blinkit-analysis-1

June 21, 2025

0.1 Data Analysis Pyhton Project - Blinkit Analysis

0.1.1 import library

[6]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

0.1.2 import row data

[8]:
```
df = pd.read_csv("BlinkIT Grocery Data.csv")
```

Sample Data

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

[10]:

	Item Fat Content	Item Identifier	Item Type	Outlet Establishment Year	Outlet Identifier	Outlet Location Type
0	Regular	FDX32	Fruits and Vegetables	2012	OUT049	Tier 1
1	Low Fat	NCB42	Health and Hygiene	2022	OUT018	Tier 3
2	Regular	FDR28	Frozen Foods	2016	OUT046	Tier 1
3	Regular	FDL50	Canned	2014	OUT013	Tier 3
4	Low Fat	DRI25	Soft Drinks	2015	OUT045	Tier 2
5	low fat	FDS52	Frozen Foods	2020	OUT017	Tier 2
6	Low Fat	NCU05	Health and Hygiene	2011	OUT010	Tier 3
7	Low Fat	NCD30	Household	2015	OUT045	Tier 2
8	Low Fat	FDW20	Fruits and Vegetables			
9	Low Fat	FDX25	Canned			

```
8                    2014            OUT013               Tier 3
9                    2018            OUT027               Tier 3

  Outlet Size        Outlet Type  Item Visibility  Item Weight     Sales  \
0      Medium  Supermarket Type1         0.100014        15.10  145.4786
1      Medium  Supermarket Type2         0.008596        11.80  115.3492
2       Small  Supermarket Type1         0.025896        13.85  165.0210
3        High  Supermarket Type1         0.042278        12.15  126.5046
4       Small  Supermarket Type1         0.033970        19.60   55.1614
5       Small  Supermarket Type1         0.005505         8.89  102.4016
6       Small      Grocery Store         0.098312        11.80   81.4618
7       Small  Supermarket Type1         0.026904        19.70   96.0726
8        High  Supermarket Type1         0.024129        20.75  124.1730
9      Medium  Supermarket Type3         0.101562          NaN  181.9292

   Rating
0     5.0
1     5.0
2     5.0
3     5.0
4     5.0
5     5.0
6     5.0
7     5.0
8     5.0
9     5.0
```

0.2 Size of Data

[12]:
```
print('Size of Data : ',df.shape)
```

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

0.2.1 Field Info

[14]:
```
df.columns
```

[14]:
```
Index(['Item Fat Content', 'Item Identifier', 'Item Type',
       'Outlet Establishment Year', 'Outlet Identifier',
       'Outlet Location Type', 'Outlet Size', 'Outlet Type', 'Item Visibility',
       'Item Weight', 'Sales', 'Rating'],
      dtype='object')
```

0.2.2 Data Types

[21]:
```
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
```

[23]:
```
df.dtypes
```

[23]:
```
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
```

[25]:
```
df.describe()
```

[25]:

	Outlet Establishment Year	Item Visibility	Item Weight	Sales	\
count	8523.000000	8523.000000	7060.000000	8523.000000	
mean	2016.450546	0.066132	12.857645	140.992783	
std	3.189396	0.051598	4.643456	62.275067	
min	2011.000000	0.000000	4.555000	31.290000	
25%	2014.000000	0.026989	8.773750	93.826500	

```
50%                  2016.000000          0.053931    12.600000    143.012800
75%                  2018.000000          0.094585    16.850000    185.643700
max                  2022.000000          0.328391    21.350000    266.888400
```

```
            Rating
count  8523.000000
mean      3.965857
std       0.605651
min       1.000000
25%       4.000000
50%       4.000000
75%       4.200000
max       5.000000
```

0.2.3 Data Cleaning - 'LF' and 'reg'in 'item Fat Content' values

[28]:
```
print(df['Item Fat Content'].unique())
```

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

[30]:
```
df['Item Fat Content'] = df['Item Fat Content'].replace({
    'LF' : 'Low Fat',
    'low Fat' : 'Low Fat',
    'reg' : 'Regular'
})
```

[32]:
```
print(df['Item Fat Content'].unique())
```

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

0.3 Business Requirements

0.3.1 KPI's Requirements

[36]:
```
# Total Sales
total_sales = df['Sales'].sum()
# calculate Average Sales
avg_sales = df['Sales'].mean()
# calculate Number of Item sold
num_items_sold = df['Sales'].count()
# calculate avarage rating
avg_rating = df['Rating'].mean()


# Display KPIs

print(f"Total Sales: ${total_sales:,.1f}")
```

