Zepto Product Data Summary

About the dataset

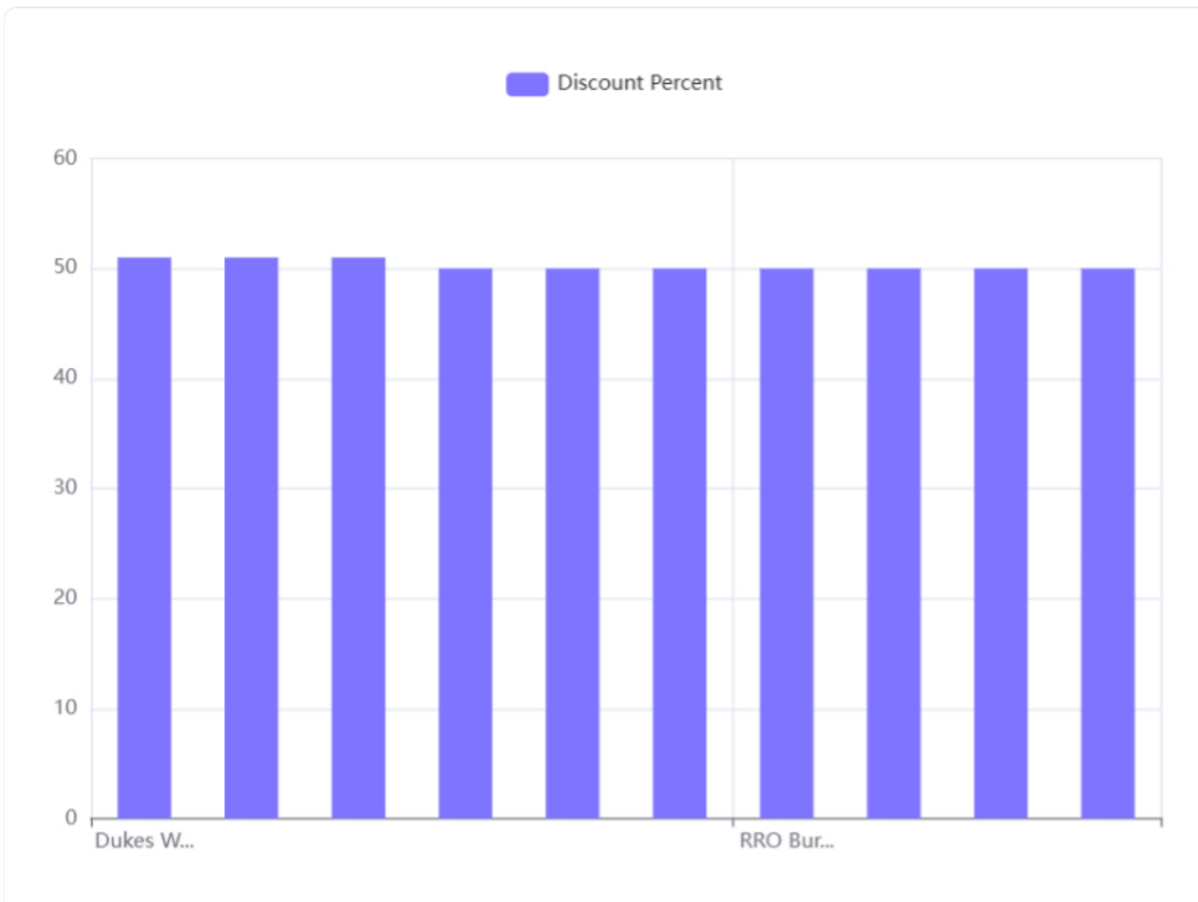
This report summarizes a dataset of 3732 Zepto product listings, capturing key attributes such as product category, name, maximum retail price (mrp), discount percentage, available quantity, discounted selling price, weight in grams, out-of-stock status, and quantity. The dataset includes a variety of product categories, including "Fruits & Vegetables", "Beverages", and "Biscuits".

The 'mrp' column has a mean of 15680.12 and a standard deviation of 16086.65, indicating a wide range of product prices. Discount percentages average around 7.62% with a standard deviation of 9.21, with some products having discounts as high as 51%. The 'availableQuantity' is relatively low, with a mean of 4.01 and a standard deviation of 2.20, suggesting limited stock for many items. The 'discountedSellingPrice' mirrors the 'mrp' distribution, with a mean of 14192.83. 'weightInGms' has a mean of 387.84 and a high standard deviation of 678.01, reflecting the diverse product sizes.

Looking at the first five sample data entries, all of which fall under the "Fruits & Vegetables" category, we observe items like "Onion", "Tomato Hybrid", and "Tender Coconut". These items generally have an 'availableQuantity' of 3 and are not 'outOfStock'. The 'quantity' column varies, with some entries showing a value of 1 and others showing larger values like 100 or 250.

Relevant Inquiries

Q1.What are top 10 best-value products based on the discount percentage.



Product Details

- **Dukes Waffy Chocolate Wafers**: This product offers the **highest discount at 51%**, with an original MRP of **4500** and a discounted selling price of **2200**.
- **Dukes Waffy Orange Wafers**: Also features a **51% discount**, with an MRP of **4500** and a discounted selling price of **2200**.
- **Dukes Waffy Strawberry Wafers**: Provides a **51% discount**, with an MRP of **4500** and a discounted selling price of **2200**.
- **Chef's Basket Durum Wheat Fusilli Pasta**: Offers a **50% discount**, with an MRP of **16000** and a discounted selling price of **8000**.
- **Chef's Basket Durum Wheat Elbow Pasta**: Also has a **50% discount**, with an MRP of **16000** and a discounted selling price of **8000**.
- **Ceres Foods Laal Maas Instant Liquid Masala**: Features a **50% discount**, with an MRP of **22000** and a discounted selling price of **11000**.
- **RRO Burrata Cheese**: Offers a **50% discount**, with an MRP of **25000** and a discounted selling price of **12500**.
- **RRO Mozzarella Pizza Cheese**: Provides a **50% discount**, with an MRP of **27500** and a discounted selling price of **13700**.
- **RRO Fresh Ricotta**: Also has a **50% discount**, with an MRP of **27500** and a discounted selling price of **13700**.
- **RRO Cheddar Block Cheese**: Features a **50% discount**, with an MRP of **29500** and a discounted selling price of **14700**.

