Blinkit Sales Analysis

This project presents a complete Exploratory Data Analysis (EDA) of Blinkit's product-level and outlet-level sales data using Python

Importing Required Libraries

In [2]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

Import raw Data

In [3]:
```
df = pd.read_csv("blinkit_data.csv")
df
```

Out[3]:

	Item Fat Content	Item Identifier	Item Type	Outlet Establishment Year	Outlet Identifier	Outlet Location Type	Outlet Size
0	Regular	FDX32	Fruits and Vegetables	2012	OUT049	Tier 1	Medium
1	Low Fat	NCB42	Health and Hygiene	2022	OUT018	Tier 3	Medium
2	Regular	FDR28	Frozen Foods	2010	OUT046	Tier 1	Small
3	Regular	FDL50	Canned	2000	OUT013	Tier 3	High
4	Low Fat	DRI25	Soft Drinks	2015	OUT045	Tier 2	Small
...	...	...	...	...	...	...	...
8518	low fat	NCT53	Health and Hygiene	1998	OUT027	Tier 3	Medium
8519	low fat	FDN09	Snack Foods	1998	OUT027	Tier 3	Medium
8520	low fat	DRE13	Soft Drinks	1998	OUT027	Tier 3	Medium
8521	reg	FDT50	Dairy	1998	OUT027	Tier 3	Medium
8522	reg	FDM58	Snack Foods	1998	OUT027	Tier 3	Medium

8523 rows × 12 columns

Dataset Overview

In [4]:
```
df.head()
```

Out[4]:

	Item Fat Content	Item Identifier	Item Type	Outlet Establishment Year	Outlet Identifier	Outlet Location Type	Outlet Size	
0	Regular	FDX32	Fruits and Vegetables	2012	OUT049	Tier 1	Medium	S
1	Low Fat	NCB42	Health and Hygiene	2022	OUT018	Tier 3	Medium	S
2	Regular	FDR28	Frozen Foods	2010	OUT046	Tier 1	Small	S
3	Regular	FDL50	Canned	2000	OUT013	Tier 3	High	S
4	Low Fat	DRI25	Soft Drinks	2015	OUT045	Tier 2	Small	S

In [5]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8523 entries, 0 to 8522
Data columns (total 12 columns):
 #   Column                     Non-Null Count  Dtype
---  ------                     --------------  -----
 0   Item Fat Content           8523 non-null   object
 1   Item Identifier            8523 non-null   object
 2   Item Type                  8523 non-null   object
 3   Outlet Establishment Year  8523 non-null   int64
 4   Outlet Identifier          8523 non-null   object
 5   Outlet Location Type       8523 non-null   object
 6   Outlet Size                8523 non-null   object
 7   Outlet Type                8523 non-null   object
 8   Item Visibility            8523 non-null   float64
 9   Item Weight                7060 non-null   float64
 10  Sales                      8523 non-null   float64
 11  Rating                     8523 non-null   float64
dtypes: float64(4), int64(1), object(7)
memory usage: 799.2+ KB
```

In [6]:
```
df.isnull().sum()
```

Out[6]:

	0
Item Fat Content	0
Item Identifier	0
Item Type	0
Outlet Establishment Year	0
Outlet Identifier	0
Outlet Location Type	0
Outlet Size	0
Outlet Type	0
Item Visibility	0
Item Weight	1463
Sales	0
Rating	0

dtype: int64

In [7]:
```
df.shape
```

Out[7]: (8523, 12)

In [8]:
```
df.describe()
```

Out[8]:

	Outlet Establishment Year	Item Visibility	Item Weight	Sales	Rating
count	8523.000000	8523.000000	7060.000000	8523.000000	8523.000000
mean	2010.831867	0.066132	12.857645	140.992782	3.965857
std	8.371760	0.051598	4.643456	62.275067	0.605651
min	1998.000000	0.000000	4.555000	31.290000	1.000000
25%	2000.000000	0.026989	8.773750	93.826500	4.000000
50%	2012.000000	0.053931	12.600000	143.012800	4.000000
75%	2017.000000	0.094585	16.850000	185.643700	4.200000
max	2022.000000	0.328391	21.350000	266.888400	5.000000

Data Cleaning

In [9]:
```
df.columns
```

Out[9]:
```
Index(['Item Fat Content', 'Item Identifier', 'Item Type',
       'Outlet Establishment Year', 'Outlet Identifier',
       'Outlet Location Type', 'Outlet Size', 'Outlet Type', 'Item Visibilit
y',
       'Item Weight', 'Sales', 'Rating'],
      dtype='object')
```

In [10]:
```
df.duplicated().sum()
```

Out[10]:
```
np.int64(0)
```

In [11]:
```
print(df['Item Fat Content'].unique())
```

