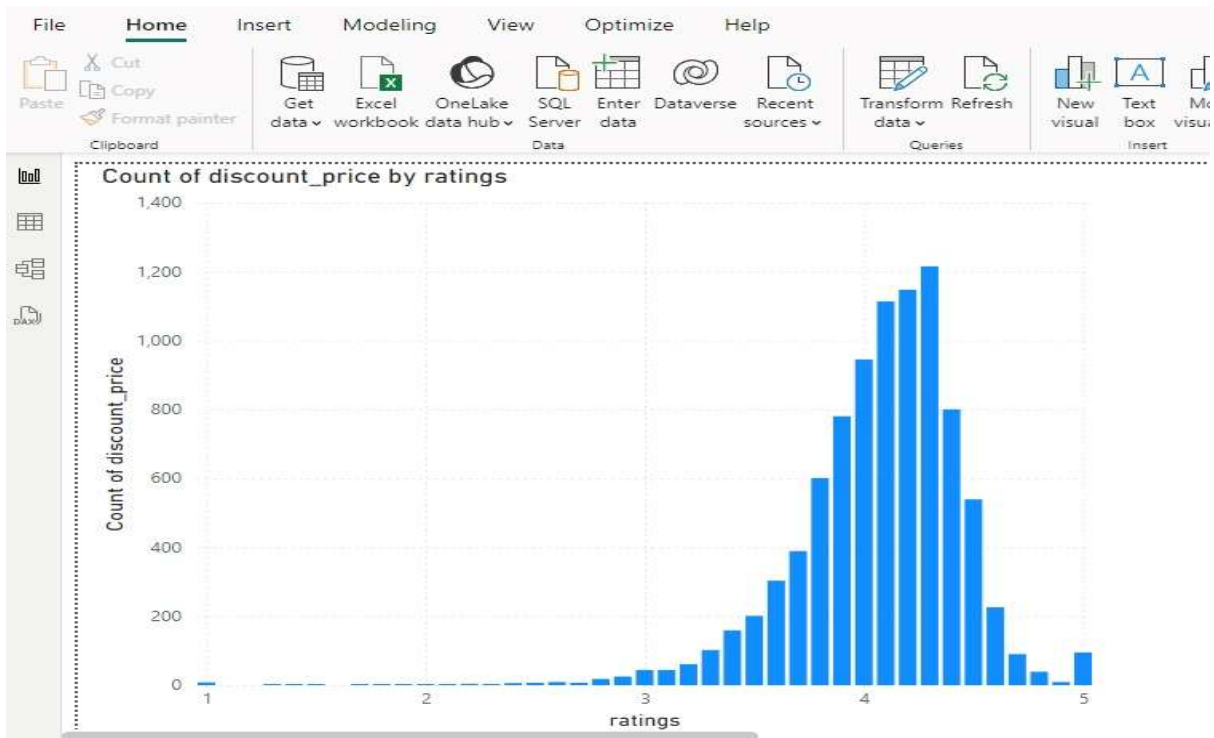
6) How did the rating change with respect to actual price
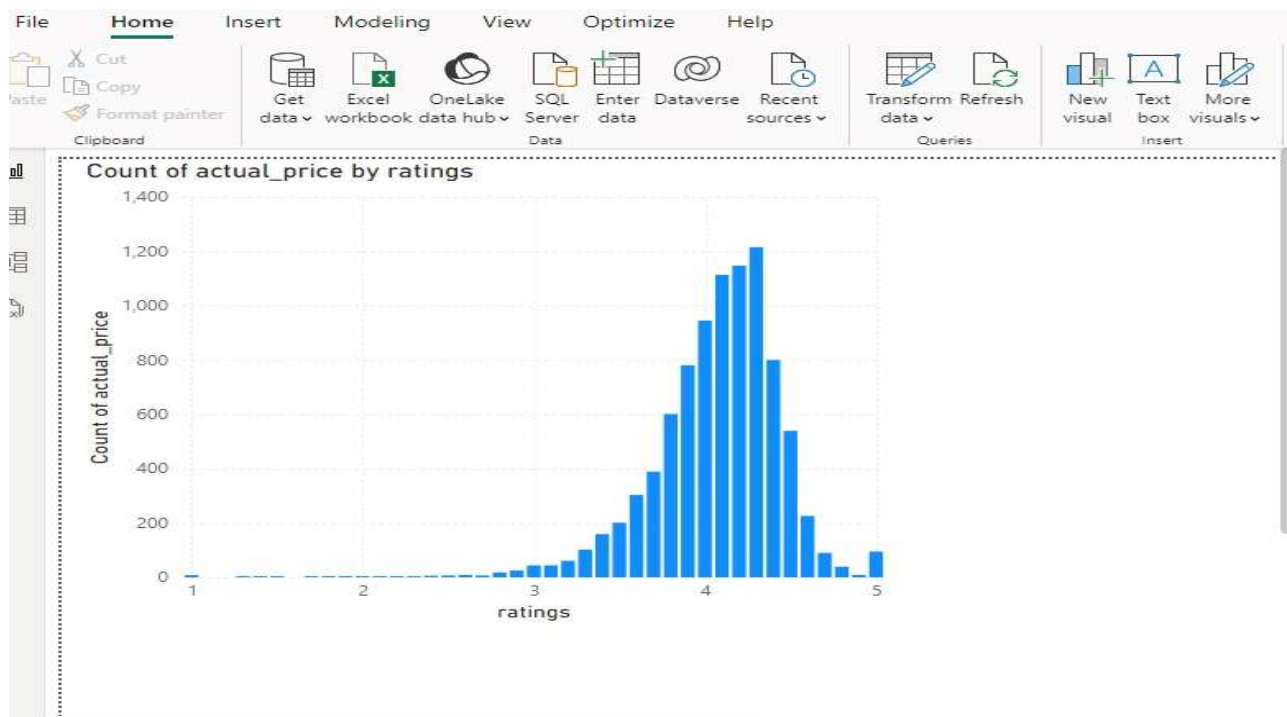
07 Key Outcomes:

The following key outcomes has been observed through power BI Analysis

Enhanced Product Pricing Insights:

➢ Identified significant discounting trends, with an average discount rate of 40%, helping to shape pricing strategies for various market segments.
➢ Observed that budget-friendly items generally receive more aggressive discounts compared to premium products, offering valuable insight into customer price sensitivity.

Improved Customer Understanding:

➢ By understanding which types of products receive high ratings, the company can focus on promoting similar items and better match product offerings to customer preferences.

Refined Marketing strategies:

➢ The analysis of top-rated, discounted products provides a data-driven foundation for marketing efforts, helping to prioritize products that are both highly rated and attractively priced.

Opportunities for Product Category Diversification:

➢ Diversifying the product portfolio could attract a broader audience and further boost sales beyond the electronics segment.

Actionable Recommendations for Inventory Management:

➢ Understanding which products perform well at certain price points can aid in inventory decision-making, ensuring stock aligns with customer demand trends.

➢ High-demand products with strong customer ratings can be prioritized for replenishment, while low-performing items may be reconsidered for stock reduction.

08 Conclusion:

The internship provided a comprehensive understanding of data analytics in an All Electronics context. Overall, the project outcomes offer actionable recommendations across pricing, marketing, and inventory management. By continuing to leverage such data-driven insights, the company can refine its approach to customer engagement, optimize product offerings, and strengthen its position in the competitive electronics market. This project showcases the value of using Power BI to transform raw data into strategic business intelligence.