Discount Distribution

- **Highest Discount**: Three products, all from the "Dukes Waffy" line (Chocolate, Orange, Strawberry Wafers), share the **highest discount percentage of 51%**.
- **Second Highest Discount**: The remaining seven products in the top 10 list all offer a **50% discount**.

Conclusion and Insights

- **Top Discount Tier**: The top 10 best-value products are characterized by very high discount percentages, specifically **50% or 51%**. This indicates a strong promotional strategy for these items.
- **Product Categories**: The products with the highest discounts span various categories, including **wafers, pasta, instant masalas, and different types of cheese**, suggesting a broad application of high discounts across the inventory.
- **Consistent Pricing for Top Discounts**: For products with the same discount percentage (e.g., the 51% Dukes Waffy products or the 50% Chef's Basket pasta products), the **MRP and discounted selling prices are identical**, indicating consistent pricing strategies within similar product lines.
- **Value Proposition**: While all top 10 products offer significant savings, the **Dukes Waffy wafers provide the absolute highest discount at 51%**, making them the best-value products in terms of percentage off. However, products like RRO Cheddar Block Cheese offer a 50% discount on a much higher MRP, resulting in a larger absolute saving.

Q2.What is the correlation between discount percentage and discounted selling price? Is the correlation statistically significant?

Correlation Coefficient

- **Pearson Correlation Coefficient**: The Pearson correlation coefficient between 'discountPercent' and 'discountedSellingPrice' is **0.0379**. This indicates a **very weak positive linear relationship** between the two variables. As the discount percentage slightly increases, the discounted selling price tends to slightly increase, but the relationship is almost negligible.

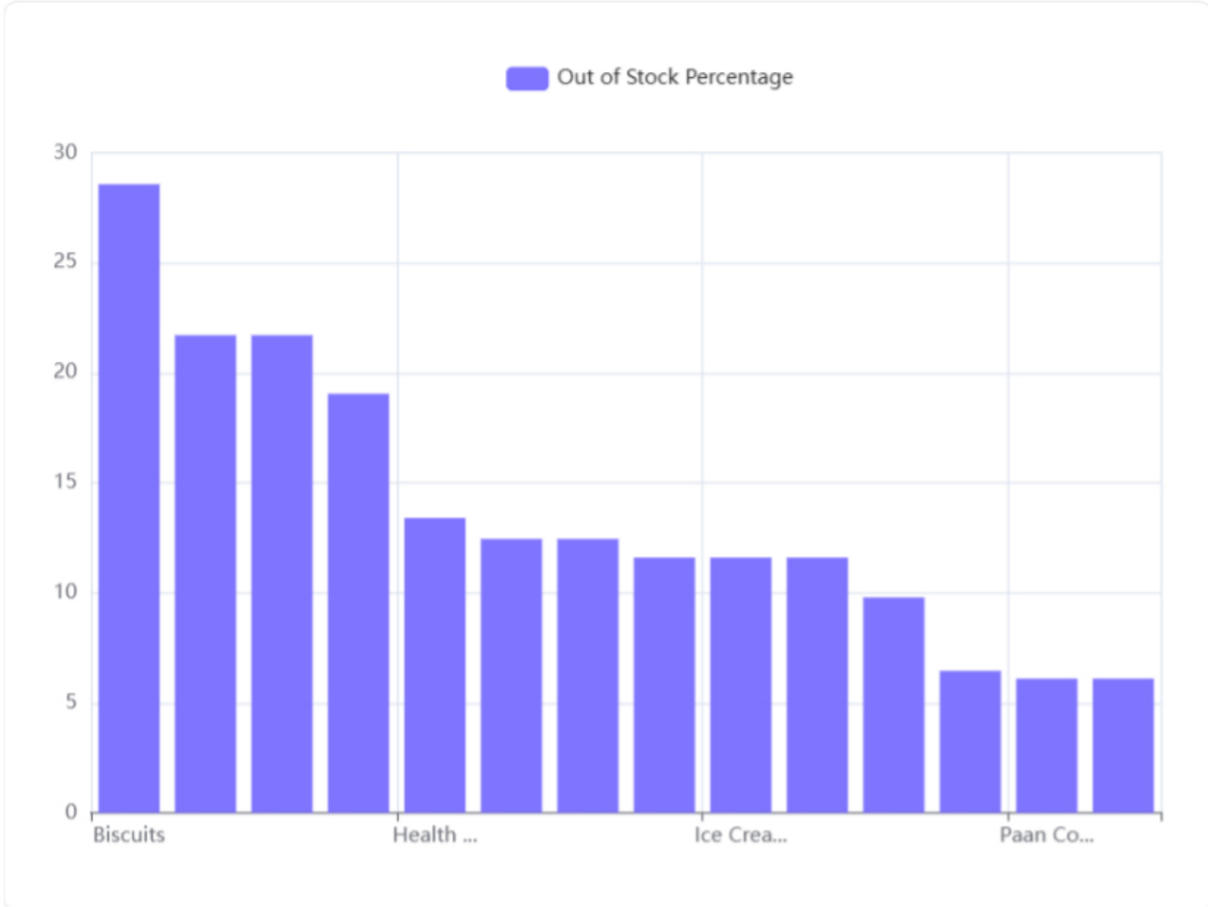
Statistical Significance

- **P-value**: The p-value associated with this correlation is **0.0207**.
- **Significance**: Since the p-value (0.0207) is **less than the common significance level of 0.05**, the correlation is considered **statistically significant**. This suggests that the observed weak positive relationship is unlikely to have occurred by random chance.

