**RTSM**

**Project 1: Analytical Dashboard using R**



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**Introduction:**

This comprehensive dashboard offers a deep dive into the pricing strategies of various e-commerce channels, including Amazon FBA, Myntra, Ajio, and more. By comparing prices and analyzing profit margins, we can make informed decisions to optimize profitability without compromising on product quality.

This dataset contains data on a variety of sales channels, including Shiprocket and INCREFF, as well as financial information on related expenses and profits. In addition to this, there are MRPs across multiple stores like Ajio MRP, Amazon MRP, Amazon FBA MRP, Flipkart MRP, Limeroad MRP, Myntra MRP, and Paytm MRP. Also, there are transactional parameters like Date of sale, months, category, fulfilled by B2B, Status, Qty, Currency, and Gross amt.

Summary of Dashboard: First tab contains Introduction about data. Second Tab i.e.

covers information about data and third and fourth tabs contain descriptives and inferential of data and last ta contains the visualizations about the data.

DetailedAnalysis

**Tab 1: Introduction**

This tab contains the information about the data, the source of data and introduction of overall dashboard.

**Tab 2: About the Data**

This tab contains the information about the data. The columns it contains, meaning of columns and datatypes of all the columns.

Total 20 columns are there. There are MRPs of different clothing items across different platforms like Amazon, Myntra, Flipkart, Snapdeal, Paytm and others. Other than this there are columns who gives information about weight of the item, MRP and TP1, TP2 i.e. cost of the items.

**Tab 3: Descriptives of Data**

The dataset comprises 1330 observations with key variables such as 'Category,' and multiple pricing columns representing different e-commerce platforms like Amazon, Myntra, Ajio, Flipkart, Limeroad, Paytm, and Snapdeal.

**Objective:**

The focus is on understanding product categories and pricing strategies across these platforms.

**Analysis:**

Category Analysis:

Mean Category Value: 2.46

Category Distribution:

Minimum: 1

Maximum: 5

Median: 2.0

Range: 4

Observation: The product categories appear to be diverse, with a range from 1 to 5. The distribution is positively skewed, indicating a concentration towards higher category values.

1. Platform-Specific MRP Analysis:

Amazon FBA MRP:

Mean MRP: $16.91

MRP Distribution:

Minimum: $1

Maximum: $53

Median: $15.0

Range: $52

Skewness: 1.21 (Positive skewness)

Observation: Amazon FBA shows a wide range of MRPs, with a positive skewness indicating a right-leaning distribution. This suggests a concentration of products towards higher MRPs.

Myntra MRP:

Mean MRP: $17.03

MRP Distribution:

Minimum: $1

Maximum: $51

Median: $15.0

Range: $50

Skewness: 1.11 (Positive skewness)

Observation: Myntra exhibits a similar positive skewness with a slightly higher mean MRP. The range suggests variability in product pricing.

Similar trends in terms of mean MRP, distribution characteristics, and skewness, indicating comparable pricing patterns across these platforms

**Managerial Conclusion:**

The dataset reflects a diverse range of product categories with varying pricing strategies across different e-commerce platforms.

Positive skewness in MRPs indicates a tendency towards higher prices.

**Tab 4: Inferential Statistics:**

**Analysis:**

1. Welch Two Sample t-test:

The Welch Two Sample t-test compares the mean MRPs between Amazon and Flipkart. Here are the key results:

Test Statistic (t): 0.16743

Degrees of Freedom (df): 2440

P-value: 0.867

Confidence Interval: (-48.53192, 57.59335)

Observation:

The t-statistic is close to zero, indicating a small difference in means.

A high p-value (0.867) suggests insufficient evidence to reject the null hypothesis.

The confidence interval includes zero, supporting the conclusion.

1. Analysis of Variance (ANOVA):

ANOVA tests the hypothesis that there is no significant difference in mean MRPs between Amazon and Flipkart. Results:

Sum of Squares (SS): 538461005 (Flipkart.MRP), 5848482 (Residuals)

Degrees of Freedom (df): 1 (Flipkart.MRP), 1219 (Residuals)

Residual Standard Error: 69.26594

Observation:

The SS for Flipkart.MRP is substantially larger than for residuals.

Low degrees of freedom for Flipkart.MRP suggest potential imbalance in the data.

The residual standard error is relatively high.

1. Chi-square Test:

The Chi-square test assesses the association between Amazon MRP and Myntra MRP. Results:

Chi-squared Value (X-squared): 35869

Degrees of Freedom (df): 1190

P-value: < 2.2e-16

Observation:

The high Chi-squared value and extremely low p-value (< 2.2e-16) suggest a significant association.

There is evidence to reject the null hypothesis of independence between Amazon MRP and Myntra MRP.

**Conclusion:**

Welch Two Sample t-test:

The mean MRPs of Amazon and Flipkart are statistically similar.

No significant evidence supports a difference in means.

Analysis of Variance (ANOVA):

The ANOVA results indicate a significant difference in mean MRPs between Amazon and Flipkart.

The potential imbalance in data should be considered when interpreting the results.

Chi-square Test:

The strong association between Amazon and Myntra MRPs suggests a dependence or relationship.

Further investigation into this association is warranted.

**Managerial Implications:**

**Welch Two Sample t-test:**

The statistical similarity in mean MRPs between Amazon and Flipkart indicates that, from a pricing perspective, customers may not perceive a substantial difference between the two platforms.

Recommendation: Focus on other aspects such as product variety, customer service, or marketing to differentiate the customer experience.

**Analysis of Variance (ANOVA):**

The significant difference in mean MRPs suggests a potential pricing strategy variance between Amazon and Flipkart.

Recommendation: Conduct a detailed review of pricing strategies on both platforms. Consider market positioning, competitor analysis, and customer perceptions to optimize pricing for better competitiveness.

**Chi-square Test:**

The strong association between Amazon and Myntra MRPs indicates a potential interdependence or coordinated pricing strategy between these platforms.

Recommendation: Collaborate with Myntra to align pricing strategies and promotions, potentially exploring joint marketing efforts or cross-promotional campaigns to leverage this association.

**Tab 5: Data Analysis Visuals:**

**Price Comparison across different platforms:**

**Price variation across platforms:**

There is a significant variation in the average price of clothing items across the different platforms. For example, gowns are the most expensive on Amazon, while kurtas are the most expensive on Myntra. This suggests that there may be an opportunity to arbitrage prices by buying on one platform and selling on another.

**Profitability potential:**

By comparing the average price to the MRP and cost, you can estimate the potential profit margin for each category on each platform. This information can be used to identify the most profitable products and platforms to sell on.

**Category-specific insights:**

The graph also provides some insights into specific categories. For example, the average price of gowns is relatively high on all platforms, which suggests that there is demand for high-quality gowns. On the other hand, the average price of tops is relatively low on all platforms, which suggests that there may be more competition in this category.

**Category vs Catalog:**

Inventory Management:

The data suggests that Tops, Gowns, Kurta Sets, and Kurtas are the top-selling categories. This information can be used to optimize inventory management by stocking more of these items and fewer of the less popular items.

Marketing and Promotions:

The data also suggests that there may be an opportunity to focus marketing and promotional efforts on the less popular categories, such as Nill, in order to increase sales.

Product Development:

The popularity of certain categories may also indicate areas for product development. For example, if Tops are consistently popular, you may want to consider expanding your selection of tops in different styles, colors, and sizes.

**Key Findings:**

Tops, Gowns, Kurta Sets, and Kurtas are the most popular categories.

There is an opportunity to focus marketing and promotional efforts on the less popular categories.

The popularity of certain categories may indicate areas for product development.

**Recommendations:**

Optimize inventory management by stocking more of the top-selling categories and fewer of the less popular categories.

Consider focusing marketing and promotional efforts on the less popular categories.

Explore opportunities for product development in the most popular categories.

**Overall Strategic Implications:**

Competitive Positioning:

The similar mean MRPs between Amazon and Flipkart suggest that customers might choose between these platforms based on other factors like brand loyalty, product availability, or user experience.

Pricing Strategy Optimization:

Given the significant difference in mean MRPs between Amazon and Flipkart indicated by ANOVA, there may be an opportunity to adjust pricing strategies to better align with market dynamics and consumer expectations.

Collaborative Opportunities:

The observed association between Amazon and Myntra MRPs opens avenues for collaborative marketing or joint promotions to enhance the overall appeal of products offered by these platforms.

**Final Recommendation:**

Conduct a comprehensive analysis of customer feedback, market trends, and competitor strategies to refine pricing and marketing approaches.

Could explore opportunities for collaboration with Myntra to leverage the observed association and enhance the overall competitiveness in the market.