DATA ANALYSIS PYTHON PROJECT - BLINKIT ANALYSIS

Import Libraries

```
In [1]: import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt
        import seaborn as sns
```

Import Raw Data

```
In [4]: df = pd.read_csv('blinkit_data.csv')
```

Sample Data

```
In [6]: df.head(10)
```

Out[6]:

	Item Fat Content	Item Identifier	Item Type	Outlet Establishment Year	Outlet Identifier	Outlet Location Type	Outlet Size	Outlet Type	It Visib
0	Regular	FDX32	Fruits and Vegetables	2012	OUT049	Tier 1	Medium	Supermarket Type1	0.100
1	Low Fat	NCB42	Health and Hygiene	2022	OUT018	Tier 3	Medium	Supermarket Type2	0.008
2	Regular	FDR28	Frozen Foods	2010	OUT046	Tier 1	Small	Supermarket Type1	0.025
3	Regular	FDL50	Canned	2000	OUT013	Tier 3	High	Supermarket Type1	0.042
4	Low Fat	DRI25	Soft Drinks	2015	OUT045	Tier 2	Small	Supermarket Type1	0.033
5	low fat	FDS52	Frozen Foods	2020	OUT017	Tier 2	Small	Supermarket Type1	0.005
6	Low Fat	NCU05	Health and Hygiene	2011	OUT010	Tier 3	Small	Grocery Store	0.098
7	Low Fat	NCD30	Household	2015	OUT045	Tier 2	Small	Supermarket Type1	0.026
8	Low Fat	FDW20	Fruits and Vegetables	2000	OUT013	Tier 3	High	Supermarket Type1	0.024
9	Low Fat	FDX25	Canned	1998	OUT027	Tier 3	Medium	Supermarket Type3	0.101

```
In [9]: print("Size of Data: ",df.shape)
```

```
Size of Data:  (8523, 12)
```

```
In [10]: df.columns
```

```
Out[10]: 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 [11]: df.dtypes
```

```
Out[11]: Item Fat Content              object
         Item Identifier               object
         Item Type                     object
         Outlet Establishment Year      int64
         Outlet Identifier             object
         Outlet Location Type          object
         Outlet Size                   object
         Outlet Type                   object
         Item Visibility              float64
         Item Weight                  float64
         Sales                        float64
         Rating                       float64
         dtype: object
```

Data Cleaning

```
In [14]: print(df['Item Fat Content'].unique())
```

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

```
In [15]: df['Item Fat Content'] = df['Item Fat Content'].replace({'LF':'Low Fat',
                                                                  'low fat':'Low Fat',
                                                                  'reg':'Regular'
                                                                 })
```

```
In [16]: df['Item Fat Content'].unique()
```

```
Out[16]: array(['Regular', 'Low Fat'], dtype=object)
```

Business Requirements

KPI Requirements

In [19]:

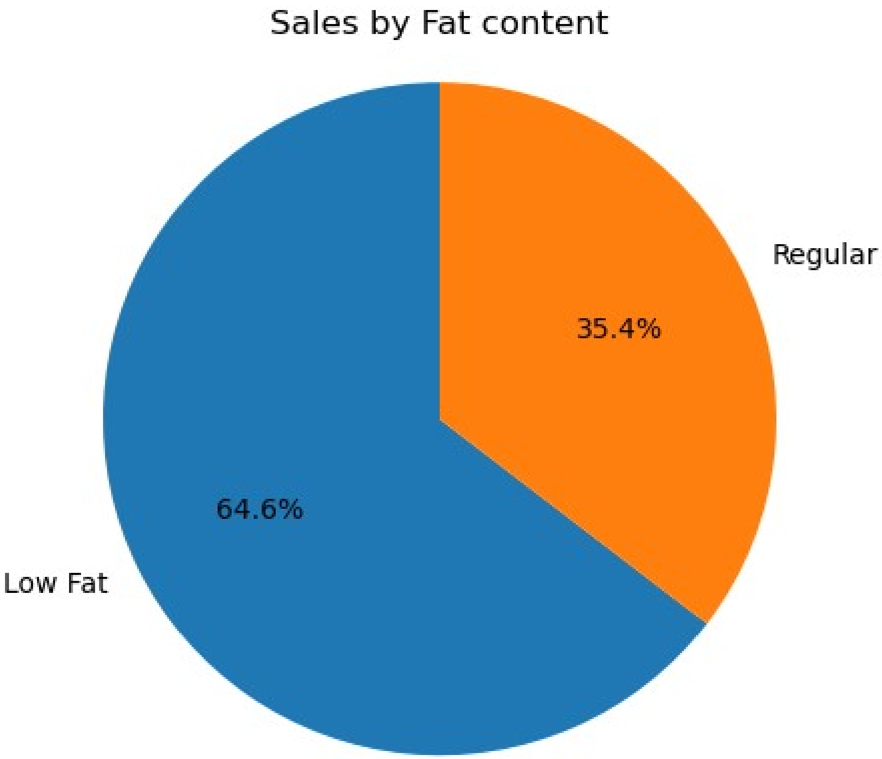
```
# Total Sales
total_sales = df['Sales'].sum()

#Average Sales
avg_sales = df['Sales'].mean()

#Number of items sold
no_of_items_sold = df['Sales'].count()

#Average Ratings
avg_ratings = df['Rating'].mean()

#Display
print(f"Total Sales: ${total_sales:,.1f}")
print(f"Average Sales: ${avg_sales:,.0f}")
print(f"Number of Items sold: {no_of_items_sold:,.0f}")
print(f"Average Ratings: {avg_ratings:,.1f}")
```

```
Total Sales: $1,201,681.5
Average Sales: $141
Number of Items sold: 8,523
Average Ratings: 4.0
```