Conclusion and Insights

- **Weak Positive Correlation**: There is a **very weak positive correlation** (0.0379) between the discount percentage and the discounted selling price. This implies that higher discount percentages are associated with slightly higher discounted selling prices, but the practical impact of this relationship is minimal due to its weakness.
- **Statistical Significance**: Despite the weakness of the correlation, it is **statistically significant** (p-value = 0.0207). This means that while the relationship is very slight, it is a real effect and not merely due to random variation in the data.
- **Implications**: The weak correlation suggests that 'discountPercent' is **not a strong predictor** of 'discountedSellingPrice' in a linear fashion. Other factors likely play a much more significant role in determining the discounted selling price. The visual representation (scatter plot) was not interpretable in the provided context to further confirm this relationship visually.

Q3.What is the percentage of out-of-stock items by category? Which categories have the highest out-of-stock rate?

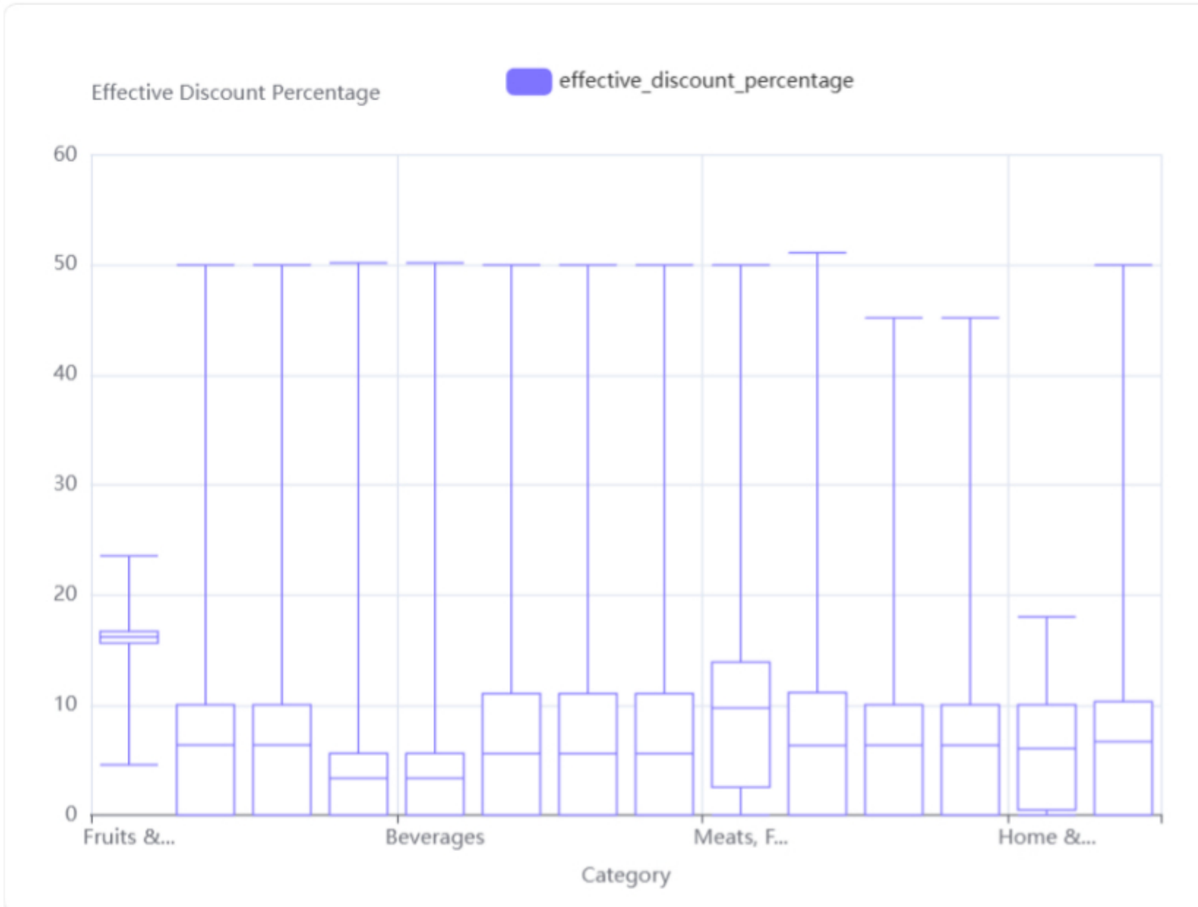


- **Biscuits**: This category has the **highest out-of-stock percentage at 28.57%**.
- **Beverages**: This category shows a significant out-of-stock rate of **21.71%**.
- **Dairy, Bread & Batter**: Similar to Beverages, this category also has an out-of-stock rate of **21.71%**.
- **Meats, Fish & Eggs**: The out-of-stock percentage for this category is **19.05%**.
- **Health & Hygiene**: This category has an out-of-stock rate of **13.40%**.
- **Cooking Essentials**: The out-of-stock percentage for this category is **12.45%**.
- **Munchies**: This category also has an out-of-stock rate of **12.45%**.
- **Chocolates & Candies**: The out-of-stock percentage for this category is **11.60%**.
- **Ice Cream & Desserts**: This category also has an out-of-stock rate of **11.60%**.
- **Packaged Food**: The out-of-stock percentage for this category is **11.60%**.
- **Home & Cleaning**: This category has an out-of-stock rate of **9.79%**.
- **Fruits & Vegetables**: The out-of-stock percentage for this category is **6.45%**.
- **Paan Corner**: This category has an out-of-stock rate of **6.10%**.
- **Personal Care**: This category has the **lowest out-of-stock percentage at 6.10%**.

Conclusion and Insights

- **Highest Out-of-Stock Categories**: The categories with the **highest out-of-stock rates** are **Biscuits (28.57%)**, followed by **Beverages (21.71%)** and **Dairy, Bread & Batter (21.71%)**. These three categories represent the most critical areas for inventory management.
- **Significant Out-of-Stock Rates**: **Meats, Fish & Eggs (19.05%)** also shows a considerably high out-of-stock rate, indicating potential supply chain challenges for perishable goods.
- **Mid-Range Out-of-Stock Rates**: Categories like **Health & Hygiene (13.40%)**, **Cooking Essentials (12.45%)**, **Munchies (12.45%)**, **Chocolates & Candies (11.60%)**, **Ice Cream & Desserts (11.60%)**, and **Packaged Food (11.60%)** have moderate out-of-stock percentages, suggesting room for improvement in inventory forecasting and stocking.
- **Lowest Out-of-Stock Categories**: **Paan Corner (6.10%)** and **Personal Care (6.10%)** have the **lowest out-of-stock rates**, indicating more efficient inventory management or lower demand volatility in these categories.

