

Blinkit Sales & Operations Analysis

Using Python, SQL, Excel, and Power BI

Objective: This project performs an end-to-end analysis of Blinkit's grocery order data to understand sales trends, customer preferences, and delivery operations.

The goal is to extract actionable insights using SQL for querying, Python for analysis, Excel for cleaning, and Power BI for dashboarding.

- ◆ Dataset Overview

- The Dataset Contains 12 Columns and 8523 Records.

- Fields:

Items_Fat_Content,Item_Identifier,Item_Type,Outlet_Establishment_Year,Outlet_Identifier,Outlet_Location_Type,Outlet_Size,Outlet_Type,Item_Visibility,Item_Weight,Sales,Rating

- Blinkit Table overview:

```
SELECT * FROM blinkit_data;
```

- get total count of rows

```
SELECT COUNT(*) FROM blinkit_data;
```

Result:

	Total_rows
1	8523

- basic data cleaning

```
UPDATE blinkit_data
SET Item_Fat_Content =
CASE
WHEN Item_Fat_Content IN ('LF','low fat') THEN 'LOW FAT'
WHEN Item_Fat_Content = 'reg ' THEN 'REGULAR'
ELSE Item_Fat_Content
END
```

A. KPI's

1. Overall total sales in million

This KPI represents the total revenue generated from all products. It helps understand overall business performance.

Result: ₹1.20M

```
SELECT CONCAT(CAST(SUM(Sales)/1000000 AS DECIMAL(10,2)), ' ', 'MILLIONS')  
AS TOTAL_SALES_MILLIONS FROM blinkit_data;
```

Result:

	TOTAL_SALES_MILLIONS
1	1.20 MILLIONS

2. Average sales

This KPI represents the average sales generated from all products. It will help business understand item performance.

Result: ₹141

```
SELECT ROUND(AVG(Sales),0) as Average_Sales FROM blinkit_data
```

Result:

	Average_Sales
1	141

3. Total Items Sold

This KPI represents the total number of items sold across all outlets.

```
SELECT COUNT(*) as total_item_sold FROM blinkit_data;
```

Result:

	total_item_sold
1	8523

4. Average Rating of Items

This KPI represents the overall average rating based on all item ratings recorded in the dataset.

```
SELECT ROUND(AVG(rating),2) AS AVERAGE_RATING FROM blinkit_data
```

Result:

	AVERAGE_RATING
1	3.97

B. Granular Requirements

1. Total Sales by Fat Content

This analysis shows which fat content type (Low Fat, Regular) contributes most to sales.

```
SELECT Item_Fat_Content,  
       ROUND(SUM(Sales),0) as Total_Sales,  
       ROUND(AVG(Sales),0) as Average_Sales,  
       COUNT(*) as total_item_sold,  
       ROUND(AVG(rating),2) AS AVERAGE_RATING  
FROM blinkit_data  
GROUP BY Item_Fat_Content;
```

Result:

	Item_Fat_Content	Total_Sales	Average_Sales	total_item_sold	AVERAGE_RATING
1	LOW FAT	776320	141	5517	3.97
2	REGULAR	425362	142	3006	3.97

2. Total Sales by Item Type

This analysis shows each item and how much they contributed to total sales.

```
SELECT Item_Type,  
       ROUND(SUM(Sales),0) as Total_Sales,  
       ROUND(AVG(Sales),0) as Average_Sales,  
       COUNT(*) as total_item_sold,  
       ROUND(AVG(rating),2) AS AVERAGE_RATING  
FROM blinkit_data  
GROUP BY Item_Type  
ORDER BY Total_Sales DESC;
```

Result:

	Item_Type	Total_Sales	Average_Sales	total_item_sold	AVERAGE_RATING
1	Fruits and Vegetables	178124	145	1232	3.96
2	Snack Foods	175434	146	1200	3.95
3	Household	135977	149	910	4
4	Frozen Foods	118559	139	856	3.97
5	Dairy	101276	148	682	3.97
6	Canned	90707	140	649	3.99
7	Baking Goods	81895	126	648	3.98
8	Health and Hygiene	68026	131	520	3.99
9	Meat	59450	140	425	4.02
10	Soft Drinks	58514	131	445	3.92
11	Breads	35379	141	251	3.88
12	Hard Drinks	29335	137	214	3.91
13	Others	22452	133	169	3.95
14	Starchy Foods	21880	148	148	3.92
15	Breakfast	15597	142	110	3.93
16	Seafood	9078	142	64	3.96

