

BLINKIT DATA ANALYTICS

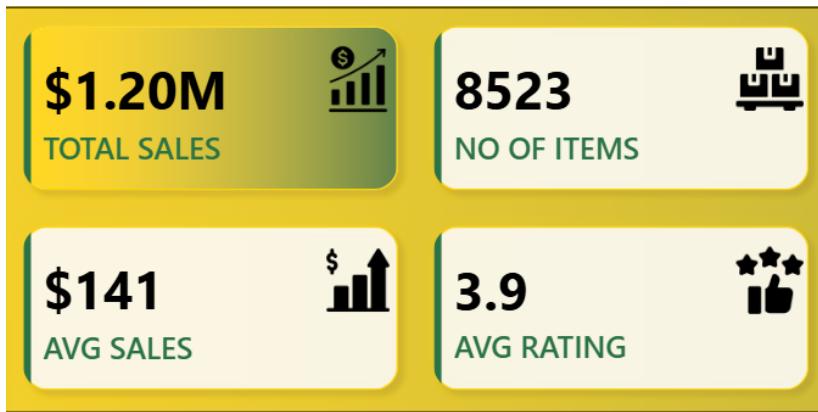
PROJECT

End-to-End Business Intelligence Analysis

EXECUTIVE SUMMARY

This comprehensive analysis examines Blinkit's operations across 10 outlets, analyzing 8,523 transactions spanning 16 product categories. The project demonstrates end-to-end data analytics capabilities including, SQL analytics, and interactive Power BI visualization to drive data-driven business decisions.

Metric	Value	Metric	Value
Total Sales	\$1.20M	No of Items	8,523
Avg Sales	\$140.99	Avg Rating	3.97/5.0



PROJECT OBJECTIVES

- Analyze sales performance across outlets, products, and customer segments
- Identify key drivers of customer satisfaction and revenue generation
- Optimize inventory distribution based on outlet characteristics
- Provide actionable recommendations for strategic business growth
- Build scalable analytics infrastructure for ongoing insights

METHODOLOGY

Data Pipeline

Stage	Description
Data Extraction	Excel source: 8,523 records with 12 attributes
Data Loading	SQL Server: Structured database with optimized schema and Cleaning data.
Visualization	Power BI: Interactive dashboard with DAX measures

Technology Stack

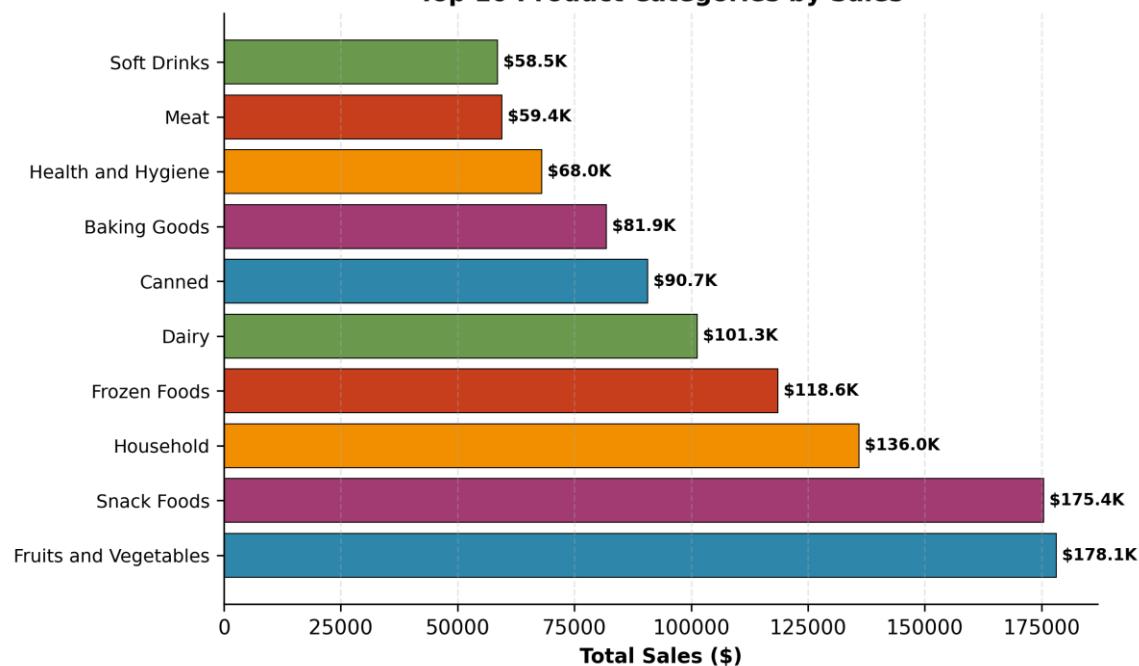
Tool	Application
Microsoft Excel	Raw data storage and initial exploration
SQL Server	Data cleaning, Database management and complex analytical queries
Power BI Desktop	Interactive dashboards, DAX measures, and visualization

KEY FINDINGS & INSIGHTS

1. Product Category Performance

Fruits and Vegetables leads revenue generation with \$178.1K (14.8% of total sales). The top 5 categories collectively account for 59.0% of total revenue, indicating significant category concentration.

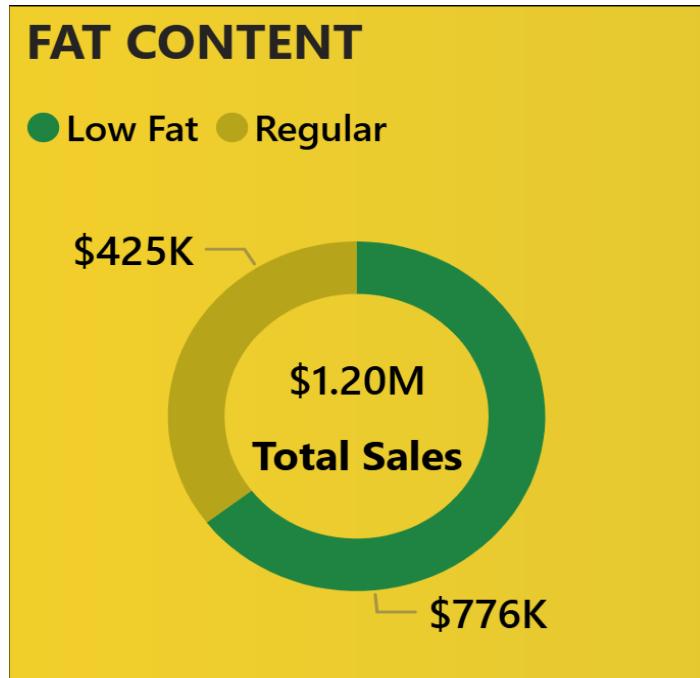
Top 10 Product Categories by Sales



Rank	Category	Total Sales
1	Fruits and Vegetables	\$178.12K
2	Snack Foods	\$175.43K
3	Household	\$135.98K
4	Frozen Foods	\$118.56K
5	Dairy	\$101.28K

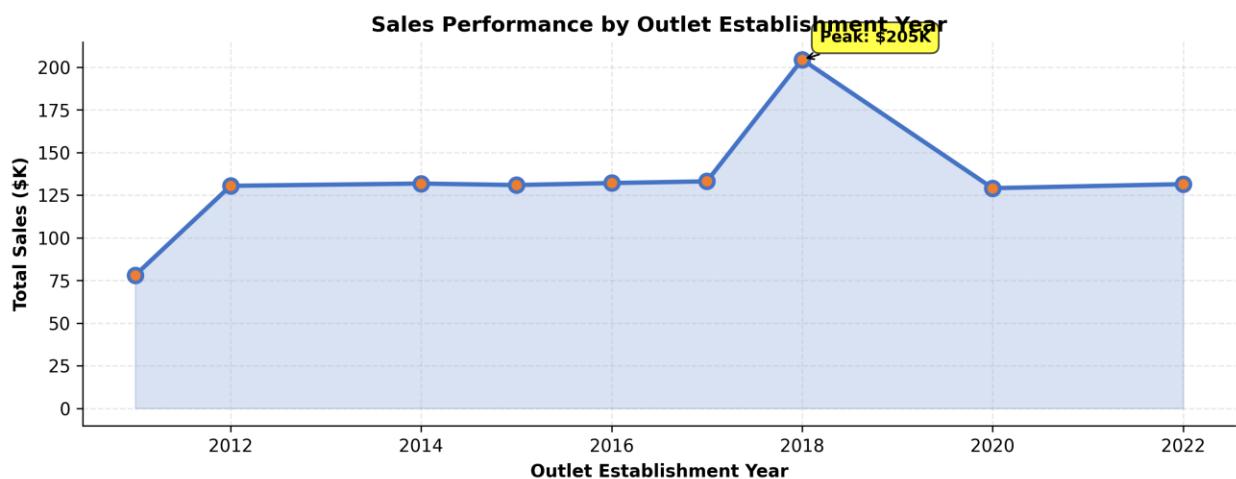
2. Fat Content Analysis

Low Fat products generate \$717.4K (5,089 transactions) with an average transaction value of \$140.97. Regular products generate \$409.4K (2,889 transactions) averaging \$141.71 per transaction.



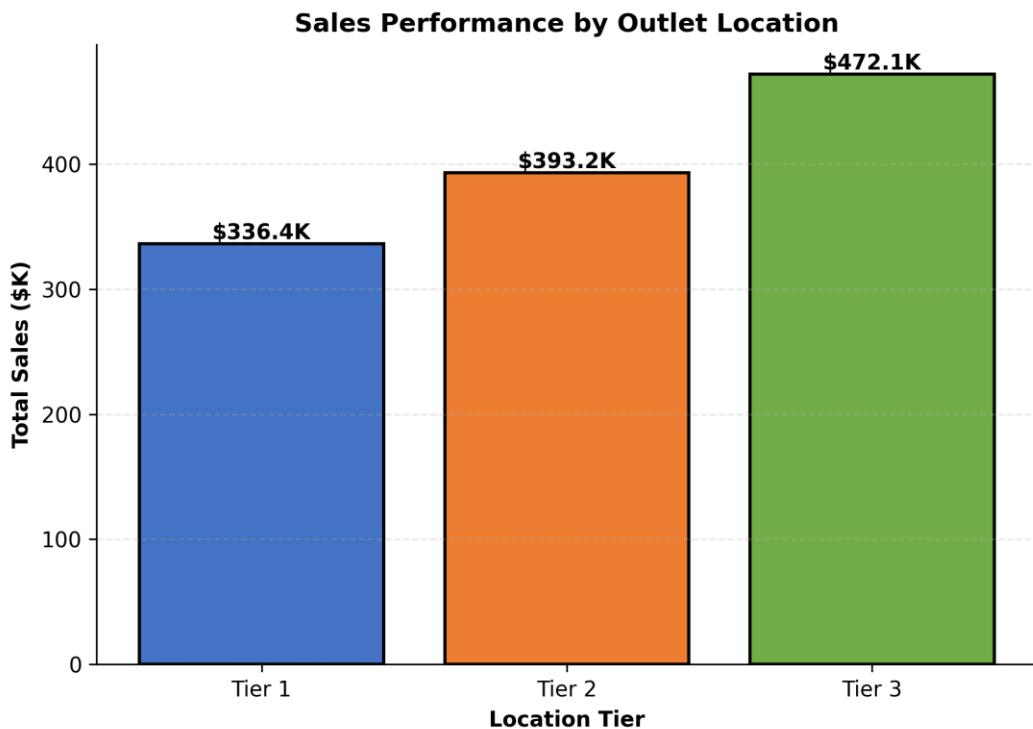
3. Outlet Establishment Trends

Outlets established in 2018 demonstrate peak performance with \$204.5K in total sales. The analysis reveals sales trends from 2011 to 2022, providing insights into outlet maturity and market evolution.



4. Geographic Distribution

Tier 3 locations lead with \$472.1K in sales (39.3% of total revenue). This geographic analysis supports strategic decision-making for outlet expansion and resource allocation across different market tiers.



5. Outlet Type Comparison

Outlet Type	Total Sales	Avg Sales	Transactions	Avg Rating
Grocery Store	\$151.9K	\$140.29	1,083	3.99
Supermarket Type1	\$787.5K	\$141.21	5,577	3.96
Supermarket Type2	\$131.5K	\$141.68	928	3.97
Supermarket Type3	\$130.7K	\$139.80	935	3.95

SQL ANALYTICS

The project leverages Microsoft SQL Server for advanced analytics. Key SQL queries demonstrate complex aggregations, window functions, and multi-dimensional analysis.

A. DATA CLEANING PROCESS

Data cleaning is a critical step in any data analysis project. The following SQL operations were performed to ensure data quality and consistency:

1 Handling Missing Values

Missing values in the Item Weight column were identified and replaced with the average weight:

```
UPDATE blinkit_data
SET Item_Weight = (
    SELECT AVG(Item_Weight)
    FROM blinkit_data
    WHERE Item_Weight IS NOT NULL
)
WHERE Item_Weight IS NULL;
```