Charts Requirements

Total Sales by Fat Content

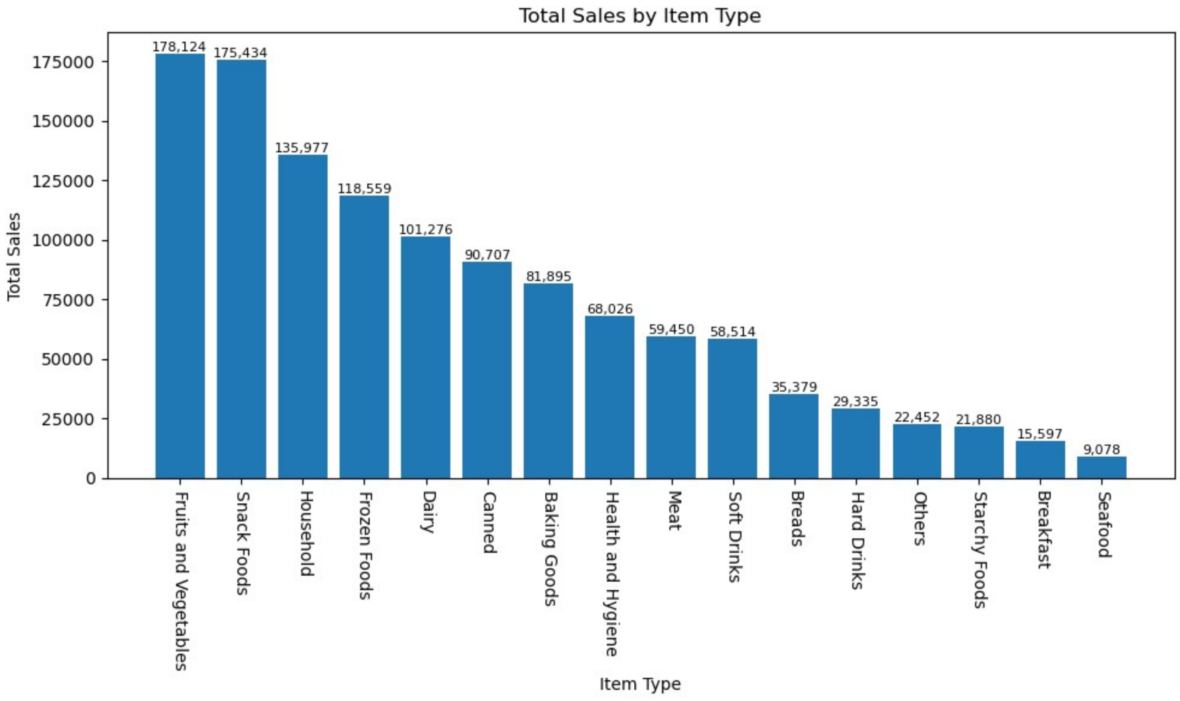
```
In [22]: sales_by_fat = df.groupby('Item Fat Content')['Sales'].sum()

         plt.pie(sales_by_fat, labels = sales_by_fat.index,
                                 autopct = '%.1f%%',
                                 startangle = 90)

         plt.title('Sales by Fat content')
         plt.axis('equal')
         plt.show()
```



Total Sales by Item Type

In [25]:

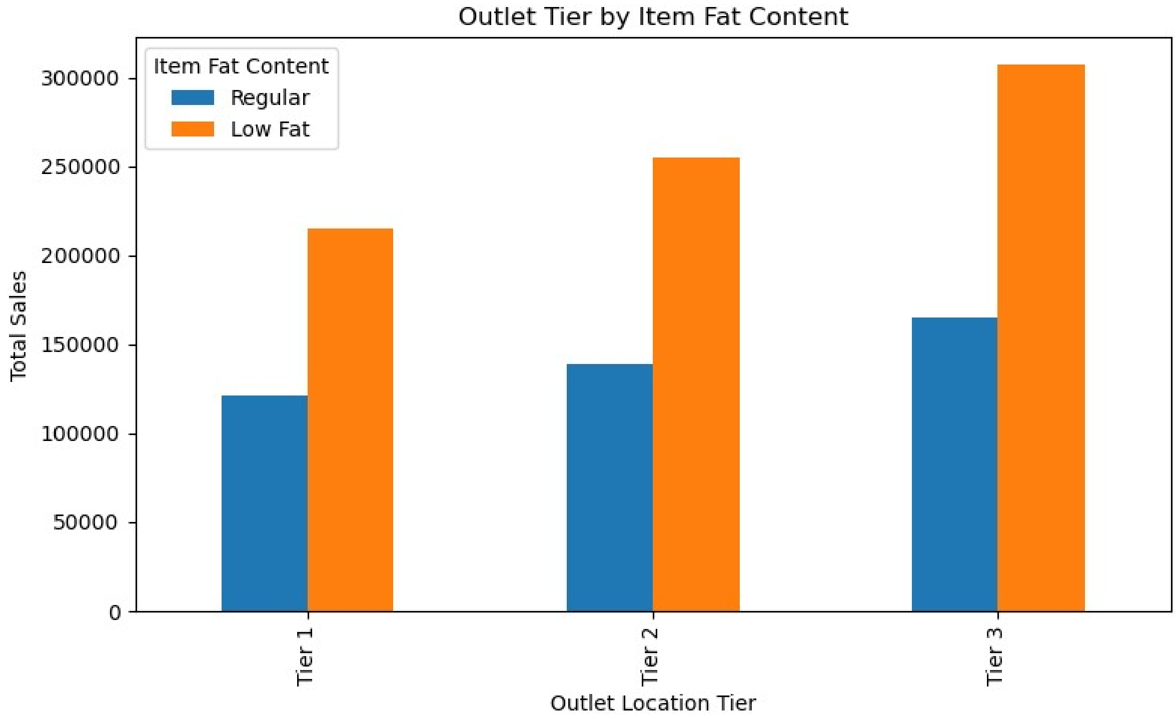
```
sales_by_type = df.groupby('Item Type')['Sales'].sum().sort_values(ascending=F

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('Total 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

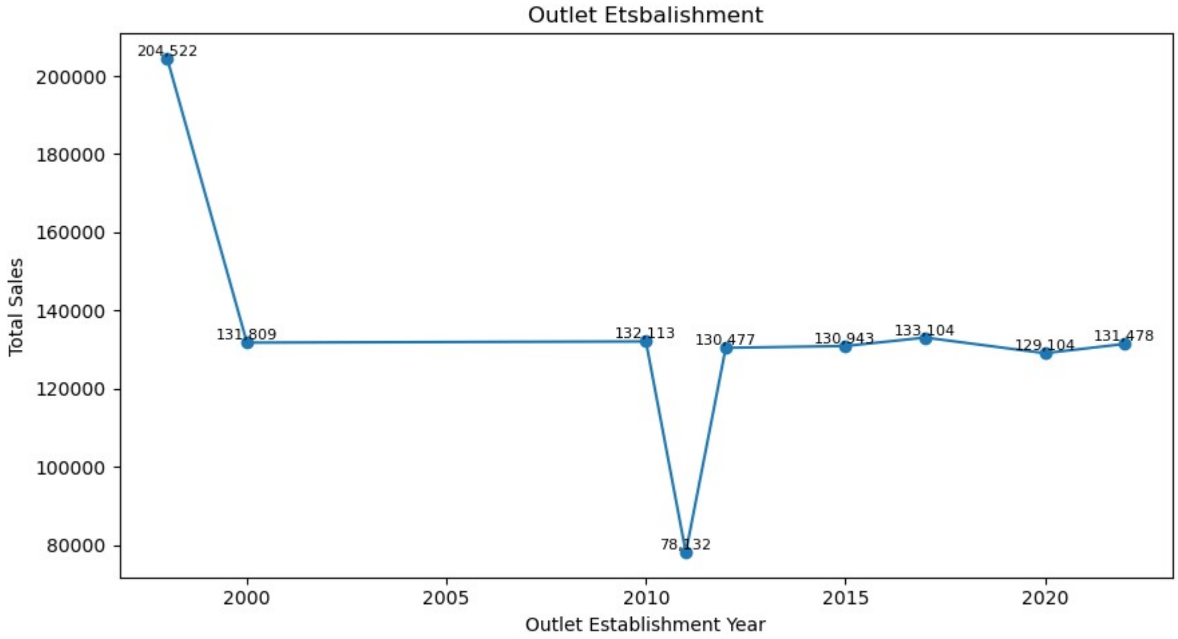
In [26]:

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

ax = grouped.plot(kind='bar',figsize=(8,5), title='Outlet Tier by Item Fat Con
plt.xlabel('Outlet Location Tier')
plt.ylabel('Total Sales')
plt.legend(title='Item Fat Content')
plt.tight_layout()
plt.show()
```



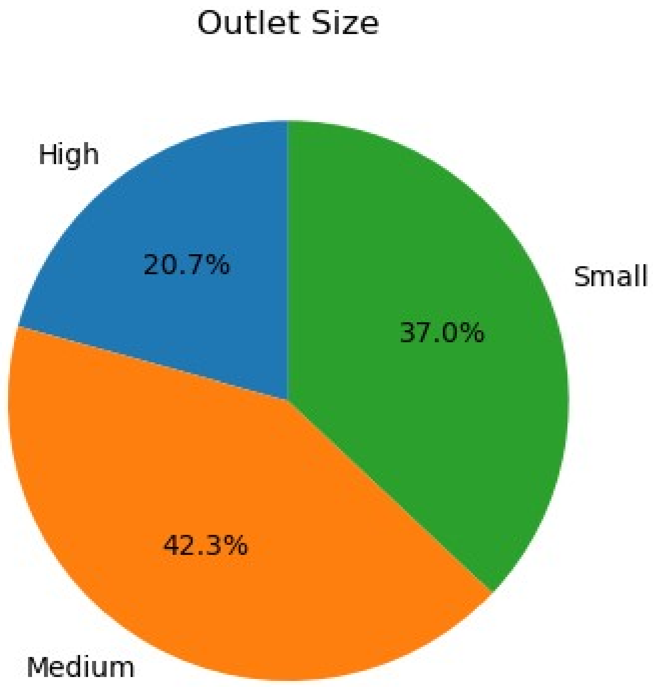
Total Sales by Outlet Establishment

```
In [30]: sales_by_year = df.groupby('Outlet Establishment Year')['Sales'].sum().sort_in

         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 Etsbalishment')

         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()
```



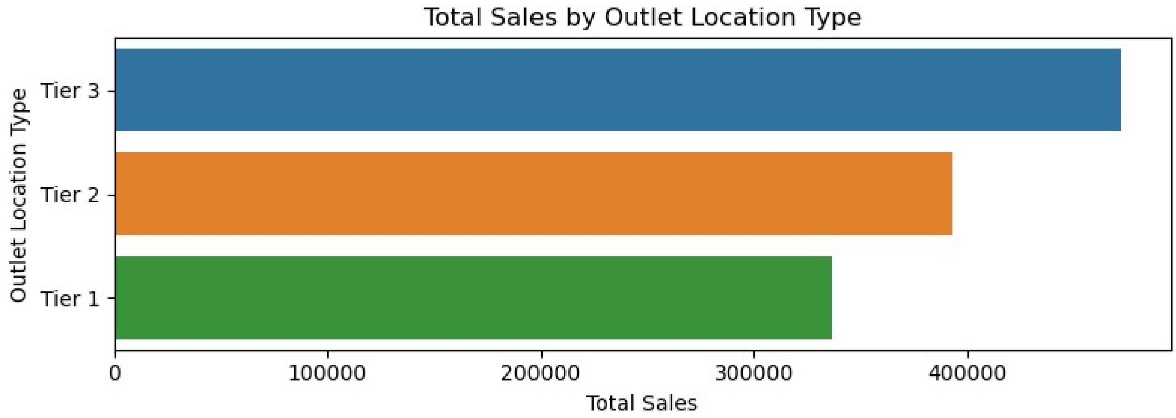
Sales by Outlet Size

```
In [32]: 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%%', startang
         plt.title('Outlet Size')
         plt.tight_layout()
         plt.show()
```



Sales by Outlet Location

```
In [35]: sales_by_location = df.groupby('Outlet Location Type')['Sales'].sum().reset_in
         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)

         plt.title('Total Sales by Outlet Location Type')
         plt.xlabel('Total Sales')
         plt.ylabel('Outlet Location Type')

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


Total Sales by Outlet Location Type
Outlet Location Type
Tier 3
Tier 2
Tier 1
Total Sales