**BlinkIt Grocery Product Analysis Using Power BI**

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**GitHub link:** [**https://github.com/Tanaya006/BlinkIt-Grocery-Product-Analysis-using-Power-BI/tree/main**](https://github.com/Tanaya006/BlinkIt-Grocery-Product-Analysis-using-Power-BI/tree/main)

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**Summary**

BlinkIt, formerly known as Grofers, is a quick-commerce platform focused on delivering groceries and everyday essentials in minutes. It was founded in 2013 and has become a leading player in the instant delivery market in India. BlinkIt leverages a proprietary technology stack to connect consumers with local stores and brands, offering a wide range of products for rapid delivery. It has now evolved into a full-fledged quick commerce company, delivering thousands of products including grocery and daily essentials, electronics, beauty & personal care items, stationery, and emergency supplies, directly to your doorsteps, within minutes.

In this project we are analysing retail sales data using Power BI to uncover insights across different item categories and retail outlets. The dataset includes product attributes, outlet characteristics, and customer ratings. Using Power Query and DAX, interactive visualizations were built to explore item sales, outlet performance, and customer preferences. The dashboard helps identify high-performing products, sales patterns by outlet type, and the impact of visibility and fat content on sales. Key insights guide inventory and marketing decisions.

**Objective**

The primary objective of this project is to perform an in-depth analysis of BlinkIt’s grocery sales data using Power BI, with a focus on understanding how various product and outlet attributes influence customer preferences and overall sales performance. The dataset includes key features such as item types, item visibility, fat content, item weight, outlet type, outlet size, location tier, and year of establishment—providing a comprehensive view of both product-level and outlet-level dynamics.

By exploring these variables, the analysis aims to uncover patterns in consumer behaviour, identify high-performing products and outlets, and examine the relationship between customer ratings and sales performance. Special attention is given to attributes like fat content and visibility to evaluate how health trends and shelf placement affect purchasing decisions.

**Dataset Overview**

In the case study the dataset contains 12 columns and 8523 records with information on sales of grocery items across different outlets. We are uncovering customer behaviour insights, track sales trends, and gather feedback. These insights will drive operational improvements, enhance customer satisfaction, and optimize product offerings and store layout.

The table Grocery Sales is a .CSV file and has the following columns, details of which are as follows:

• Item\_Fat\_Content: Indicates whether the product is low fat or not.

• Item Identifier: A unique ID for each product in the dataset. • Item\_Type: The category or type of product.

• Outlet\_Establishment\_Year: The year in which the store was established.

• Outlet\_Identifier: A unique ID for each store in the dataset.

• Outlet Location Type: The type of city or region in which the store is located.  
• Outlet Size: The size of the store in terms of ground area covered.

• Outlet Type: Indicates whether the store is a grocery store or a supermarket.

* Item Visibility: The percentage of the total display area in the store that is allocated to the specific product.
* Item Weight: The weight of the product.  
  Sales: The column represents the total sales revenue per item at a specific outlet.
* Rating: column represents a quality or customer satisfaction score on a scale of 1 to 5, with 5 indicating the highest rating.

**Key - Business Questions**

**1. Sales Performance Tracking**

* The system should provide a breakdown of **total and average sales** by item type to identify top-performing categories.It should identify **top-selling individual items** to support inventory and merchandising decisions.
* Users should be able to compare **sales performance by outlet type and size** to inform format-level strategy.
* The dashboard should compare **sales by location type (Tier 1/2/3)** to support regional marketing and expansion plans. It should show **average revenue across outlet types** to assess operational effectiveness.
* The dashboard should track **sales performance by outlet establishment year** to measure outlet lifecycle trends. It must enable comparison of **older vs. newer outlets** to assess modernization needs.

**2. Product Attribute Analysis**

* The platform must allow analysis of **sales trends by item weight** to understand the impact of packaging/size on customer preference.
* It should measure the **effect of item visibility** on sales volume, supporting optimization of shelf or listing placement.
* The system should compare **sales performance between 'Low Fat' and 'Regular' items** to align with health trends. It must categorize **item types within each fat content group** to support targeted promotions.
* The system should show **rating distributions by item type** to identify quality or satisfaction gaps. It should reveal any **correlation between item ratings and sales** to guide product lifecycle and retention strategies.
* The dashboard must track **sales of 'Low Fat' vs 'Regular' items** to align with shifting health preferences.
* It must break down **fat content preferences across different location tiers**, supporting location-specific campaigns.

**Visualization and Insights**

**Dashboard 1 – BlinkIt Sales Performance**

1. Total Sales by Outlet Location Type (Donut Chart) - Displays the sales distribution across Tier 1, Tier 2, and Tier 3 outlet locations.

* Purpose: Helps identify which geographic location tier drives the most sales, useful for targeted campaigns.
* **Insight**: Tier 3 outlets contribute the largest share (~39.31%), followed by Tier 1 (~32.68%), and Tier 2 (~28.02%).
* **Observation –** The possible reasons for high sales in tier 3 could be due to the availability and effectiveness. On the other hand, we can see that in tier 1 cities the sales are barely 1 quarter above; this could be due to reason like other home delivery services. Good connectivity makes people go out leading to lesser home delivery services.

