#Problem 1

import pandas as pd

import matplotlib.pyplot as plt

file\_path = '/content/drive/MyDrive/top\_50\_fast\_food\_US.csv'

fast\_food\_data = pd.read\_csv(file\_path)

category\_sales = fast\_food\_data.groupby('category')['sales\_in\_millions\_2019'].sum()

plt.figure(figsize=(10, 7))

category\_sales.plot(kind='pie', autopct='%1.1f%%', startangle=140, colors=plt.cm.Paired.colors)

plt.title('Market Share by Category')

plt.ylabel('')

plt.show()

#Problem 2

units\_data = fast\_food\_data[['company', 'franchised\_units\_2019', 'company\_owned\_units\_2019']]

units\_data.set\_index('company', inplace=True)

units\_data.plot(kind='bar', stacked=True, figsize=(14, 8))

plt.title('Franchised vs. Company-Owned Units for Each Company')

plt.xlabel('Company')

plt.ylabel('Number of Units')

plt.legend(title='Unit Type')

plt.show()

#Problem 3

top\_growth\_companies = fast\_food\_data.sort\_values(by='unit\_change\_from\_2018', ascending=False).head(10)

growth\_data = top\_growth\_companies[['company', 'unit\_change\_from\_2018', 'total\_units\_2019']]

plt.figure(figsize=(14, 8))

for index, row in growth\_data.iterrows():

    plt.plot([2018, 2019], [row['total\_units\_2019'] - row['unit\_change\_from\_2018'], row['total\_units\_2019']], marker='o', label=row['company'])

plt.title('Unit Growth from 2018 to 2019 for Top Companies')

plt.xlabel('Year')

plt.ylabel('Total Units')

plt.legend(title='Company')

plt.show()

Problem #4

import seaborn as sns

correlation\_data = fast\_food\_data[['sales\_per\_unit\_thousands\_2019', 'total\_units\_2019', 'unit\_change\_from\_2018', 'category']]

correlation\_data = pd.get\_dummies(correlation\_data, columns=['category'], drop\_first=True)

corr\_matrix = correlation\_data.corr()

plt.figure(figsize=(12, 8))

sns.heatmap(corr\_matrix, annot=True, cmap='coolwarm', linewidths=.5)

plt.title('Correlation Heatmap: Sales Per Unit and Other Variables')

plt.show()