```
['Regular' 'Low Fat' 'low fat' 'LF' 'reg']
```

In [12]:
```
df['Item Fat Content']=df['Item Fat Content'].replace({'LF':'Low Fat','low fat
```

In [13]:
```
print(df['Item Fat Content'].unique())
```

```
['Regular' 'Low Fat']
```

Business Requirement

KPIs Requirement

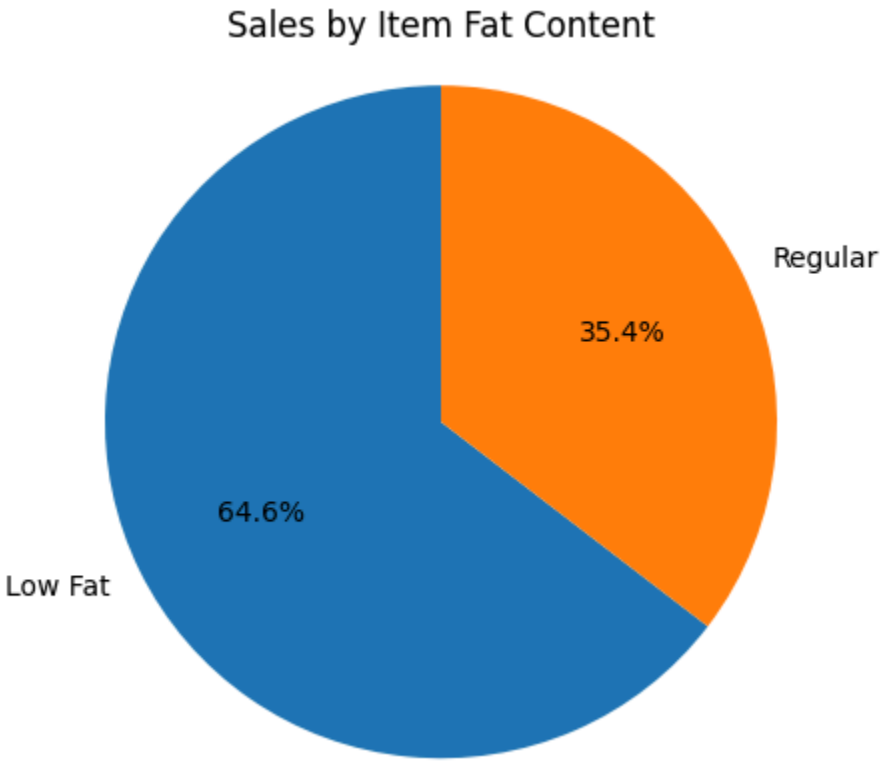
In [22]:
```
#total_sales
total_sales=df['Sales'].sum()
print(f"Total sales: ${total_sales:,.1f}")

#Average_sales
average_sales=df['Sales'].mean()
print(f"Average sales: ${average_sales:,.0f}")

#No of item_sold
no_of_item_sold=df['Sales'].count()
print(f"No of item_sold: {no_of_item_sold:,.0f}")

#Average_rating
average_rating=df['Rating'].mean()
print(f"Average rating: {average_rating:,.1f}")
```

```
Total sales: $1,201,681.5
Average sales: $141
No of item_sold: 8,523
Average rating: 4.0
```

Chart's Requirement

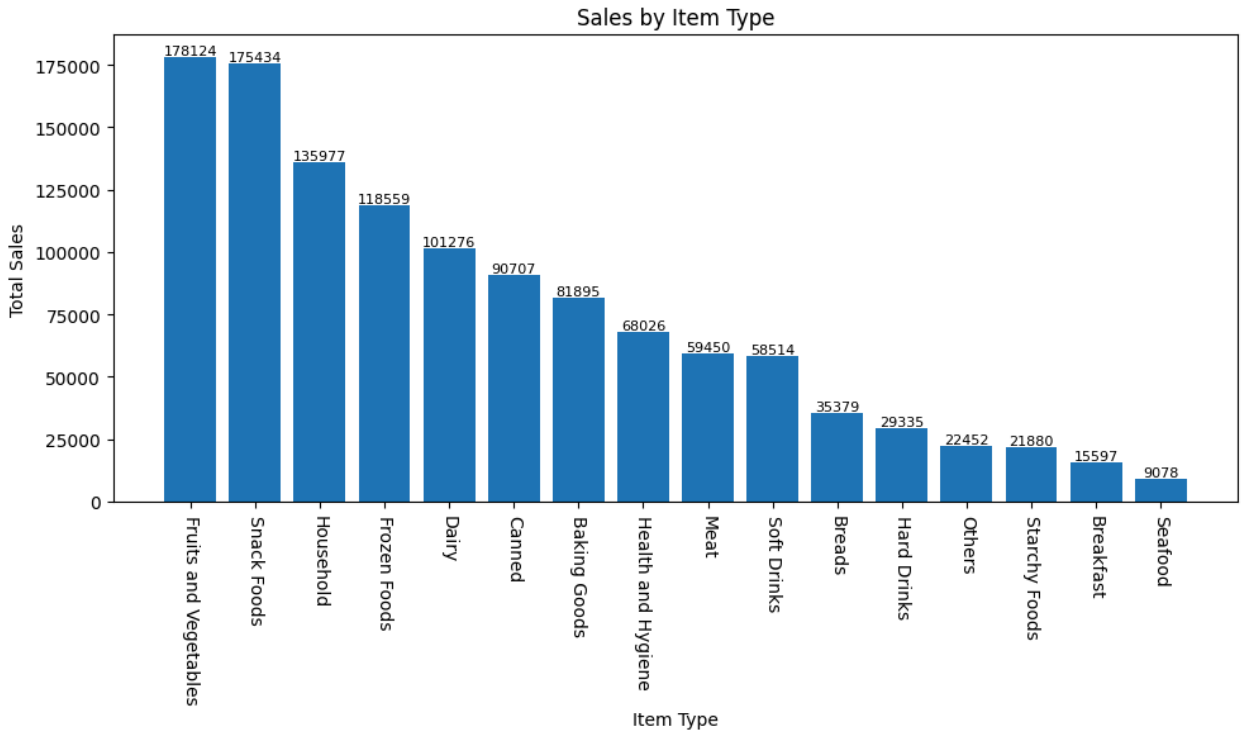
Total Sales by Fat Content

In [15]:
```
Sales_fat=df.groupby('Item Fat Content')['Sales'].sum()
plt.pie(Sales_fat,labels=Sales_fat.index,autopct='%1.1f%%',startangle=90)
plt.title('Sales by Item Fat Content')
plt.axis('equal')
plt.show()
```



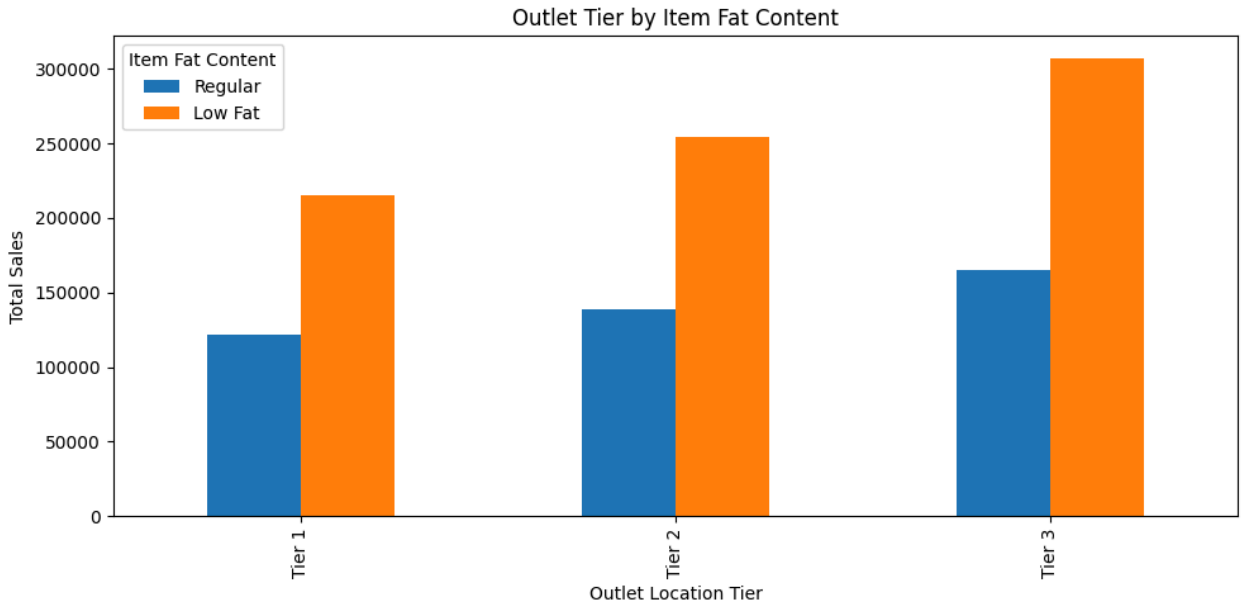
Total Sales by Item Type

In [16]:
```
Sales_by_type=df.groupby('Item Type')['Sales'].sum().sort_values(ascending=Fal
plt.figure(figsize=(10,6))
bars=plt.bar(Sales_by_type.index,Sales_by_type.values)
plt.xticks(rotation=-90)
plt.xlabel('Item Type')
plt.ylabel('Total Sales')
plt.title('Sales by Item Type')

for bar in bars:
    plt.text(bar.get_x()+bar.get_width()/2,bar.get_height(),
             f'{bar.get_height():.0f}',ha='center',va='bottom',fontsize=8)
    plt.tight_layout()
plt.show()
```



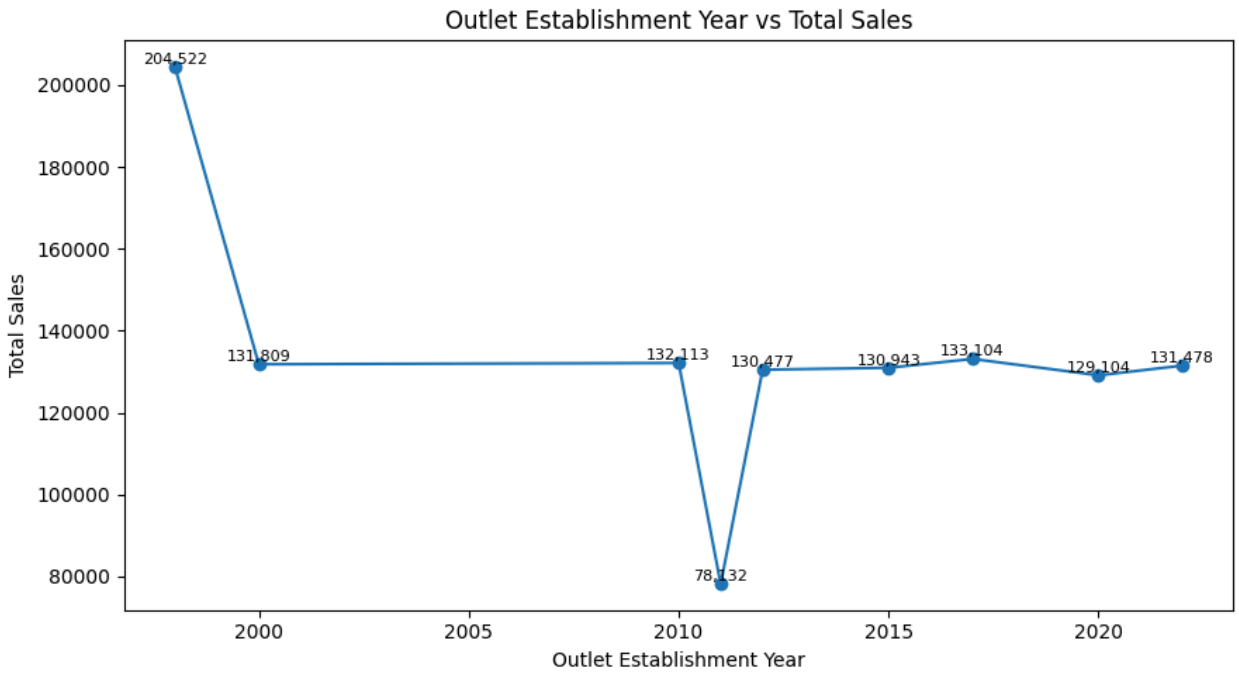
Fat Content by Outlet for Total Sales

In [17]:
```
import matplotlib.pyplot as plt

grouped = df.groupby(['Outlet Location Type', 'Item Fat Content'])['Sales'].su

# Reorder columns if they exist
grouped = grouped[['Regular', 'Low Fat']]


ax = grouped.plot(kind='bar', figsize=(10, 5), title='Outlet Tier by Item Fat

plt.xlabel('Outlet Location Tier')
plt.ylabel('Total Sales')


plt.legend(title='Item Fat Content')


plt.tight_layout()

plt.show()
```



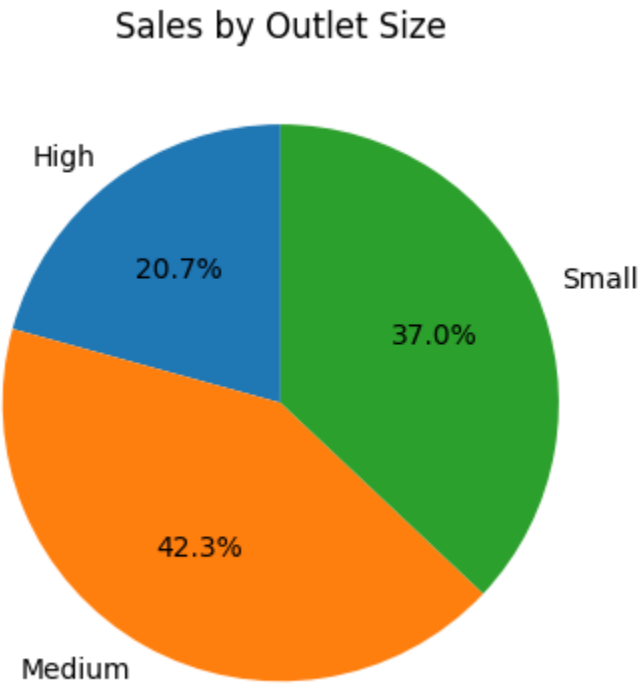
Total Sales by Outlet Establishment

In [18]:
```
import matplotlib.pyplot as plt


sales_by_year = df.groupby('Outlet Establishment Year')['Sales'].sum().sort_ir

plt.figure(figsize=(9, 5))
plt.plot(sales_by_year.index, sales_by_year.values, marker='o', linestyle='-')

plt.xlabel('Outlet Establishment Year')
plt.ylabel('Total Sales')
plt.title('Outlet Establishment Year vs Total Sales')


for x, y in zip(sales_by_year.index, sales_by_year.values):
    plt.text(x, y, f'{y:,.0f}', ha='center', va='bottom', fontsize=8)

plt.tight_layout()
plt.show()
```



Sales by Outlet Size

In [19]:
```
sales_by_size = df.groupby('Outlet Size')['Sales'].sum()
plt.figure(figsize=(4,4))
plt.pie(sales_by_size, labels=sales_by_size.index, autopct='%1.1f%%',startangl
plt.title('Sales by Outlet Size')
plt.tight_layout()
plt.show()
```



Sales by Outlet Location

In [28]:
```
sales_by_location = df.groupby('Outlet Location Type')['Sales'].sum().reset_ir
sales_by_location = sales_by_location.sort_values('Sales', ascending=False)

plt.figure(figsize=(8, 3))
ax = sns.barplot(
    x='Sales',
    y='Outlet Location Type',
    data=sales_by_location,
    color='skyblue'
)

plt.title('Total Sales by Outlet Location Type')
plt.xlabel('Total Sales')
plt.ylabel('Outlet Location Type')
for i, value in enumerate(sales_by_location['Sales']):
    plt.text(value, i, f'{value:,.0f}', va='center', ha='left', fontsize=8)

plt.tight_layout()
plt.show()
```