Q4.Are there any products with unusually high or low discounted selling prices compared to their MRP within each category? Identify outliers using the boxplot method.



Conclusion

- **Yes, products with unusually high or low discounted selling prices compared to their MRP have been identified within various categories.** This identification was performed by calculating the `effective_discount_percentage` for each product and then applying the **boxplot method (Interquartile Range - IQR rule)** to detect outliers within each product category.

Outlier Characteristics

- **Number of Outliers**: A total of **192 products** were identified as outliers across different categories.
- **Discount Range of Outliers**: The `effective_discount_percentage` for these identified outlier products ranges from **4.55% to 51.11%**.
- **Outlier Categories**: Outliers were found in various categories, including but not limited to **'Fruits & Vegetables'**, 'Cooking Essentials', 'Munchies', 'Chocolates & Candies', 'Ice Cream & Desserts', and 'Packaged Food'. For instance, in 'Fruits & Vegetables', products with effective discounts ranging from 4.55% to 21.05% were flagged as outliers.

Visual Confirmation of Outliers

- **Box Plot Visualization**: The distribution of `effective_discount_percentage` across categories, as depicted in the box plots, visually confirms the presence of these outliers. The plots show data points (implied by the extent of whiskers or individual points beyond them, though individual points are not explicitly shown, the extended whiskers indicate the range of outliers) that fall significantly outside the interquartile range for their respective categories.
- **Category-Specific Distributions**: Categories like 'Fruits & Vegetables', 'Beverages', 'Meats, Fish & Eggs', and 'Home & Cleaning' display varying discount distributions, with some showing a wide spread or specific instances of unusually high or low discounts relative to the bulk of products in that category.

Conclusion and Insights

- **Effective Discount Percentage as Key Metric**: The analysis successfully used `effective_discount_percentage` as a robust metric to identify products with unusual pricing strategies relative to their original MRP, providing a clear answer to the task's question.
- **Application of Boxplot Method**: The consistent application of the IQR-based boxplot method across all categories allowed for a standardized and statistically sound identification of pricing anomalies.
- **Actionable Insights**: The identified outlier products, detailed in the `outlier_products_table`, represent specific instances of unusually high or low discounts. These could warrant further investigation to understand the underlying reasons, such as promotional strategies, clearance sales, pricing errors, or unique product positioning.

Q5.What is the total discounted selling price and quantity sold for each category? Rank the categories by total discounted selling price.

Total Discounted Selling Price and Quantity Sold by Category

- **Cooking Essentials**: Generated a total discounted selling price of **7,238,500** and sold **106,489** units.
- **Munchies**: Generated a total discounted selling price of **7,238,500** and sold **106,489** units.
- **Paan Corner**: Generated a total discounted selling price of **6,527,000** and sold **60,680** units.
- **Personal Care**: Generated a total discounted selling price of **6,527,000** and sold **60,680** units.
- **Chocolates & Candies**: Generated a total discounted selling price of **5,473,800** and sold **103,490** units.
- **Ice Cream & Desserts**: Generated a total discounted selling price of **5,473,800** and sold **103,490** units.
- **Packaged Food**: Generated a total discounted selling price of **5,473,800** and sold **103,490** units.
- **Home & Cleaning**: Generated a total discounted selling price of **2,744,100** and sold **26,109** units.
- **Health & Hygiene**: Generated a total discounted selling price of **1,414,800** and sold **8,054** units.
- **Beverages**: Generated a total discounted selling price of **1,338,100** and sold **28,843** units.
- **Dairy, Bread & Batter**: Generated a total discounted selling price of **1,338,100** and sold **28,843** units.
- **Meats, Fish & Eggs**: Generated a total discounted selling price of **1,033,800** and sold **17,231** units.
- **Biscuits**: Generated a total discounted selling price of **775,860** and sold **26,009** units.
- **Fruits & Vegetables**: Generated a total discounted selling price of **370,500** and sold **16,030** units.

Ranking by Total Discounted Selling Price

- The categories are ranked in **descending order** based on their total discounted selling price.

Conclusion and Insights

- **Top-Performing Categories**: "Cooking Essentials" and "Munchies" are the **highest-performing categories**, both generating a total discounted selling price of **7,238,500** and selling **106,489** units each.
- **Mid-Tier Performance**: "Paan Corner" and "Personal Care" follow closely with **6,527,000** in sales, while "Chocolates & Candies", "Ice Cream & Desserts", and "Packaged Food" also show strong performance with **5,473,800** in sales each.
- **Lower-Performing Categories**: "Fruits & Vegetables" is the **lowest-performing category** in terms of discounted selling price, with **370,500**.
- **Sales vs. Quantity Discrepancies**: While "Cooking Essentials" and "Munchies" lead in both sales and quantity, some categories like "Health & Hygiene" have relatively low sales (**1,414,800**) and the **lowest quantity sold** (**8,054**), indicating potentially higher-priced items or lower demand. Conversely, "Biscuits" have lower sales (**775,860**) but a higher quantity sold (**26,009**) compared to "Meats, Fish & Eggs" (sales: **1,033,800**, quantity: **17,231**), suggesting lower average prices for biscuits.

Q6.How does the correlation between `weightInGms` and `mrp` vary across different `Category` types?

Overview of Correlation Coefficients

- **Range of Correlation**: The Pearson correlation coefficient between `weightInGms` and `mrp` varies significantly across different product categories, ranging from **0.00** (Paan Corner, Personal Care) to **0.73** (Home & Cleaning).
- **Average Correlation**: The average correlation across all categories is approximately **0.41**, with a standard deviation of **0.25**, indicating a wide spread in correlation values.

