Lab2

July 31, 2024

1 Lab2

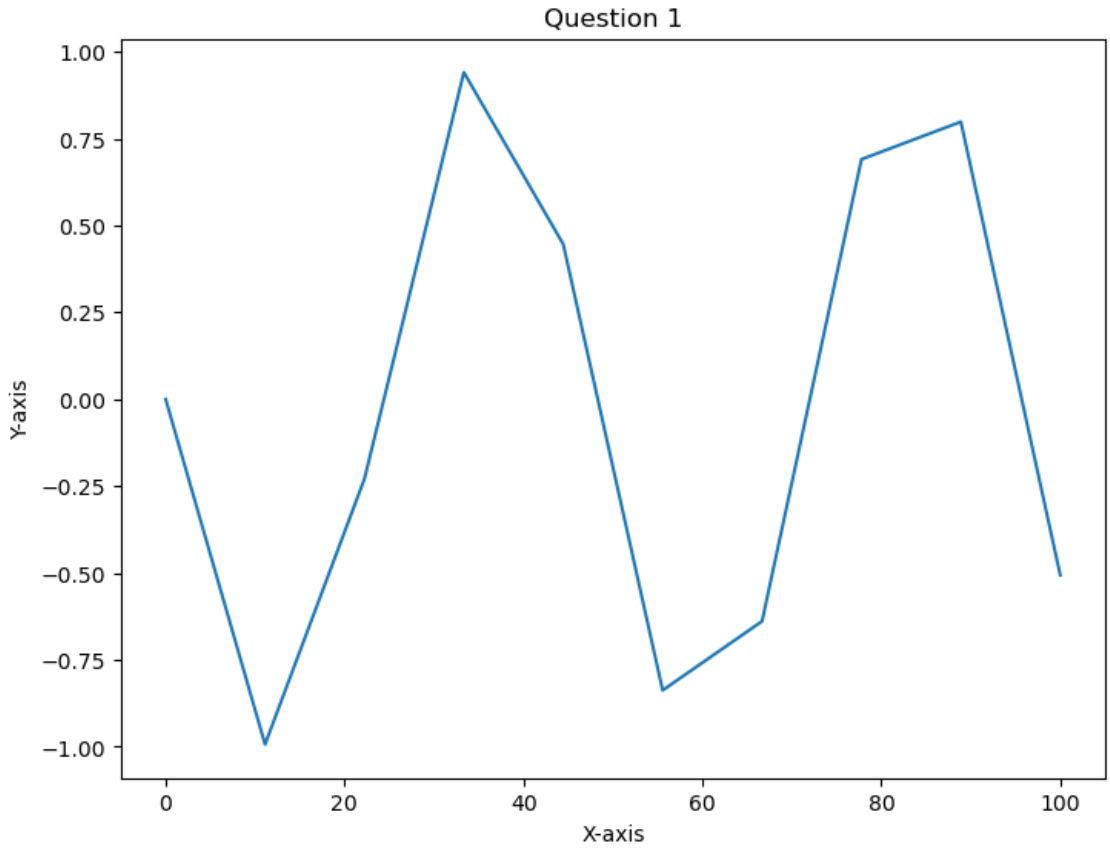
[6]:
```
from matplotlib import pyplot as plt
import pandas as pd
import numpy as np
df = pd.read_csv('company_sales_data.csv')
```

1.1 Question 1

[8]:
```
x = np.linspace(0,100, 10)
y = np.sin(x)

fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,y)
ax.set_xlabel('X-axis')
ax.set_ylabel('Y-axis')
ax.set_title("Question 1")
```