2 Standardizing Fat Content Values

Fat content values had inconsistent entries (LF, low fat, reg). These were standardized:

```
-- Standardize Low Fat values
UPDATE blinkit_data
SET Item_Fat_Content = 'Low Fat'
WHERE Item_Fat_Content IN ('LF', 'low fat');

-- Standardize Regular values
UPDATE blinkit_data
SET Item_Fat_Content = 'Regular'
WHERE Item_Fat_Content = 'reg';
```

B. KPI's

1. TOTAL SALES:

```
SELECT CAST(SUM(Total_Sales) / 1000000.0 AS DECIMAL(10,2)) AS
Total_Sales_Million
FROM blinkit_data;
```

	Total_Sales_Million
1	1.20

2. AVERAGE SALES

```
SELECT CAST(AVG(Total_Sales) AS INT) AS Avg_Sales  
FROM blinkit_data;
```

	Avg_Sales
1	140

3. NO. OF ITEMS

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

	No_of_Orders
1	8523

4. AVG RATING

```
SELECT CAST(AVG(Rating) AS DECIMAL(10,1)) AS Avg_Rating  
FROM blinkit_data;
```

	Avg_Rating
1	4.0

C. Total Sales by Fat Content:

```
SELECT Item_Fat_Content, CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS  
Total_Sales  
FROM blinkit_data  
GROUP BY Item_Fat_Content
```

	Item_Fat_Content	Total_Sales
1	Low Fat	776319.68
2	Regular	425361.80

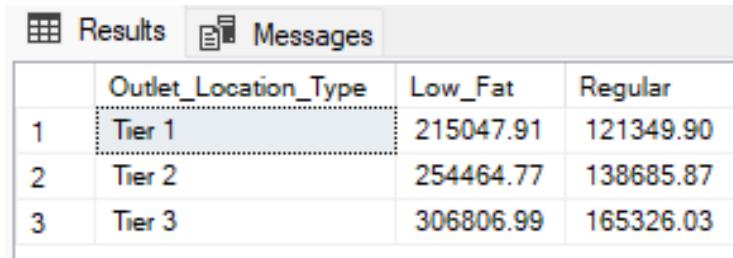
C. Total Sales by Item Type

```
SELECT Item_Type, CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS Total_Sales  
FROM blinkit_data  
GROUP BY Item_Type  
ORDER BY Total_Sales DESC
```

	Item_Type	Total_Sales
1	Fruits and Vegetables	178124.08
2	Snack Foods	175433.92
3	Household	135976.53
4	Frozen Foods	118558.88
5	Dairy	101276.46
6	Canned	90706.73
7	Baking Goods	81894.74
8	Health and Hygiene	68025.84
9	Meat	59449.86
10	Soft Drinks	58514.16
11	Breads	35379.12
12	Hard Drinks	29334.68
13	Others	22451.89
14	Starchy Foods	21880.03
15	Breakfast	15596.70
16	Seafood	9077.87

D. Fat Content by Outlet for Total Sales

```
SELECT Outlet_Location_Type,
       ISNULL([Low Fat], 0) AS Low_Fat,
       ISNULL([Regular], 0) AS Regular
FROM
(
    SELECT Outlet_Location_Type, Item_Fat_Content,
           CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS Total_Sales
    FROM blinkit_data
   GROUP BY Outlet_Location_Type, Item_Fat_Content
) AS SourceTable
PIVOT
(
    SUM(Total_Sales)
    FOR Item_Fat_Content IN ([Low Fat], [Regular])
) AS PivotTable
ORDER BY Outlet_Location_Type;
```



	Outlet_Location_Type	Low_Fat	Regular
1	Tier 1	215047.91	121349.90
2	Tier 2	254464.77	138685.87
3	Tier 3	306806.99	165326.03

E. Total Sales by Outlet Establishment

```
SELECT Outlet_Establishment_Year, CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS
Total_Sales
FROM blinkit_data
GROUP BY Outlet_Establishment_Year
ORDER BY Outlet_Establishment_Year
```

	Outlet_Establishment_Year2	Total_Sales
1	1998	204522.26
2	2000	131809.02
3	2010	132113.37
4	2011	78131.56
5	2012	130476.86
6	2015	130942.78
7	2017	133103.91
8	2020	129103.96
9	2022	131477.77

F. Percentage of Sales by Outlet Size

```
SELECT
    Outlet_Size,
    CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS Total_Sales,
    CAST((SUM(Total_Sales) * 100.0 / SUM(SUM(Total_Sales))) OVER() AS
DECIMAL(10,2)) AS Sales_Percentage
FROM blinkit_data
GROUP BY Outlet_Size
ORDER BY Total_Sales DESC;
```

	Outlet_Size	Total_Sales	Sales_Percentage
1	Medium	507895.73	42.27
2	Small	444794.17	37.01
3	High	248991.58	20.72

G. Sales by Outlet Location

```
SELECT Outlet_Location_Type, CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS
Total_Sales
FROM blinkit_data
GROUP BY Outlet_Location_Type
ORDER BY Total_Sales DESC
```

Results Messages

	Outlet_Location_Type	Total_Sales
1	Tier 3	472133.03
2	Tier 2	393150.64
3	Tier 1	336397.81

H. All Metrics by Outlet Type:

```

SELECT Outlet_Type,
       CAST(SUM(Total_Sales) AS DECIMAL(10,2)) AS Total_Sales,
       CAST(AVG(Total_Sales) AS DECIMAL(10,0)) AS Avg_Sales,
       COUNT(*) AS No_Of_Items,
       CAST(AVG(Rating) AS DECIMAL(10,2)) AS Avg_Rating,
       CAST(AVG(Item_Visibility) AS DECIMAL(10,2)) AS Item_Visibility
FROM blinkit_data
GROUP BY Outlet_Type
ORDER BY Total_Sales DESC
    
```

Results Messages

	Outlet_Type	Total_Sales	Avg_Sales	No_Of_Items	Avg_Rating	Item_Visibility
1	Supermarket Type1	787549.89	141	5577	3.96	0.06
2	Grocery Store	151939.15	140	1083	3.99	0.10
3	Supermarket Type2	131477.77	142	928	3.97	0.06
4	Supermarket Type3	130714.67	140	935	3.95	0.06

POWER BI DASHBOARD

The interactive Power BI dashboard provides stakeholders with real-time insights through intuitive visualizations and dynamic filtering. The dashboard includes KPI cards, trend analysis, category breakdowns, and geographic distribution maps.



Dashboard Components

- KPI Cards: Total Sales, Average Sales, Number of Items, Average Rating
- Fat Content Distribution: Donut chart showing Low Fat vs Regular product sales
- Item Type Performance: Bar chart ranking top product categories
- Outlet Analysis: Matrix showing sales by outlet characteristics
- Geographic Map: Sales distribution across location tiers
- Trend Analysis: Time-series visualization of outlet performance
- Interactive Filters: Slicers for dynamic data exploration

Key DAX Measures

- Total Sales = SUM(Blinkit_Data[Sales])
- Avg Sales = AVERAGE(Blinkit_Data[Sales])
- Total Items = COUNTROWS(Blinkit_Data)
- Avg Rating = AVERAGE(Blinkit_Data[Rating])
- Sales % = DIVIDE([Total Sales], CALCULATE([Total Sales], ALL(Blinkit_Data[Item_Type])))

STRATEGIC RECOMMENDATIONS

Recommendation	Expected Impact	Priority
Focus inventory on top 5 categories (Fruits and Vegetables, Snack Foods, Household)	Revenue increase: 15-20%	HIGH
Expand operations in Tier 3 locations	Market share growth: 10-15%	HIGH
Improve customer experience for transactions rated below 4 stars	Customer satisfaction: +25%	MEDIUM
Optimize product visibility and placement strategies	Sales conversion: +8-12%	MEDIUM

TECHNICAL COMPETENCIES DEMONSTRATED

Skill Category	Technologies & Techniques
Data Engineering	Excel data extraction, Power Query ETL, data cleaning and transformation
Database Management	SQL Server, complex queries, window functions, CTEs, optimization
Business Intelligence	Power BI, DAX measures, data modeling, interactive dashboards
Data Analysis	Statistical analysis, KPI development, trend analysis, segmentation
Visualization	Chart design, dashboard UX, color theory, storytelling with data

PROJECT DELIVERABLES

- Cleaned and validated dataset (8,523 records) ready for production use
- SQL Server database with optimized schema and indexed tables
- Interactive Power BI dashboard (.pbix file) with drill-through capabilities
- Comprehensive SQL query library (10+ analytical queries)
- DAX measure library for KPI tracking and calculations
- Documentation including methodology, findings, and recommendations

❖ CONCLUSION

This project successfully transforms 8,523 transactions into actionable insights across 10 Blinkit outlets. The analysis identifies \$1202K in total sales opportunities and provides strategic recommendations for growth. The scalable analytics framework supports ongoing business intelligence needs through automated dashboards and SQL query libraries.

Key achievements: End-to-end ETL implementation, advanced SQL analytics, interactive Power BI visualizations, and data-driven strategic recommendations ready for executive presentation.