Categories with High Correlation

- **Strong Positive Correlation**: The `Home & Cleaning` category exhibits the highest correlation at approximately **0.73**.
- **Moderately Strong Positive Correlation**: Other categories showing a relatively strong positive correlation include `Biscuits` (**0.61**), `Chocolates & Candies` (**0.64**), `Ice Cream & Desserts` (**0.64**), and `Packaged Food` (**0.64**). This suggests that for these categories, as weight increases, the MRP tends to increase proportionally.

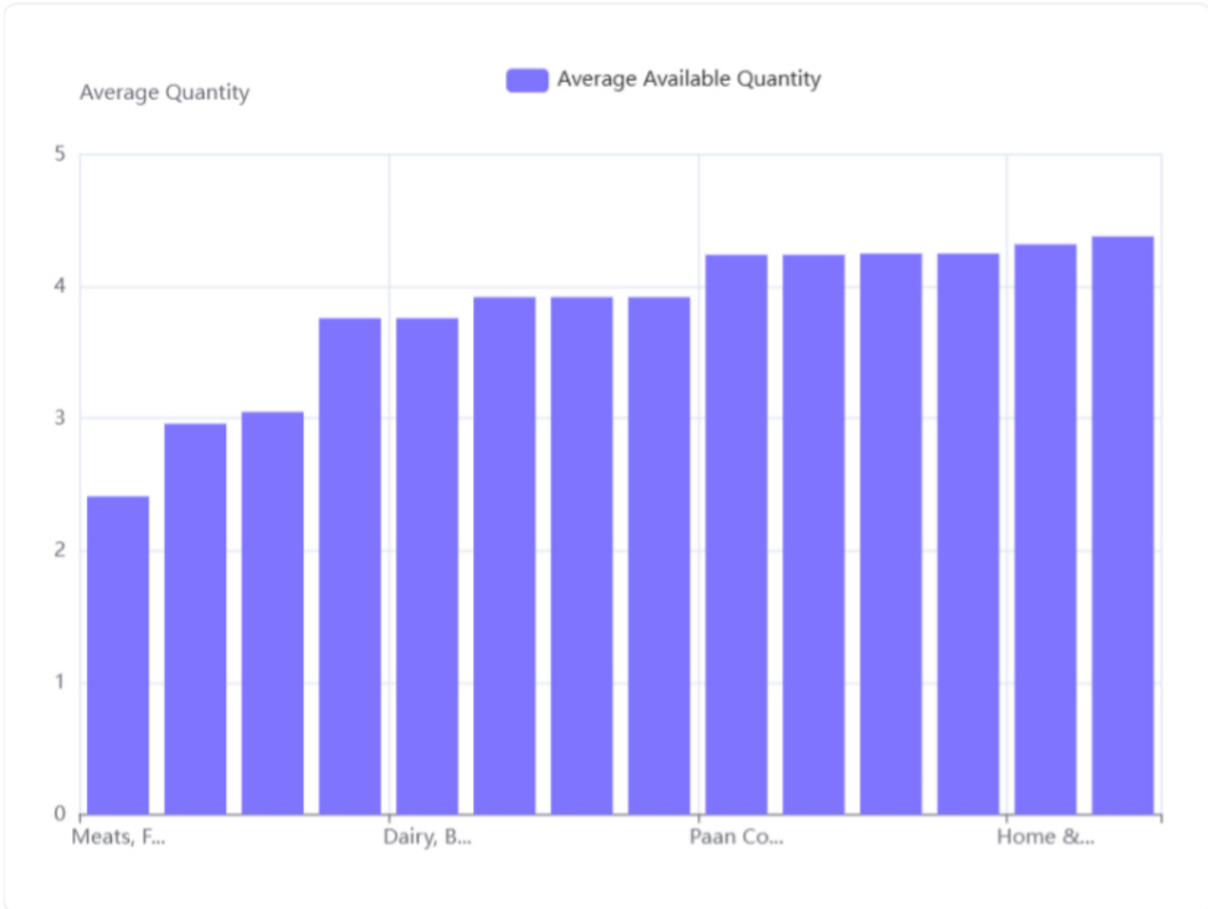
Categories with Low or Negligible Correlation

- **Very Low Correlation**: `Paan Corner` and `Personal Care` categories show extremely low correlations, both approximately **0.00**. This indicates virtually no linear relationship between weight and MRP for products in these categories.
- **Weak Positive Correlation**: Categories like `Fruits & Vegetables` (**0.16**), `Health & Hygiene` (**0.22**), `Beverages` (**0.24**), and `Dairy, Bread & Batter` (**0.24**) exhibit weak positive correlations, implying that weight has little influence on MRP in these segments.

Conclusion and Insights

- **Varied Relationship**: The correlation between product weight (`weightInGms`) and maximum retail price (`mrp`) is **highly variable across different product categories**. This suggests that the pricing strategy relative to product weight is not uniform across all types of goods.
- **Category-Specific Pricing Factors**: For categories like `Home & Cleaning`, `Biscuits`, `Chocolates & Candies`, `Ice Cream & Desserts`, and `Packaged Food`, weight appears to be a **significant factor in determining the MRP**. This could be due to raw material costs, packaging, or shipping being directly proportional to weight.
- **Other Pricing Determinants**: In contrast, for categories such as `Paan Corner`, `Personal Care`, `Fruits & Vegetables`, `Health & Hygiene`, `Beverages`, and `Dairy, Bread & Batter`, weight has **minimal to no linear relationship with MRP**. This implies that other factors, such as brand value, ingredients, processing, perceived value, perishability, or volume (for liquids), are likely **more dominant in setting prices** than the physical weight of the product.

Q7.For the categories identified with the lowest average available quantity, what are the potential reasons for this low availability, and what business implications might it have (e.g., lost sales, customer dissatisfaction)?



Identification of Low Availability Categories

- **Meats, Fish & Eggs**: This category exhibits the **lowest average available quantity at 2.41**.
- **Fruits & Vegetables**: Following closely, this category has an average available quantity of **2.96**.
- **Biscuits**: The third lowest category, with an average available quantity of **3.05**.

Potential Reasons for Low Availability

- **Perishability and Shelf Life**: Categories like **'Meats, Fish & Eggs'** and **'Fruits & Vegetables'** are highly perishable. Maintaining high stock levels for these items is challenging due to their limited shelf life, which necessitates strict inventory management to minimize waste.
- **Demand Volatility**: These categories, especially fresh produce and proteins, can experience **unpredictable fluctuations in demand**, making it difficult to forecast accurately and maintain consistent stock without overstocking or understocking.
- **Supply Chain Vulnerabilities**: The supply of fresh goods can be impacted by **seasonal availability, weather conditions, transportation issues, or supplier limitations**, leading to inconsistent replenishment and lower average stock.
- **Storage Constraints**: Perishable items often require **specialized storage conditions** (e.g., refrigeration), which might be limited, restricting the quantity that can be stored at any given time.
- **High Turnover Rate**: Items in these categories might sell very quickly, leading to frequent stockouts if the replenishment process is not sufficiently agile or if lead times are long.

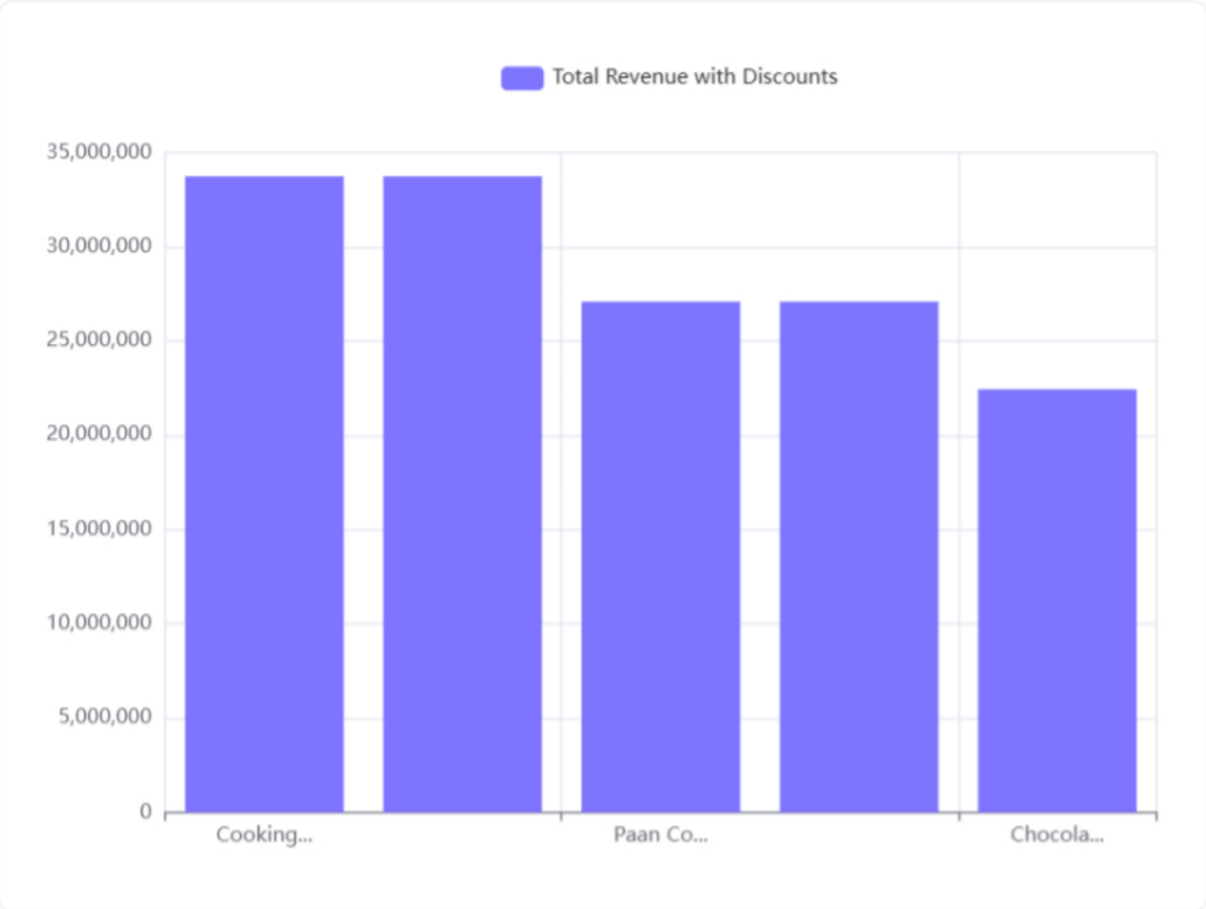
Business Implications of Low Availability

- **Lost Sales and Revenue**: Direct consequence of stockouts is the **inability to fulfill customer demand**, leading to immediate lost sales and a reduction in potential revenue.
- **Customer Dissatisfaction and Frustration**: Customers expect to find desired products readily available. Frequent unavailability, especially for staple or highly sought-after items, can lead to **customer frustration and a negative shopping experience**.
- **Erosion of Customer Loyalty and Brand Image**: Consistent stockouts can damage the retailer's reputation for reliability and convenience, potentially **driving customers to competitors** who can consistently meet their needs. This can lead to a long-term loss of customer loyalty.
- **Reduced Basket Size**: If key items are unavailable, customers might opt to purchase their entire shopping list elsewhere, resulting in a **smaller average transaction value** for the current store.
- **Operational Inefficiencies**: While not directly a cost of low availability, managing frequent stockouts can lead to **increased operational efforts** such as expedited orders or handling customer complaints, indirectly impacting efficiency.