[8]:
```
Text(0.5, 1.0, 'Question 1')
```

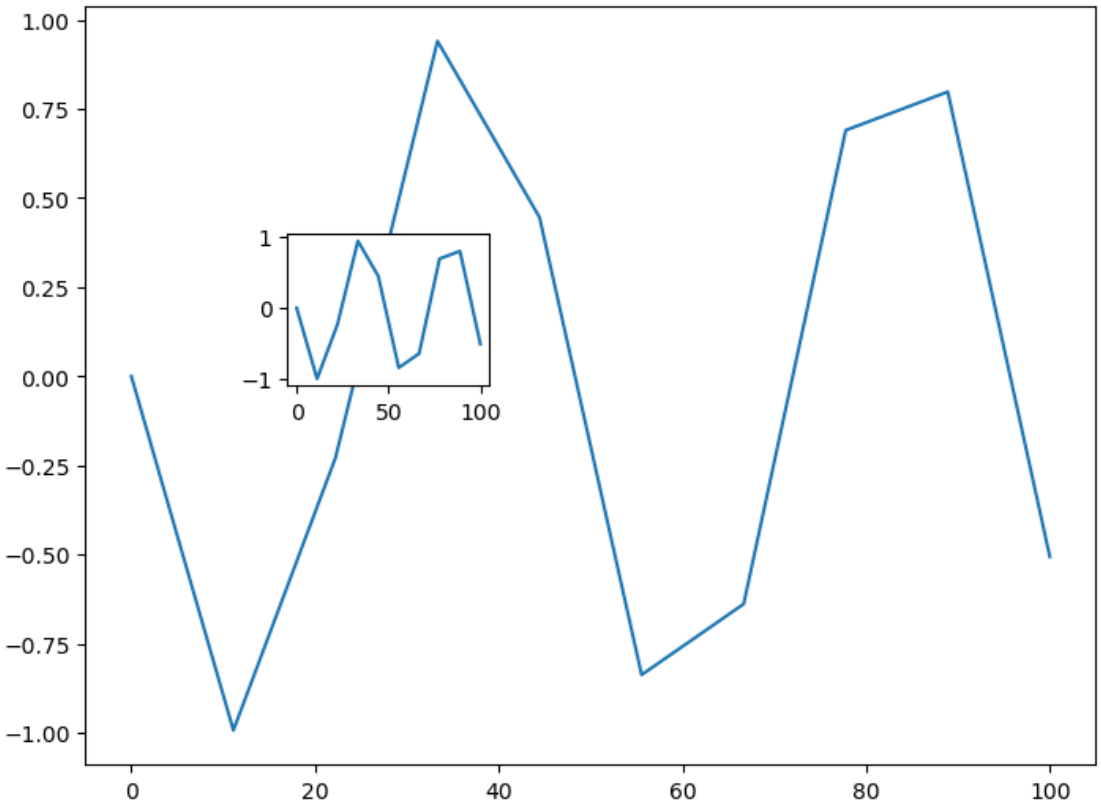


1.2 Question 2

[9]:
```
x = np.linspace(0,100,10)
y = np.sin(x)

fig = plt.figure()
ax1 = fig.add_axes([0,0,1,1])
ax2 = fig.add_axes([0.2, 0.5, 0.2, 0.2])

ax1.plot(x,y)
ax2.plot(x,y)
plt.show()
```



1.3 Question 3

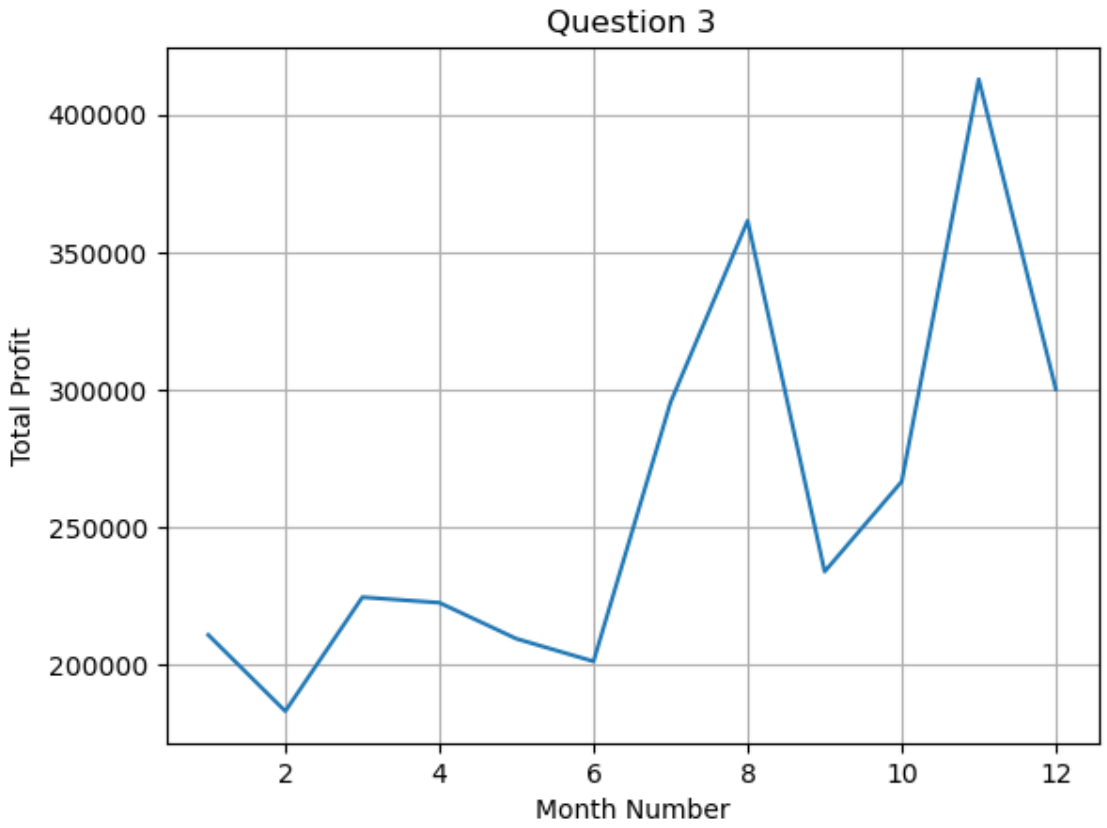
[14]:
```
df = pd.read_csv('company_sales_data.csv')
df.head()
```

[14]:

	month_number	facecream	facewash	toothpaste	bathingsoap	shampoo	moisturizer	total_units	total_profit
0	1	2500	1500	5200	9200	1200	1500	21100	211000
1	2	2630	1200	5100	6100	2100	1200	18330	183300
2	3	2140	1340	4550	9550	3550	1340	22470	224700
3	4	3400	1130	5870	8870	1870	1130	22270	222700
4	5	3600	1740	4560	7760	1560	1740	20960	209600

[17]:
```
x = df['month_number']
y = df['total_profit']
```

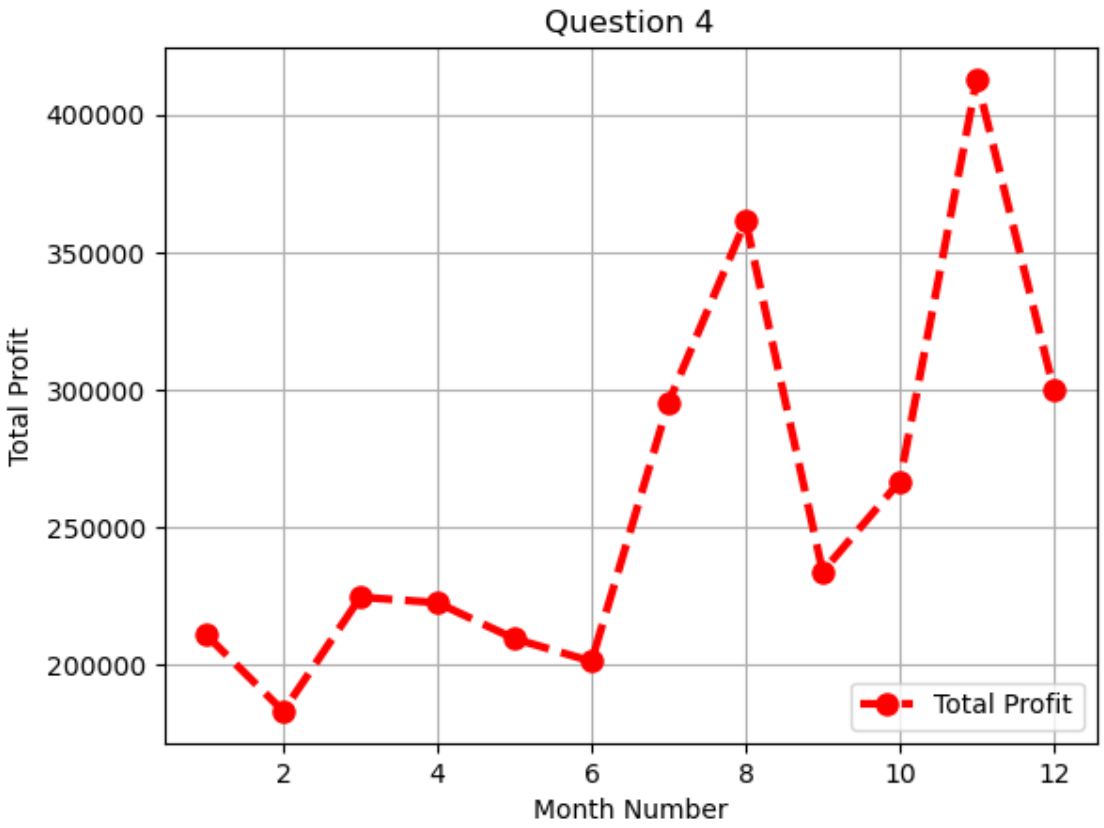
```
plt.plot(x, y)
plt.xlabel('Month Number')
plt.ylabel('Total Profit')
plt.title('Question 3')
plt.grid(True)
plt.show()
```



1.4 Question 4

[24]:
```
plt.plot(x,y,
            linestyle='--',
             color='red',
             linewidth=3,
             marker='o',
             markersize=8,
             markerfacecolor='red',
             label='Total Profit')
plt.xlabel('Month Number')
plt.ylabel('Total Profit')
```

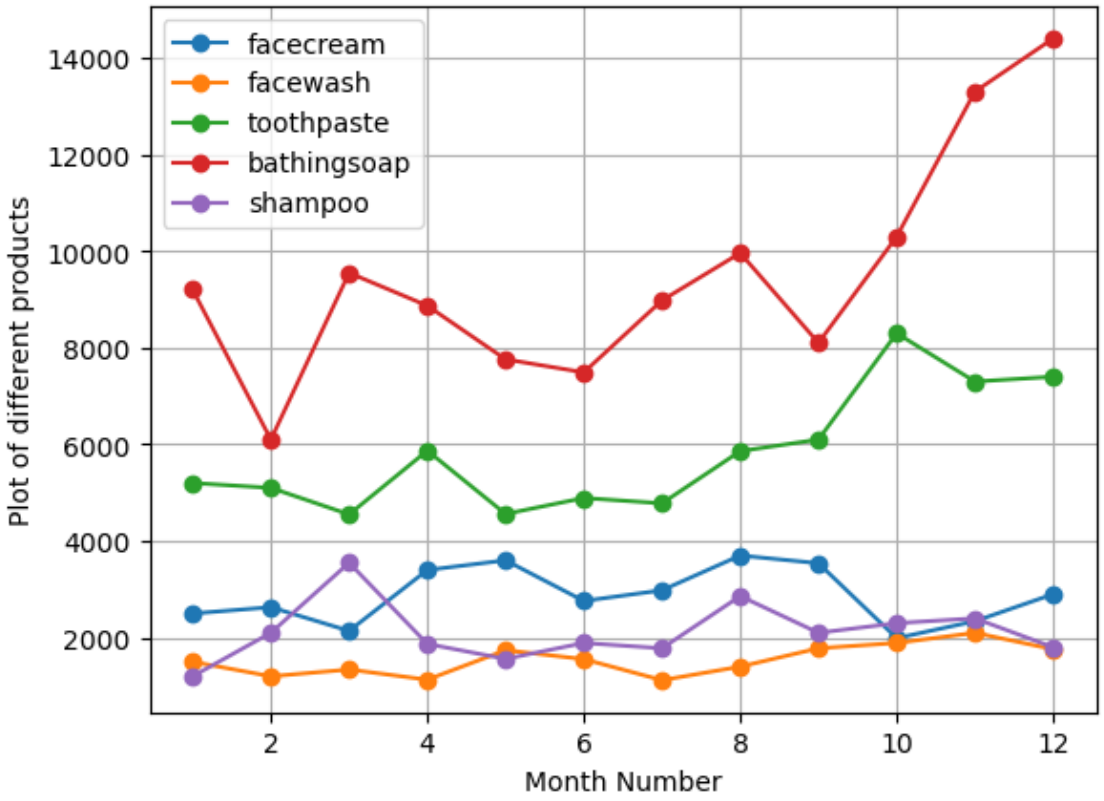
```
plt.title('Question 4')
plt.legend(['Total Profit'], loc='lower right')
plt.grid(True)
plt.show()
```



1.5 Additional 1

[39]:
```
x = df['month_number']
columns = df.columns
print(columns)
for column in columns[1:6]:
    plt.plot(x, df[column], marker='o', label=column)
plt.grid(True)
plt.xlabel('Month Number')
plt.ylabel('Plot of different products')
plt.legend()
plt.show()
```

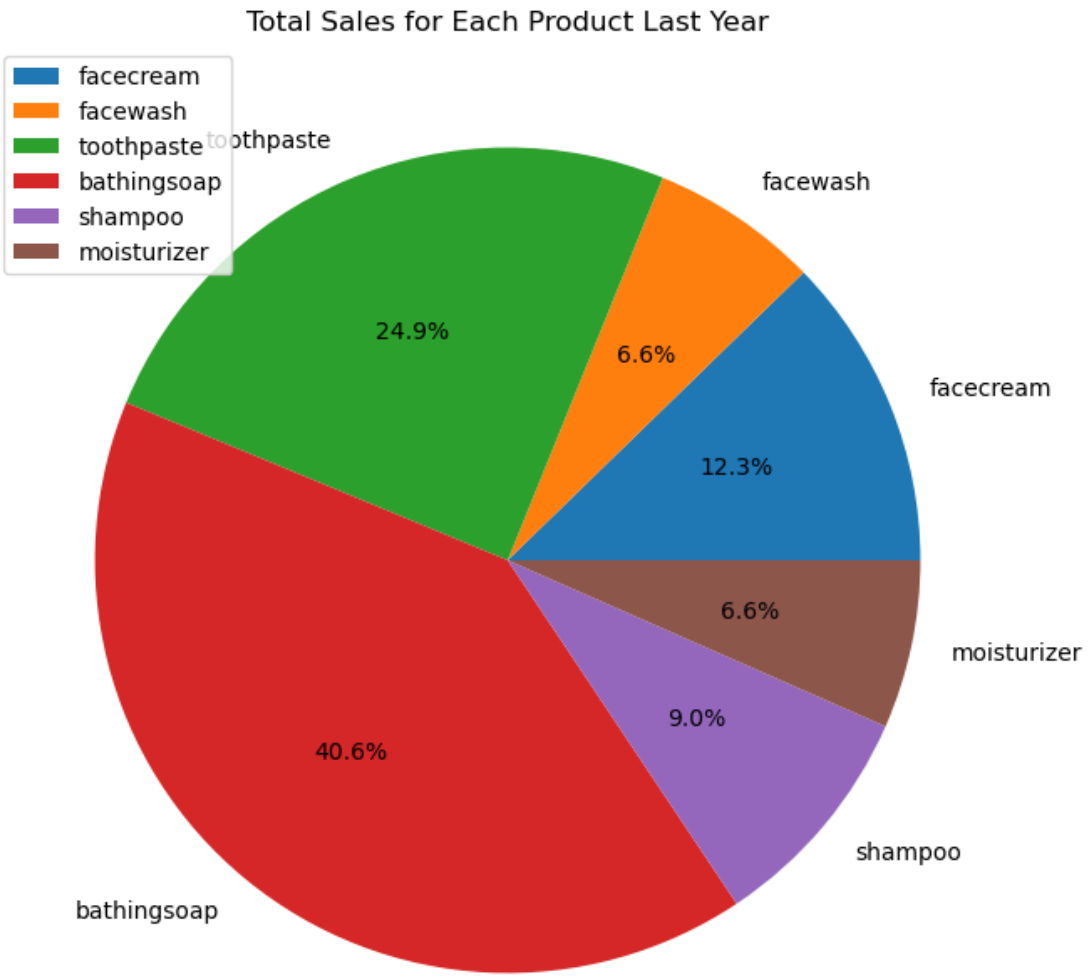
```
Index(['month_number', 'facecream', 'facewash', 'toothpaste', 'bathingsoap',
       'shampoo', 'moisturizer', 'total_units', 'total_profit'],
      dtype='object')
```



1.6 Additional 2

[42]:
```
total_sales = df[['facecream', 'facewash', 'toothpaste', 'bathingsoap',␣
 ↪'shampoo', 'moisturizer']].sum()

plt.figure(figsize=(10,8))
plt.pie(total_sales, labels = total_sales.index, autopct='%1.1f%%')
plt.title('Total Sales for Each Product Last Year')
plt.legend()
plt.show()
```


Total Sales for Each Product Last Year
facecream
facewash
toothpaste
bathingsoap
shampoo
moisturizer
toothpaste
facewash
facecream
moisturizer
shampoo
bathingsoap
24.9%
6.6%
12.3%
6.6%
9.0%
40.6%

[ ]: