**Blinkit Sales Data Dashboard: Technical Report**

**1. Introduction and Problem Statement**

Blinkit, a rapidly expanding hyperlocal delivery network, competes fiercely in a market where quick delivery, satisfied customers, and effective marketing are key factors in a successful business. In order to maintain its growth and outperform rivals, Blinkit must:

• Recognize trends in sales over time and across product categories.

The Assess delivery performance to reduce delays and raise customer satisfaction optimize marketing efforts to maximize return on investment; and analyze customer sentiment and retention to improve services.

Goal: By combining several datasets, this Power BI dashboard aims to give a thorough understanding of Blinkit's operations and facilitate the data-driven decision-making to improve business performance.

**2. Data Sources and Collection Methodology**

**Data Sources:**

I sourced the dataset from Kaggle : https://www.kaggle.com/datasets/akxiit/blinkit-sales-dataset

The analysis combines data from multiple sources to create a holistic view of business performance:

* **blinkit\_orders.csv:** Contains order-level information (order ID, order date, customer ID, etc.).
* **blinkit\_order\_items.csv:** Detailed data on items within each order (product ID, quantity, price).
* **blinkit\_customers.csv:** Customer information (customer ID, name, segment, region, etc.).
* **blinkit\_delivery\_performance.csv:** Delivery status and performance metrics.
* **blinkit\_inventory.csv and blinkit\_inventoryNew.csv:** Inventory-level information.
* **blinkit\_marketing\_performance.csv:** Campaign effectiveness and ROI.
* **blinkit\_customer\_feedback.csv:** Customer sentiment and feedback ratings.

**Data Collection Methodology:**

* Data was collected from Blinkit's transactional databases and campaign management systems.
* CSV files were imported into Power BI and cleansed using **Power Query** to handle missing values, standardize data formats, and merge necessary tables.
* Datasets were joined using **primary and foreign keys** to create a unified data model.

**3. Data Model Design and Implementation**

**Data Model Approach:**

The data model was built using a **star schema** to optimize query performance and ensure scalability.

* **Fact Tables:**
  + blinkit\_orders – Main transactional data.
  + blinkit\_order\_items – Item-level order details.
  + blinkit\_delivery\_performance – Delivery status and timelines.
  + blinkit\_marketing\_performance – Campaign ROI and conversion metrics.
* **Dimension Tables:**
  + blinkit\_customers – Customer demographics and segmentation.
  + blinkit\_products – Product catalog.
  + blinkit\_inventory – Inventory and stock details.

**Relationships and Joins:**

* Orders linked to order items using order\_id.
* Customers connected to orders using customer\_id.
* Products joined with order items using product\_id.
* Campaigns and sales data linked using campaign\_name.
* Delivery performance associated with sales via order\_id.

**4. Visualization Approach and Tool Justification**

**Why Power BI?**

Power BI was chosen for its:

* **Seamless Data Integration:** Ability to handle large datasets efficiently.
* **Advanced Calculations:** DAX for complex KPIs and custom measures.
* **Intuitive Dashboards:** User-friendly interface with drill-down and interactivity options.
* **Cross-Platform Availability:** Easy sharing through Power BI Service.

**Visualization Strategy:**

Each page of the dashboard focuses on a specific business objective:

* **Page 1:** High-level business KPIs and sentiment analysis.
* **Page 2:** Temporal trends in sales over time (by day, month, and quarter).
* **Page 3:** Deep dive into category performance and sentiment-based metrics.

**5. Documentation of Key Calculated Fields and DAX Measures**

Key DAX Calculations:

Total Sales:

Total Sales = SUM(blinkit\_order\_items[Quantity] \* blinkit\_order\_items[Unit Price])

Average Sales:

Average Sales = AVERAGE(blinkit\_order\_items[Quantity] \* blinkit\_order\_items[Unit Price])

metrics 2 = {

("Total Sales", NAMEOF('blinkit\_orders\_cleaned'[Total Sales]), 0),

("AVG Sales", NAMEOF('blinkit\_orders\_cleaned'[AVG Sales]), 1),

("No of items", NAMEOF('blinkit\_order\_items\_cleaned'[No of items]), 2),

("AVG Rating", NAMEOF('blinkit\_customer\_feedback\_cleaned'[AVG Rating]), 3)Customer

**6. Analysis of Findings and Insights**

**Page 1: Business Overview and Sentiment Analysis**

Total Sales: Blinkit achieved 11.01M in total sales, with an average transaction size of 2.20K.

Customer Sentiment: Positive sentiment dominates, with a 3.34 average rating. Delays in delivery correlate with slightly lower ratings, emphasizing the need for delivery optimization.

Category Breakdown: High-performing categories include Dairy & Breakfast, Personal Care, and Grocery & Staples, driving more than 60% of total revenue.

**Page 2: Temporal Sales Trends**

Quarterly Trends: Consistent growth across quarters, with Q3 witnessing the highest sales volume.

Seasonal Peaks: November and December drive significant sales spikes due to festive periods.

Daily Trends: Periodic sales peaks suggest that promotions and weekend sales influence buying behavior.

**Page 3: Deep Dive – Category and Sentiment Analysis**

Sales by Category: Top-selling categories exhibit higher customer retention and positive sentiment.

Sentiment Impact: Positive sentiment correlates with higher average sales, whereas negative sentiment tends to reduce customer engagement.

Campaign Effectiveness: Campaigns that target high-margin categories yield better ROI, emphasizing the need to focus on premium product categories.

**7. Challenges Encountered and Solutions Implemented**

Data Quality and Cleansing:

Challenge: Inconsistent customer IDs and product data.

Solution: Used Power Query to standardize data formats and remove duplicates.

Handling Large Datasets:

Challenge: Performance lag with large CSV files.

Solution: Optimized relationships and used aggregations to improve report performance.

Delivery Delay Analysis:

Challenge: Difficulty in linking delay patterns to customer sentiment.

Solution: Created calculated fields to map sentiment scores to delivery status, revealing delivery delays as a key contributor to lower ratings.

**8. Future Enhancements and Next Steps**

**AI-Powered Predictive Models**

* Use AI/ML models to forecast times of increased demand and possible supply delays.
* Project future sales patterns to minimize stockouts and maximize inventory.

**Enhanced Campaign Attribution**

* Use multi-touch attribution models to assess how different marketing channels affect sales conversions.

**Conclusion**

Blinkit has strong insights into sales, customer behavior, and campaign performance thanks to their Power BI dashboard. Blinkit is in a good position to increase customer satisfaction, optimize revenue, and keep its competitive edge in the hyperlocal delivery industry by resolving delivery inefficiencies, honing marketing tactics, and enhancing inventory management.