Conclusion and Insights

- **Critical Categories for Inventory Focus**: The categories **'Meats, Fish & Eggs'**, **'Fruits & Vegetables'**, and **'Biscuits'** are identified as having the lowest average available quantities. These categories warrant immediate attention for inventory management improvements.
- **Impact of Perishability**: The low availability in 'Meats, Fish & Eggs' and 'Fruits & Vegetables' is likely driven by their **perishable nature**, requiring a delicate balance between meeting demand and minimizing waste.
- **Risk of Customer Churn**: Persistent low availability in these categories poses a significant risk of **customer dissatisfaction and potential loss of market share** as customers seek more reliable sources for their essential purchases.
- **Strategic Inventory Management Needed**: To mitigate these issues, the business should explore strategies such as **improved demand forecasting, optimizing supply chain logistics for fresh produce, implementing just-in-time inventory systems, or enhancing cold chain capabilities** to ensure better availability and customer satisfaction.

Q8.Beyond quantity, how does discounting affect the *total revenue* generated per category? Can we identify categories where discounts lead to the highest revenue uplift?



- **Revenue Reduction**: Discounting directly **reduces the potential revenue** that could be generated if products were sold at their Maximum Retail Price (MRP). The `total_discount_amount` represents the total revenue foregone due to these discounts for each category.
- **Actual vs. Potential Revenue**: For every category, the `total_revenue_with_discounts` is less than the `total_revenue_without_discounts` by the `total_discount_amount`, indicating that discounts directly lower the per-unit revenue.

Categories with Highest Total Revenue (with Discounts)

- **Top Performing Categories**: The categories generating the highest total revenue after applying discounts are:
  - **Cooking Essentials** and **Munchies**, both with a total revenue of **33,736,900**.
  - **Paan Corner** and **Personal Care**, both with a total revenue of **27,084,900**.
  - **Chocolates & Candies**, **Ice Cream & Desserts**, and **Packaged Food**, all with a total revenue of **22,438,500**.

Categories with Highest Total Discount Amount

- **Highest Discount Allocation**: The categories where the largest total discount amounts were applied are:
  - **Cooking Essentials** and **Munchies**, both with a total discount of **4,125,900**.
  - **Chocolates & Candies**, **Ice Cream & Desserts**, and **Packaged Food**, all with a total discount of **2,523,500**.
  - **Paan Corner** and **Personal Care**, both with a total discount of **2,421,000**.

Conclusion and Insights

- **Direct Impact of Discounts**: Discounts inherently **reduce the per-unit revenue**, leading to a lower `total_revenue_with_discounts` compared to the `total_revenue_without_discounts`. The `total_discount_amount` quantifies this direct reduction in potential revenue.
- **Correlation between High Revenue and High Discounts**: There is a clear pattern where categories with the **highest total revenue (with discounts)** also tend to be the categories with the **highest total discount amounts**. For instance, "Cooking Essentials" and "Munchies" lead in both actual revenue generated and the total value of discounts applied. This suggests that significant discounting is employed in these categories, potentially as a strategy to drive high sales volumes and consequently high overall revenue.
- **Interpreting "Revenue Uplift"**: While the provided data does not directly measure "revenue uplift" in terms of increased sales volume attributable to discounts (i.e., how much more was sold *because* of the discount compared to a no-discount scenario), it does show categories where discounts are heavily utilized and result in substantial actual revenue. Categories like **Cooking Essentials**, **Munchies**, **Paan Corner**, and **Personal Care** are prime examples where a large investment in discounts correlates with the highest achieved revenues, implying that discounts are a key component of their sales strategy. To truly assess "uplift," further analysis on sales volume changes in response to discount levels would be required.

Q9.What are the top 10 products by total discounted selling price? What percentage of total sales do these products represent?

- **Praakritik Natural Desi Gir Cow A2 Ghee**: This product has the highest total discounted selling price at **140,940,000**.
- **Whiskas Kitten (2-12 months) Dry Cat Food Food Ocean Fish**: Ranks second with a total discounted selling price of **114,510,000**.
- **Bagrrys Fruit and Nut Muesli with Cranberries**: Holds the third position with a total discounted selling price of **112,275,000**.
- **Kellogg's Special K Original Corn Flakes**: Its total discounted selling price is **107,421,000**.
- **Kellogg's Original Corn Flakes**: Recorded a total discounted selling price of **101,062,500**.
- **Dove Daily Shine Shampoo**: Achieved a total discounted selling price of **95,880,000**.
- **Kellogg's Crunchy Fruit & Nut Breakfast Cereals Muesli**: Its total discounted selling price is **90,225,000**.
- **Godrej Yummiez Chicken Nuggets**: Registered a total discounted selling price of **87,900,000**.
- **Kellogg's Muesli Nuts Delight**: Its total discounted selling price is **86,175,000**.
- **Pedigree Puppy Dry Dog Food Food Chicken & Milk**: The tenth product on the list with a total discounted selling price of **84,103,200**.