2. Total Sales by Outlet Type (Donut Chart) - Description: Shows sales contributions from different outlet types such as Supermarket Type1, Grocery Store, Supermarket Type2, etc.

* Purpose: Allows management to see which outlet type is most profitable.
* **Insight**: Supermarket Type1,2 and 3 combinedly dominates with ~87.29% of sales.
* **Observation:** Many people prefer supermarkets rather than relying on grocery stores as it has built a reputation for cleanliness and hygiene.

3. Total Sales by Outlet Size (Donut Chart) - Description: Breaks down sales by outlet sizes — Small, Medium, High.

* Purpose: Useful for evaluating the impact of outlet size on revenue.
* **Insight**: Medium outlets lead with 42.6% of total sales, followed by Small and High.

4. Sum of Sales by Item Type (Bar Chart) - Description: Compares total sales for each product category.

* Purpose: Identifies top-performing product categories to guide inventory planning and promotions.
* **Insight**: *Fruits and Vegetables* lead, followed by *Snack Foods* and *Household* items.

5. Total Sales by Outlet Establishment Year (Bar Chart) - Description: Displays annual sales grouped by the year each outlet was established.

* Purpose: Highlights whether newer or older outlets generate more revenue.
* **Insight:** Outlets established in 2018 have the highest sales (1463 units), followed by stable performance in other years.
* **Observation:** The is no direct correlation between the Outlet year Establishment and Total Sales.

**Dashboard 2 – BlinkIt Product Analysis**

1. Total Sales by Item Fat Content and Item Type (Stacked Bar Chart) - Description**:** Stacks product categories within Low Fat and Regular categories to compare sales composition.

* Purpose: Assists in health-conscious marketing strategies and product planning.
* **Insight:** In both fat content categories, *Fruits and Vegetables* and *Snack Foods* are major contributors. High total sales combined with high average ratings shows strong product and market fit. Breads, canned and Hard Drinks contributes least. Most of the items sold are regular which tells us that when it comes to fruits and vegetable or snack food people prefer/ go with regular fat content.

2. Total Sales by Item Fat Content and Outlet Location Type (Clustered Bar Chart).Description: Compares Low Fat and Regular item sales across Tier 1, Tier 2, and Tier 3 locations.

* Purpose: Helps in location-based marketing by understanding demand for health-oriented products.
* **Insight:** Low Fat items dominate across all tiers, especially in Tier 2. Tier 3 locations has highest sales of low fat content compared to other two.

3. Sum of Sales by Item Fat Content (Bar Chart) - Description: Simple comparison between Low Fat and Regular items.

* Purpose: Highlights the importance of stocking Low Fat products.
* **Insight:** Low Fat products (~776K) significantly outperform Regular (~425K).

4. Total Sales (%) by Rating and Item Type (100% Stacked Bar Chart). Description: Shows the distribution of product ratings (1 to 5 stars) across each item type.

* Purpose: Evaluates customer satisfaction per category to improve underperforming segments.
* **Insight:** Most categories have a high percentage of 4-star ratings, with *Fruits and Vegetables* having 82% 4-star ratings. We can conclude that Ratings directly affects the sales of the product. Sales has positive correlation to ratings. Categories with a high % of 5-star ratings are strong performers maintain product quality. Categories with a wide spread (many low and high ratings) might have inconsistency in product batches or vendor supply.

5. Total Sales by Item Weight (Area Chart) - Plots sales against item weight.

* Purpose: Helps in pricing and packaging strategies.
* **Insight:** Sales peaks occur around specific weight ranges (e.g., ~10kg, ~15kg). Items below 6 kg show consistently low sales volumes (0.004K–0.011K). Items above **20 kg** also have reduced sales (0.007K at 21 kg).
* **Observations**: Very light products may be low-value add-ons. Very heavy products may be less convenient to purchase or store. The shape of the chart is irregular, meaning sales are not simply increasing or decreasing with weight. Instead, sales depend on the product type within each weight band.

6. Total Sales and Sum of Item Visibility by Item Type (Scatter Chart). Description: Plots each item type with respect to total sales and visibility.

* Purpose: Supports marketing merchandising decisions.
* **Insight:** Certain categories with high visibility also have high sales, indicating strong shelf placement impact. The chart shows a clear upward trend as item visibility increases, total sales also increase. Which indicates that products which are more prominently displayed (higher visibility) tend to sell more.
* **Observations:** As the relationship is strong and almost linear, increasing shelf or listing visibility could directly boost sales. Especially for items currently in the low visibility, low sales cluster, even a moderate visibility boost could yield substantial sales improvement.

7. KPI Card – Fruits and Vegetables - Description: Displays the top-selling item type (178K sales).

* Purpose: Immediate reference for the most profitable product category.
* **Insight:** Highlights the category to benchmark for best practices.

**Conclusion**

The analysis reveals a strong positive correlation between item visibility and total sales across all product types, indicating that greater visibility consistently drives higher sales. High-performing categories already benefit from prominent placement, while low-visibility items present significant growth opportunities through improved shelf positioning or online listing optimization. By strategically enhancing the visibility of underperforming products, overall sales performance can be boosted in a predictable and measurable way.