3. Fat Content by Outlet for Total Sales

This analysis shows total sales by fat content type (Low Fat, Regular) according to outlet location type.

```
SELECT Outlet_Location_Type,
       ISNULL([LOW FAT],0) AS LOW_FAT,
       ISNULL([REGULAR],0) AS REGULAR
FROM
(
    SELECT Outlet_Location_Type, Item_Fat_Content,
           ROUND(SUM(Sales),2) AS Total_Sales
    FROM blinkit_data
    GROUP BY Outlet_Location_Type, Item_Fat_Content
) AS Source_Table
PIVOT
(
    SUM(Total_Sales)
    FOR Item_Fat_Content in ([LOW FAT],[REGULAR])
) AS PivotTable
ORDER BY Outlet_Location_Type
```

Result:

	Outlet_Location_Type	LOW_FAT	REGULAR
1	Tier 1	215047.91	121349.9
2	Tier 2	254464.78	138685.87
3	Tier 3	306807	165326.04

4. Total Sales by Outlet Establishment

This analysis shows total sales contribution by every outlet's establishment year.

```
SELECT Outlet_Establishment_Year,
       ROUND(SUM(Sales),0) as Total_Sales
FROM blinkit_data
GROUP BY Outlet_Establishment_Year
ORDER BY Outlet_Establishment_Year;
```

Result:

	Outlet_Establishment_Year	Total_Sales
1	2011	78132
2	2012	130477
3	2014	131809
4	2015	130943
5	2016	132113
6	2017	133104
7	2018	204522
8	2020	129104
9	2022	131478

5. Percentage Of Sales By Outlet Size

This analysis showed how much each outlet size contributed each in total sales and sales percentage.

```
SELECT Outlet_Size,
       ROUND(SUM(Sales),2) as Total_Sales,
       CAST((SUM(Sales) * 100.0 / SUM(SUM(Sales))) OVER()) AS DECIMAL(10,2)) AS SALES_PERCENTAGE
FROM blinkit_data
GROUP BY Outlet_Size
ORDER BY Total_Sales DESC
```

Result:

	Outlet_Size	Total_Sales	SALES_PERCENTAGE
1	Medium	507895.74	42.27
2	Small	444794.17	37.01
3	High	248991.59	20.72

6. Total Sales & Percentage By Outlet Location

This analysis showed what each outlet location type contributed in total sales and percentage.

```
SELECT Outlet_Location_Type,  
       ROUND(SUM(Sales),2) as Total_Sales,  
       CAST((SUM(Sales) * 100.0 / SUM(SUM(Sales)) OVER())) AS DECIMAL(10,2)) AS SALES_PERCENTAGE  
FROM blinkit_data  
GROUP BY Outlet_Location_Type  
ORDER BY Total_Sales DESC
```

Result:

	Outlet_Location_Type	Total_Sales	SALES_PERCENTAGE
1	Tier 3	472133.03	39.29
2	Tier 2	393150.65	32.72
3	Tier 1	336397.81	27.99

7. All Metrics By Outlet Type

This analysis shows metrics like total sales, Average Sales, Total Item Sold, Average Rating by Outlet Type.

```
SELECT Outlet_Type,  
       ROUND(SUM(Sales),0) as Total_Sales,  
       ROUND(AVG(Sales),0) as Average_Sales,  
       COUNT(*) as Total_Item_Sold,  
       ROUND(AVG(rating),2) AS AVERAGE_RATING  
FROM blinkit_data  
GROUP BY Outlet_Type  
ORDER BY Total_Sales DESC;
```

Result:

	Outlet_Type	Total_Sales	Average_Sales	Total_Item_Sold	AVERAGE_RATING
1	Supermarket Type1	787550	141	5577	3.96
2	Grocery Store	151939	140	1083	3.99
3	Supermarket Type2	131478	142	928	3.97
4	Supermarket Type3	130715	140	935	3.95

Final Insights and Recommendation to business:

- Regular fat items generate higher average revenue per unit than low fat.
- Medium outlet sizes contribute most of total sales — consider opening more.
- Locations with higher ratings tend to have better sales performance.
- **Recommendation: Push combo offers for top 3 selling items.**