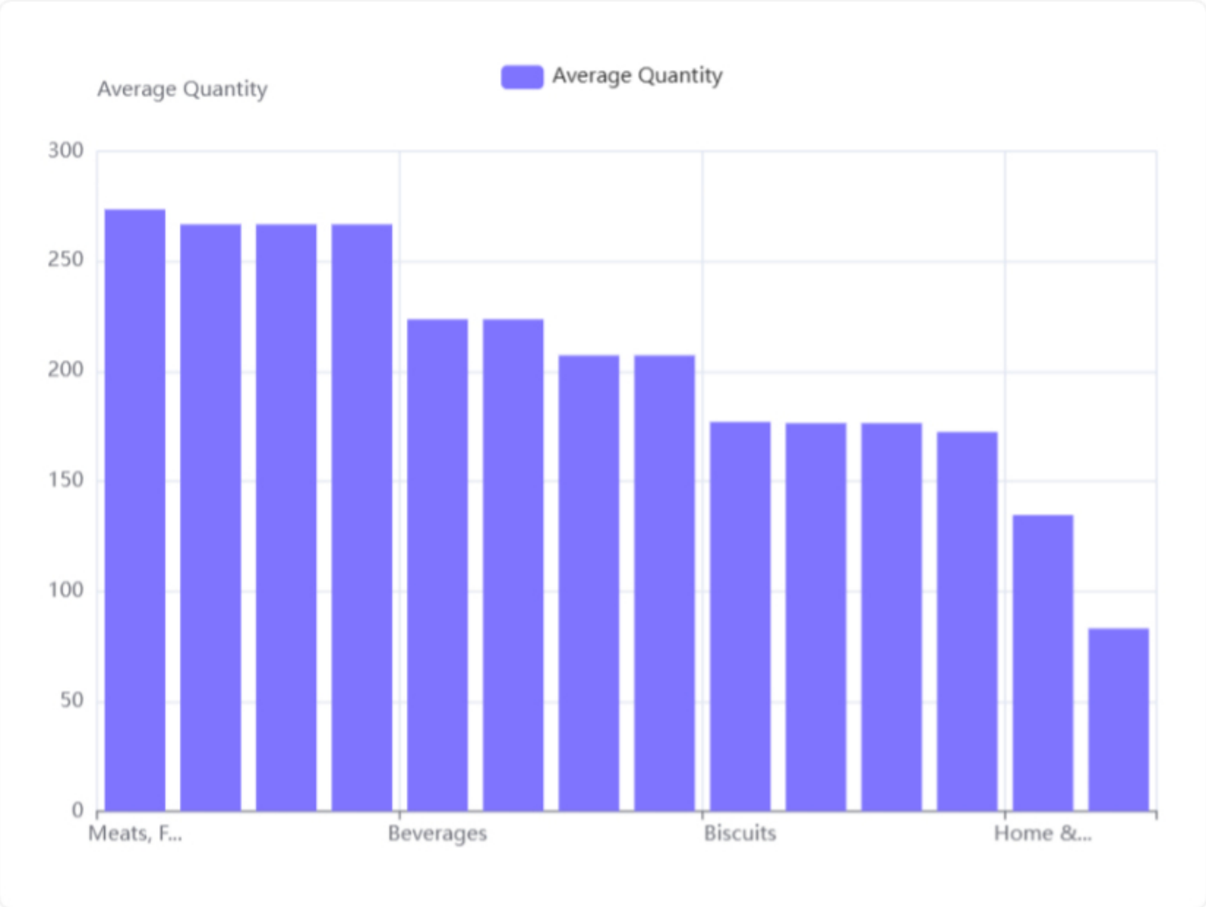
Contribution to Grand Total Sales

- **Collective Contribution**: The top 10 products collectively contribute **8.35%** to the grand total discounted selling price across all products.
- **Grand Total Discounted Selling Price**: The overall grand total discounted selling price for all products is **12,227,432,800**.
- **Top 10 Products Total Discounted Selling Price**: The sum of the total discounted selling prices for these top 10 products is **1,020,491,700**.

Conclusion and Insights

- **Dominant Products**: The top 10 products, led by **Praakritik Natural Desi Gir Cow A2 Ghee**, represent a diverse range of categories including food (ghee, muesli, corn flakes, cat/dog food, chicken nuggets) and personal care (shampoo).
- **Sales Concentration**: Despite being the top performers, these 10 products account for a relatively small portion, **8.35%**, of the overall discounted sales. This suggests that the sales revenue is **distributed across a very large number of products**, with no single product or small group of products dominating the total sales significantly.
- **Strategic Implications**: For businesses, this distribution indicates that while these top products are important, a broad product portfolio contributes substantially to the overall revenue. Marketing and inventory strategies should consider both optimizing the performance of these top sellers and maintaining a healthy stock and promotion for the long tail of products that collectively make up the vast majority of sales.

Q10.What is the distribution of quantity sold for each product category? Which categories have the highest average quantity sold?



Overview of Quantity Metrics

- **Total Quantity**: The total quantity sold across all categories ranges significantly, from a minimum of **8,054 units** (Health & Hygiene) to a maximum of **106,489 units** (Cooking Essentials, Munchies, Chocolates & Candies, Packaged Food, Ice Cream & Desserts). The average total quantity sold per category is approximately **56,851.93 units**.
- **Average Quantity**: The average quantity sold per transaction or item within categories varies from a low of **83.03 units** (Health & Hygiene) to a high of **273.51 units** (Meats, Fish & Eggs). The overall average quantity across all categories is approximately **203.92 units**.

Detailed Category Performance

- **Top Tier (Average Quantity > 250)**:
  - **Meats, Fish & Eggs**: Leads with the highest average quantity of **273.51 units**.
  - **Chocolates & Candies, Ice Cream & Desserts, Packaged Food**: All three categories show a high average quantity of **266.73 units**.
- **Mid-to-High Tier (Average Quantity 200-250)**:
  - **Beverages, Dairy, Bread & Batter**: Both have an average quantity of **223.59 units**.
  - **Cooking Essentials, Munchies**: Both show an average quantity of **207.18 units**.
- **Mid-to-Low Tier (Average Quantity 150-200)**:
  - **Biscuits**: Has an average quantity of **176.93 units**.
  - **Paan Corner, Personal Care**: Both have an average quantity of **176.40 units**.
  - **Fruits & Vegetables**: Shows an average quantity of **172.37 units**.
- **Lower Tier (Average Quantity < 150)**:
  - **Home & Cleaning**: Has an average quantity of **134.58 units**.
  - **Health & Hygiene**: Ranks lowest with an average quantity of **83.03 units**.

Conclusion and Insights

- **Highest Average Quantity Categories**: The categories with the highest average quantity sold are **Meats, Fish & Eggs** (273.51 units), followed closely by **Chocolates & Candies**, **Ice Cream & Desserts**, and **Packaged Food** (all at 266.73 units). These categories demonstrate strong per-transaction or per-item sales performance.
- **Quantity Distribution Pattern**: The distribution of average quantities sold per category shows a clear hierarchy, with a few categories significantly outperforming others in terms of average units sold. There's a noticeable drop-off from the top-performing categories to the mid-range, and a further decline to the lowest-performing categories like Home & Cleaning and Health & Hygiene.
- **Strategic Implications**: Categories with high average quantities, such as Meats, Fish & Eggs and various snack/dessert items, indicate strong consumer demand or larger typical purchase sizes for these products. Conversely, categories with lower average quantities, like Health & Hygiene, might suggest smaller purchase sizes or less frequent bulk buying.