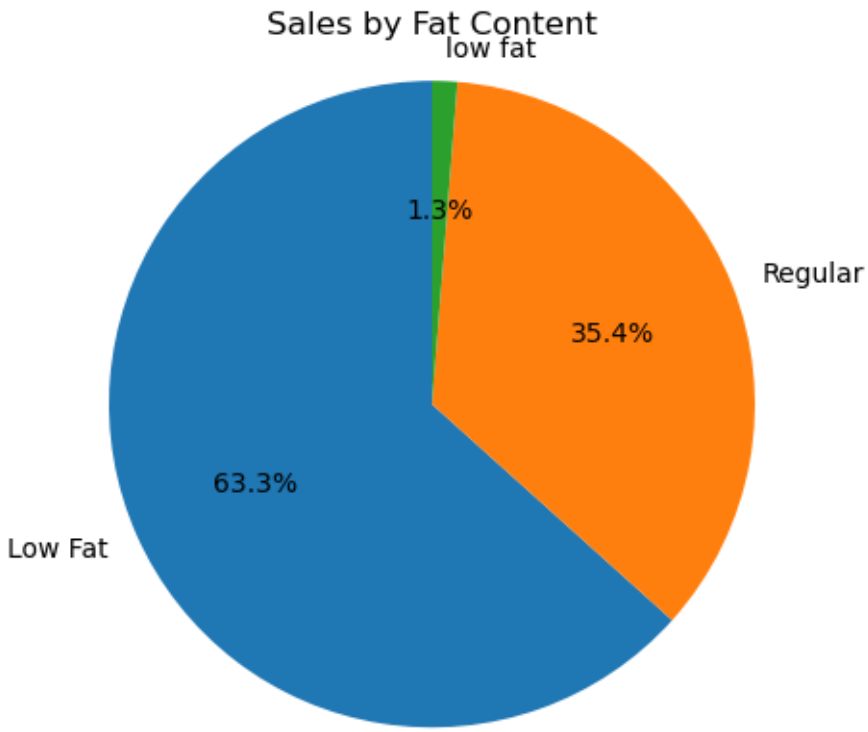
```
print(f"Average Sales per Item: ${avg_sales:.0f}")
print(f"Number of Item Sold : ${num_items_sold:,.0f}")
print(f"Average Rating : ${avg_rating:.1f}")
```

```
Total Sales: $1,201,681.5
Average Sales per Item: $141
Number of Item Sold : $8,523
Average Rating : $4.0
```

0.4 Charts Requirements

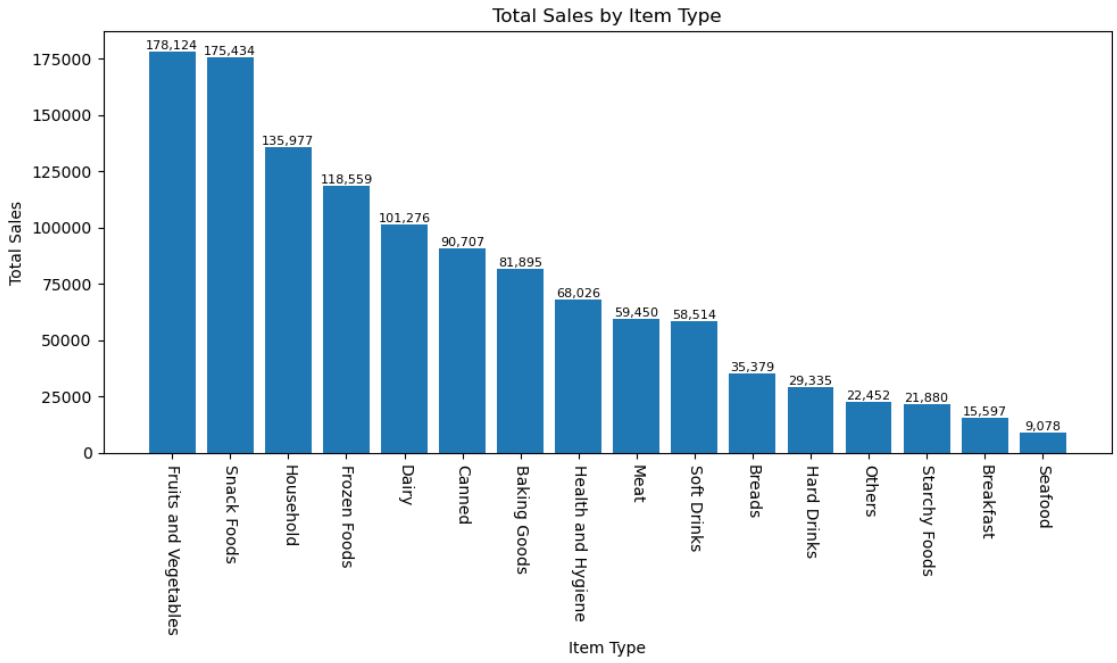
0.4.1 Total Sales by Fat Content

[40]:
```
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()
```



0.4.2 total sales by item type

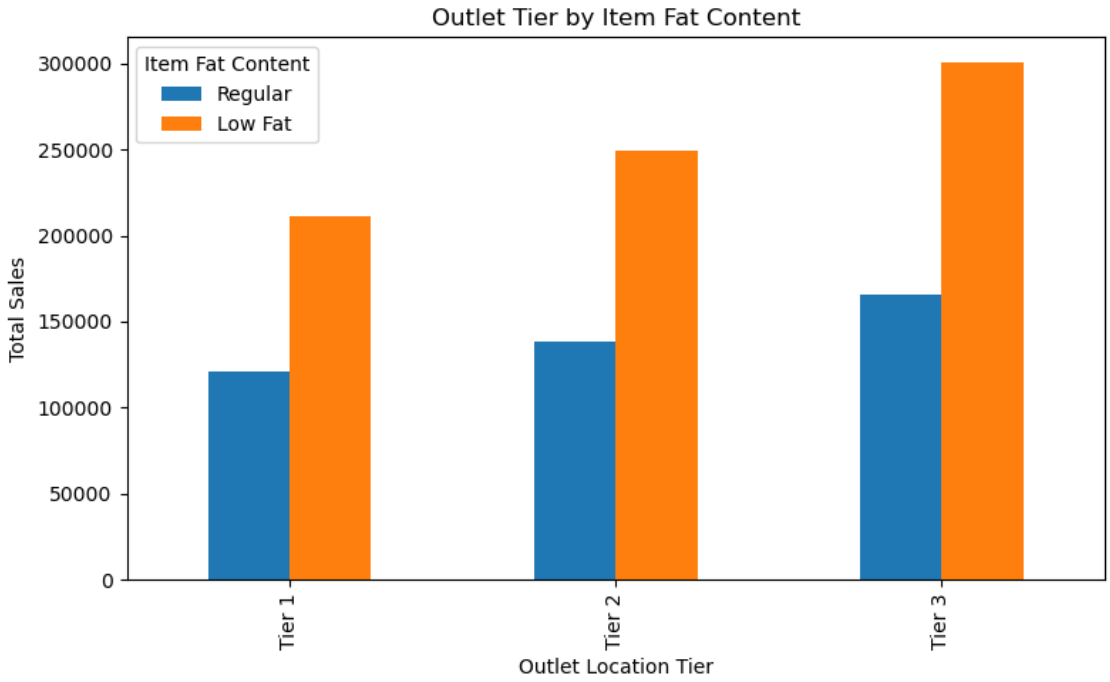
[43]:
```
sales_by_type = df.groupby('Item Type')['Sales'].sum().
 ↪sort_values(ascending=False)

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

[46]:
```
grouped = df.groupby(['Outlet Location Type', 'Item Fat Content'])['Sales'].
 ↪sum().unstack()
grouped = grouped[['Regular','Low Fat']]
```

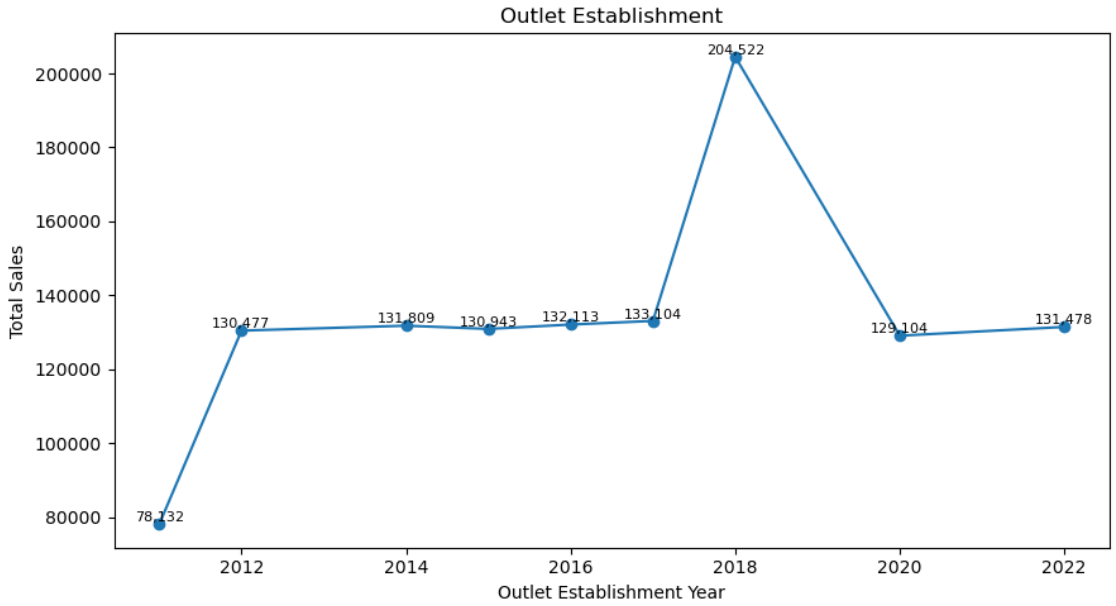
```
ax = grouped.plot(kind= 'bar', figsize=(8,5),title='Outlet Tier by Item Fat Content')
plt.xlabel('Outlet Location Tier')
plt.ylabel('Total Sales')
plt.legend(title='Item Fat Content')
plt.tight_layout()
plt.show()
```



0.5 Total Sales by outlet Establishment

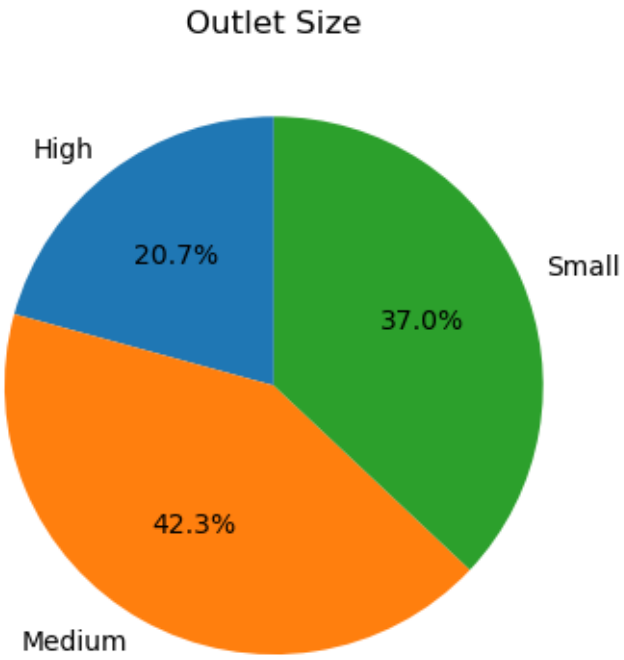
[56]:
```
sales_by_year = df.groupby('Outlet Establishment Year')['Sales'].sum().sort_index()

