ADV Experiment 1

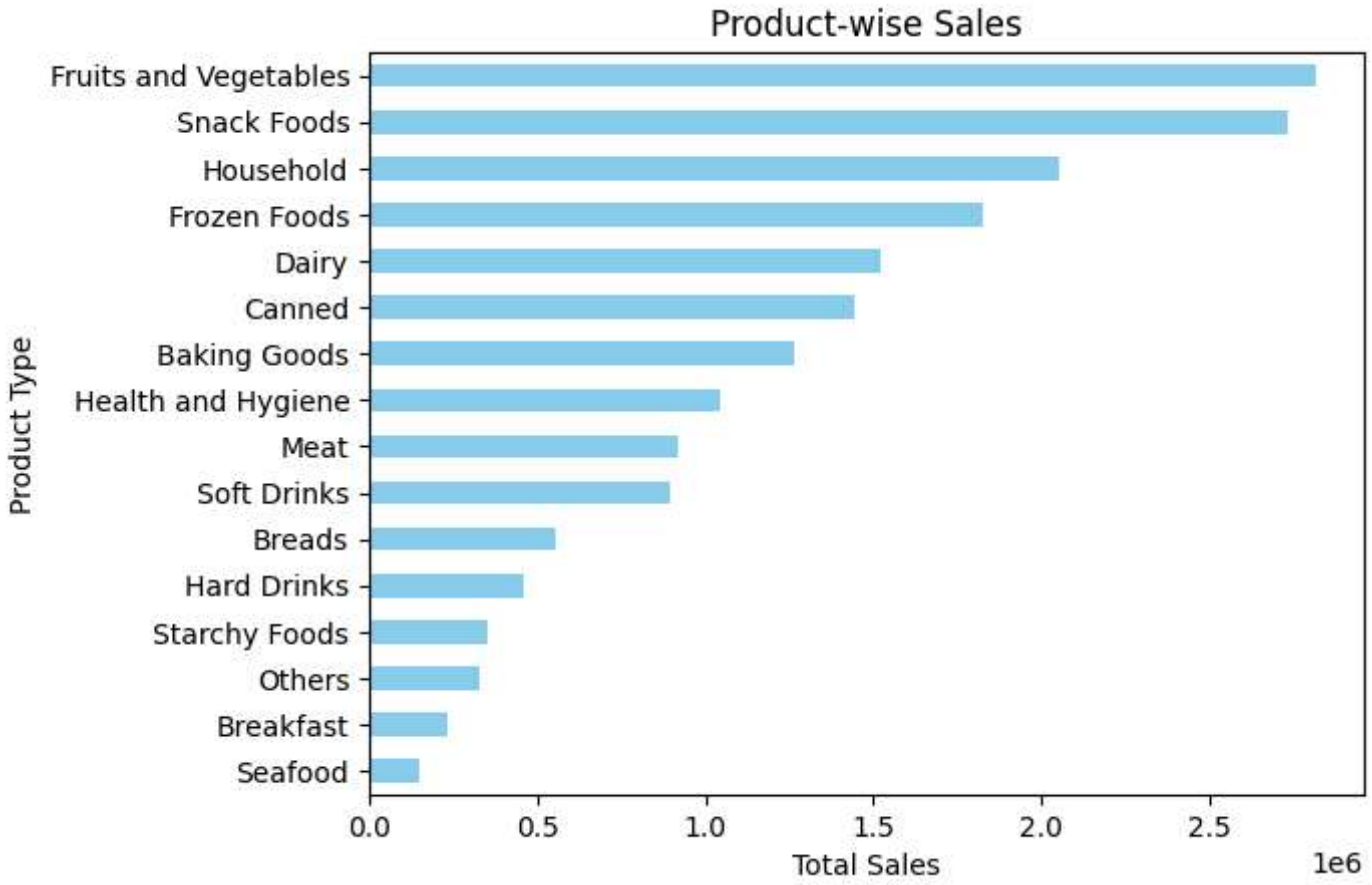
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('/content/Train.csv')
df.head()
```

	Item_Identifier	Item_Weight	Item_Fat_Content	Item_Visibility	Item_Type	Item_MRP	Outlet_Identifier	Outlet_Establishment
0	FDA15	9.30	Low Fat	0.016047	Dairy	249.8092	OUT049	
1	DRC01	5.92	Regular	0.019278	Soft Drinks	48.2692	OUT018	
2	FDN15	17.50	Low Fat	0.016760	Meat	141.6180	OUT049	
3	FDX07	19.20	Regular	0.000000	Fruits and Vegetables	182.0950	OUT010	
4	NCD19	8.93	Low Fat	0.000000	Household	53.8614	OUT013	

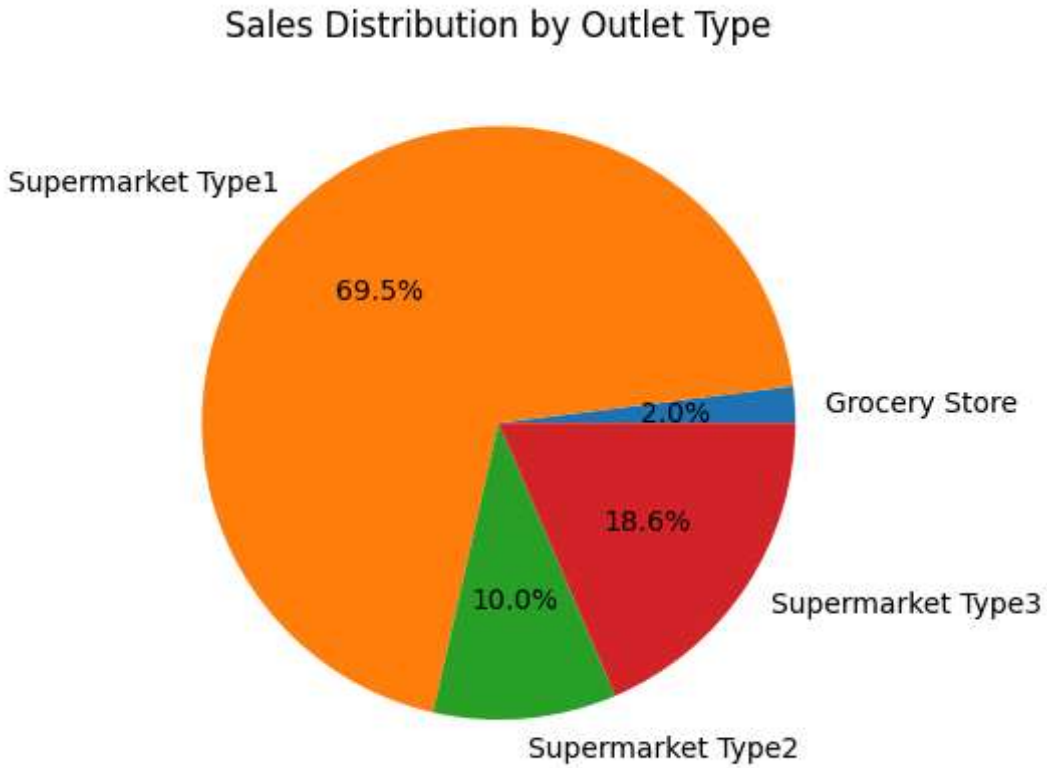
Next steps: Generate code with df | View recommended plots | New interactive sheet

```
product_sales = df.groupby('Item_Type')['Item_Outlet_Sales'].sum().sort_values()

product_sales.plot(kind='barh', title='Product-wise Sales', color='skyblue')
plt.xlabel('Total Sales')
plt.ylabel('Product Type')
```

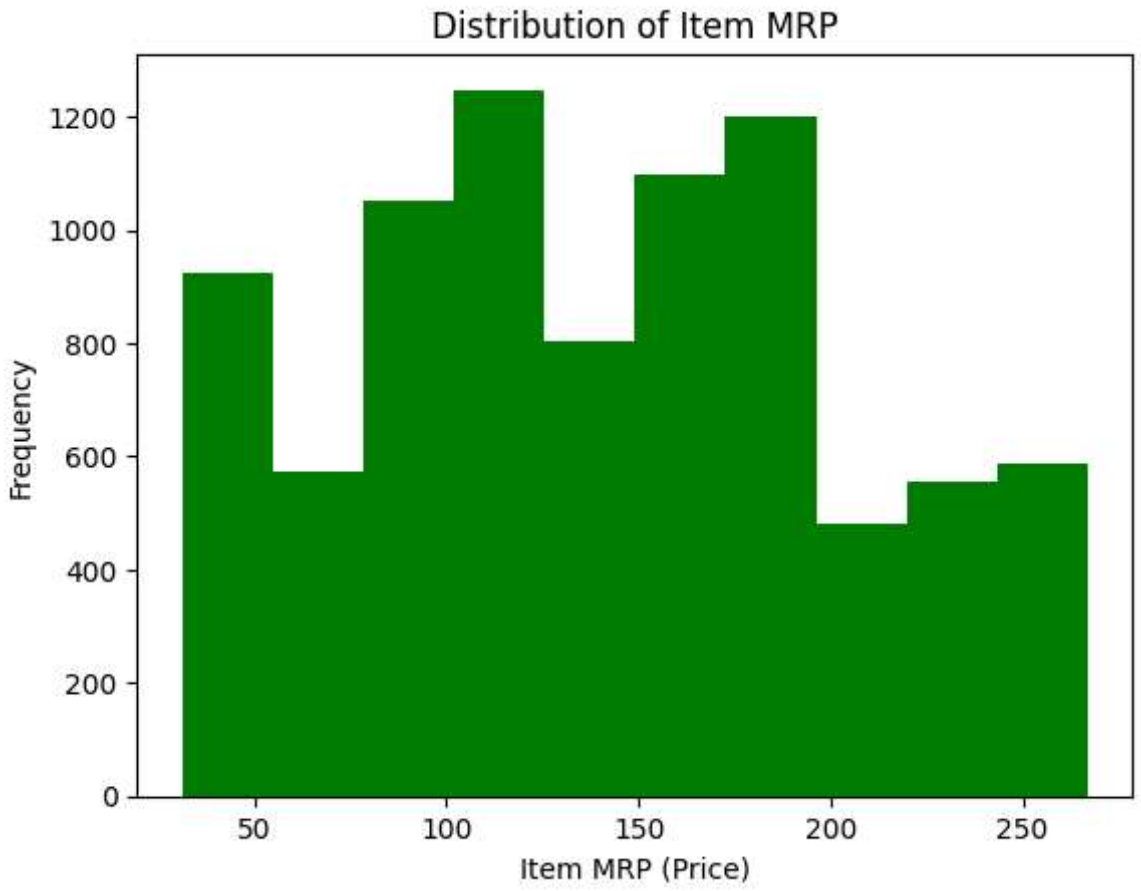
```
plt.show()
```



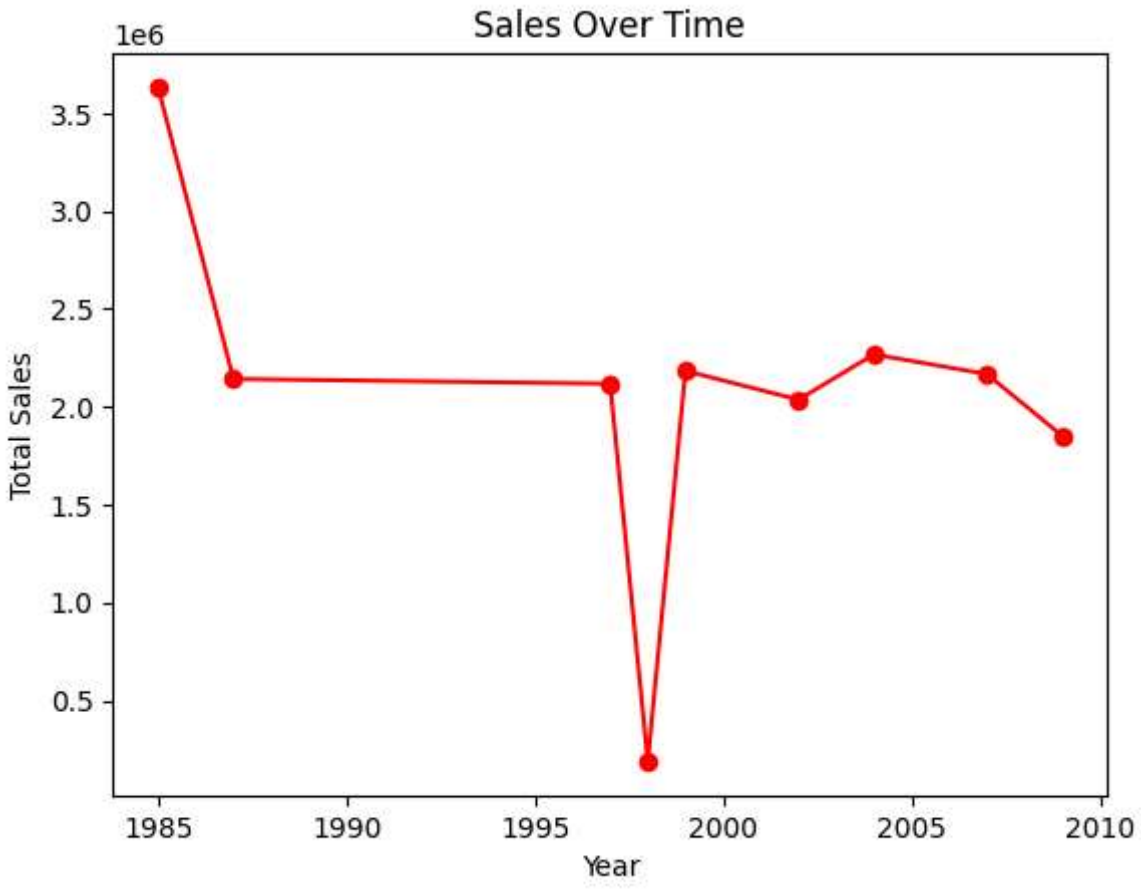

```
outlet_sales = df.groupby('Outlet_Type')['Item_Outlet_Sales'].sum()

outlet_sales.plot(kind='pie', autopct='%1.1f%%', title='Sales Distribution by Outlet Type', ylabel='')
plt.show()
```



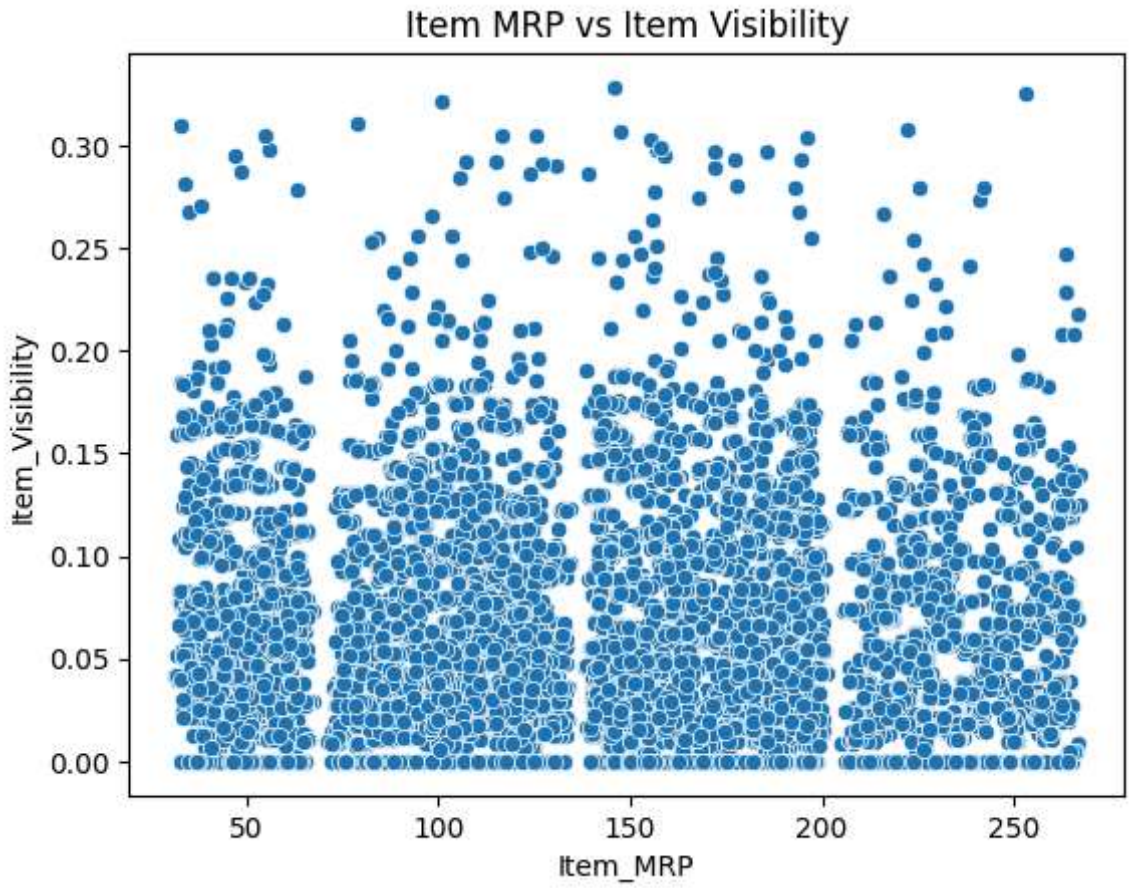

```
plt.hist(df['Item_MRP'], bins=10, color='green')
plt.title('Distribution of Item MRP')
plt.xlabel('Item MRP (Price)')
plt.ylabel('Frequency')
plt.show()
```



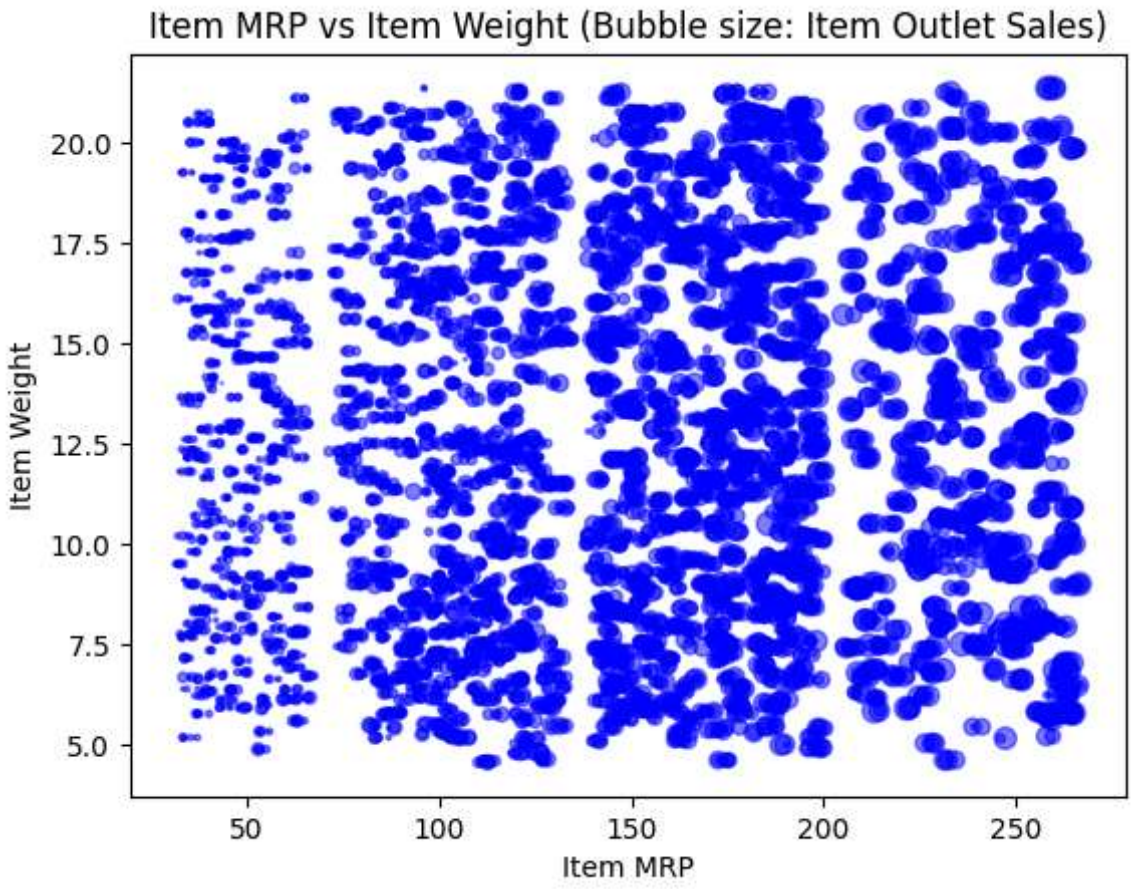

```
df['Outlet_Establishment_Year'] = pd.to_datetime(df['Outlet_Establishment_Year'], format='%Y')

sales_over_time = df.groupby(df['Outlet_Establishment_Year'].dt.year)['Item_Outlet_Sales'].sum()
sales_over_time.plot(marker='o', title='Sales Over Time', color='red')
plt.xlabel('Year')
plt.ylabel('Total Sales')
plt.show()
```




```
sns.scatterplot(x='Item_MRP', y='Item_Visibility', data=df)
plt.title('Item MRP vs Item Visibility')
plt.show()
```




```
plt.scatter(df['Item_MRP'], df['Item_Weight'], s=df['Item_Outlet_Sales']*0.01, alpha=0.5, color='blue')
plt.title('Item MRP vs Item Weight (Bubble size: Item Outlet Sales)')
plt.xlabel('Item MRP')
plt.ylabel('Item Weight')
plt.show()
```




```
print("Product-wise Sales:")
print(product_sales)
```

```
Product-wise Sales:
Item_Type
Seafood                1.488682e+05
Breakfast              2.322990e+05
Others                 3.255176e+05
Starchy Foods          3.514013e+05
Hard Drinks            4.577934e+05
Breads                 5.532372e+05
```

```
Soft Drinks              8.928977e+05
Meat                     9.175656e+05
Health and Hygiene       1.045200e+06
Baking Goods             1.265525e+06
Canned                   1.444151e+06
Dairy                    1.522594e+06
Frozen Foods             1.825735e+06
Household                2.055494e+06
Snack Foods              2.732786e+06
Fruits and Vegetables    2.820060e+06
Name: Item_Outlet_Sales, dtype: float64
```

```
region_sales = df.groupby('Outlet_Location_Type')['Item_Outlet_Sales'].sum().sort_values()

print("Region-wise Sales:")
print(region_sales)
```

```
Region-wise Sales:
Outlet_Location_Type
Tier 1    4.482059e+06
Tier 2    6.472314e+06
```