**Business Report: Amazon UK Dataset Analysis**

**1. Executive Summary**

This report provides an analysis of the "amz\_uk\_price\_prediction\_dataset," focusing on product pricing, category distribution, and customer ratings. The insights gained are crucial for optimizing pricing strategies, improving product listings, and understanding customer behaviour. The findings suggest a highly variable pricing structure with a wide range of product prices and low customer ratings across most categories.

**2. Dataset Overview**

The dataset includes the following key components:

* **Categories:** Distribution of products across various categories.
* **Pricing Data:** Price points and their statistical measures.
* **Customer Ratings:** Distribution and variability in customer ratings.
* **Best Selling Products:** The products that are the best sellers

**3. Category Distribution**

The dataset includes a diverse range of product categories. The top five categories by product count are:

A graph showing a number of products

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1. **Sports & Outdoors**: 836,265 products
2. **Beauty**: 19,312 products
3. **Handmade Clothing, Shoes & Accessories**: 19,229 products
4. **Bath & Body**: 19,092 products
5. **Birthday Gifts**: 18,978 products

The high volume in the "Sports & Outdoors" category indicates a significant market presence in this segment. The remaining top categories also show substantial product listings but on a smaller scale.

**4. Pricing Analysis**

* **Mean Price:** $89.24
* **Mode Price:** $9.99
* **Variance of Price:** 119,445.49
* **Standard Deviation of Price:** $345.61
* **Range of Price:** $100,000.00
* **Interquartile Range (IQR):** $36.00

A graph of blue bars

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A diagram of a box plot

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**Key Insights:**

* The mean price is considerably higher than the mode price, indicating that while $9.99 is the most frequently observed price, many products are priced much higher, thus inflating the average.
* The large variance and standard deviation reveal a broad range of prices, suggesting a diverse product offering with significant discrepancies between low and high-priced items.
* The IQR indicates that most products fall within a narrower price range, though outliers are pushing the overall spread.

**5. Product Rankings and Customer Ratings**

* **Mean Rating:** 2.15
* **Median Rating:** 0.00
* **Standard Deviation:** 2.19
* **Variance:** 4.82

A graph of a product rating

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**Key Insights:**

* The median rating of 0.00 suggests that many products receive very low or no ratings at all, with a few high ratings skewing the mean upward.
* There is substantial variance in customer ratings, indicating inconsistent customer experiences and satisfaction.
* **Skewness** and **Kurtosis** values indicate a distribution heavily weighted towards lower ratings, with occasional high ratings causing positive skewness.

**6. Recommendations**

1. **Category Focus:** Given the dominance of the "Sports & Outdoors" category, it may be beneficial to focus marketing and inventory efforts on this segment to capitalize on its large market share.
2. **Customer Ratings Improvement:** The generally low ratings suggest a need for improving product quality or customer service. Enhancing product descriptions, quality checks, and post-purchase support could improve customer satisfaction and ratings.
3. **Data-Driven Decisions:** Leverage the insights from pricing and ratings data to refine product offerings and pricing strategies. Continuous monitoring and analysis will help in adapting to market trends and consumer preferences.

**7. Conclusion**

The analysis of the Amazon UK pricing and ratings data reveals significant variability in product prices and customer satisfaction. By focusing on pricing strategy, category management, and improving customer experiences, there is an opportunity to better meet market demands and enhance overall business performance.