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')

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()
```



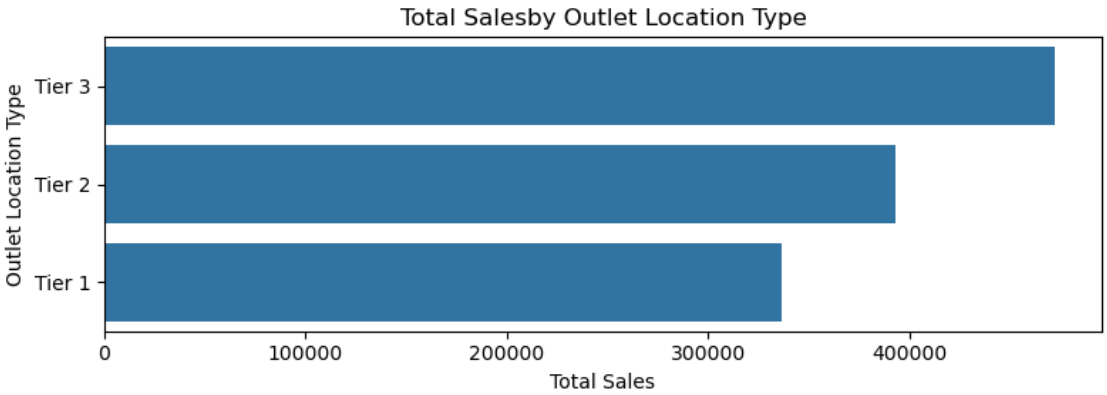
0.5.1 Sales by Outlet Size

[59]:
```
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='%.1f%%', startangle=90)
plt.title('Outlet Size')
plt.tight_layout()
plt.show()
```



0.5.2 Sales by Outlet Location

[64]:
```
sales_by_location = df.groupby('Outlet Location Type')['Sales'].sum().
  ↪reset_index()
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.xlabel('Total Sales')
plt.ylabel('Outlet Location Type')
plt.title('Total Salesby Outlet Location Type')

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


Total Salesby Outlet Location Type
Outlet Location Type
Tier 3
Tier 2
Tier 1
0
100000
200000
300000
400000
Total Sales

[ ]: