Matplotlib Assignment

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

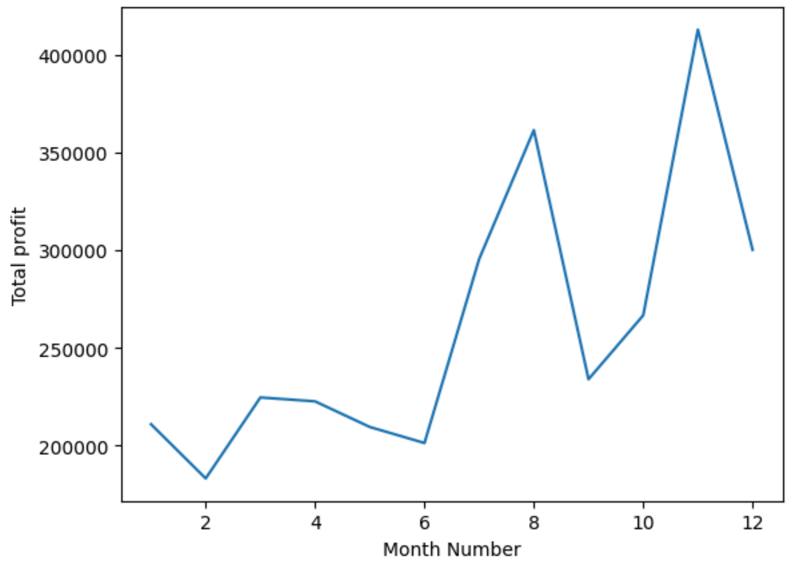
```
df = pd.read_csv('company_sales_data.csv')
```

```
Start coding or generate with AI.
```

	month_number	facecream	facewash	toothpaste	bathingsoap	shampoo	moisturizer
0	1	2500	1500	5200	9200	1200	1500
1	2	2630	1200	5100	6100	2100	1200
2	3	2140	1340	4550	9550	3550	1340
3	4	3400	1130	5870	8870	1870	1130
4	5	3600	1740	4560	7760	1560	1740
5	6	2760	1555	4890	7490	1890	1555
6	7	2980	1120	4780	8980	1780	1120
7	8	3700	1400	5860	9960	2860	1400
8	9	3540	1780	6100	8100	2100	1780
9	10	1990	1890	8300	10300	2300	1890
10	11	2340	2100	7300	13300	2400	2100
11	12	2900	1760	7400	14400	1800	1760

Q.1 Read Total profit of all months and show it using a line plot. Total profit data provided for each month. Generated line plot must include the following properties: X label name = Month Number Y label name = Total profit

```
x = df['month_number']
y = df['total_profit']
plt.plot(x,y)
plt.xlabel('Month Number')
plt.ylabel('Total profit')
plt.show()
```



Q.2 Get total profit of all months and show line plot with the following Style properties. Generated line plot must include following Style properties: – • Line Style dotted and Line-color should be red • Show legend at the lower right location. • X label name = Month Number • Y label name = Sold units number • Add a circle marker. • Line marker color as read • Line width should be 3

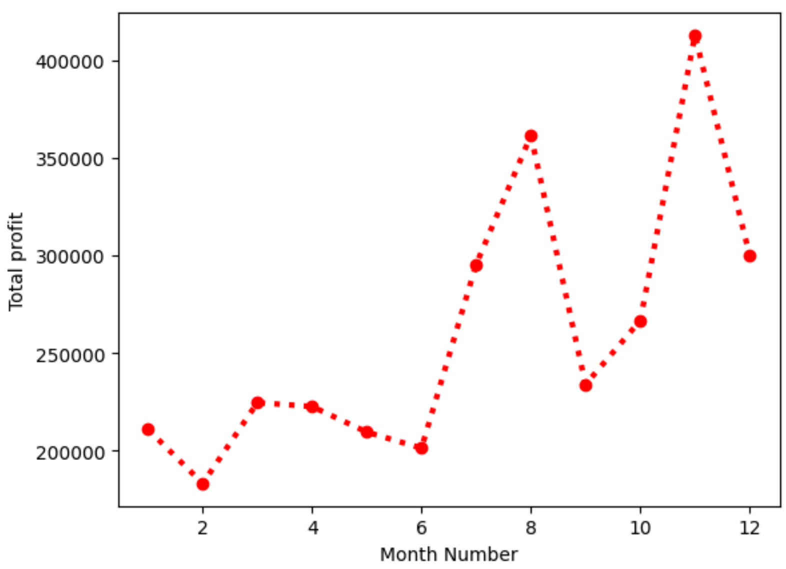
Generate

- Add a circle marker.
- Line marker color as read
- Line width should be 3**

Close

< 1 of 4 > Undo Changes Use code with caution

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

plt.plot(x, y, linestyle='dotted', color='red', marker='o', markerfacecolor='red', linewidth=3)
plt.xlabel('Month Number')
plt.ylabel('Total profit')
plt.show()
```



Read all product sales data and show it using a multiline plot. Display the number of units sold per month for each product using multiline plots. (i.e., Separate Plotline for each product)

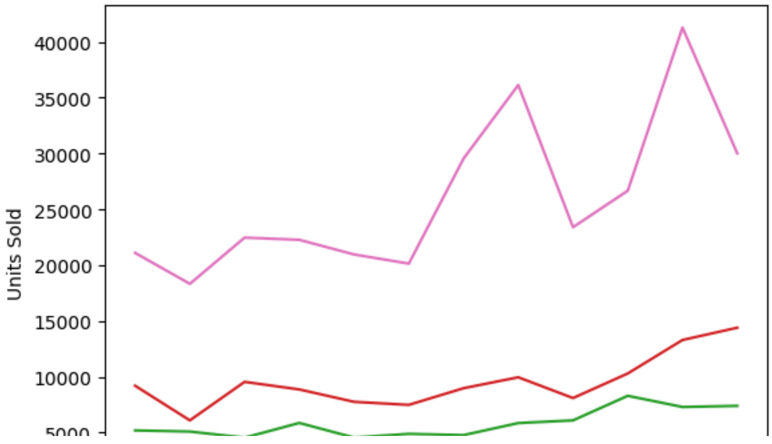
```
products = df.drop(['month_number', 'total_profit'], axis=1)
print(products)
```

```
    facecream  facewash  toothpaste  bathingsoap  shampoo  moisturizer  \
0        2500      1500        5200         9200     1200         1500   
1        2630      1200        5100         6100     2100         1200   
2        2140      1340        4550         9550     3550         1340   
3        3400      1130        5870         8870     1870         1130   
4        3600      1740        4560         7760     1560         1740   
5        2760      1555        4890         7490     1890         1555   
6        2980      1120        4780         8980     1780         1120   
7        3700      1400        5860         9960     2860         1400   
8        3540      1780        6100         8100     2100         1780   
9        1990      1890        8300        10300     2300         1890   
10       2340      2100        7300        13300     2400         2100   
11       2900      1760        7400        14400     1800         1760   

    total_units  
0         21100  
1         18330  
2         22470  
3         22270  
4         20960  
5         20140  
6         29550  
7         36140  
8         23400  
9         26670  
10        41280  
11        30020  
```

Generate **Read all product sales data and show it using a multiline plot.
Display the number of units sold per month for each product using multiline plots. (i.e., Separate Plotline for each product)** Close

< 1 of 4 > Undo Changes Use code with caution

```
products = df.drop(['month_number', 'total_profit'], axis=1)

for column in products:
    plt.plot(df['month_number'], products[column], label=column)

plt.xlabel('Month Number')
plt.ylabel('Units Sold')
plt.legend()
plt.show()
```

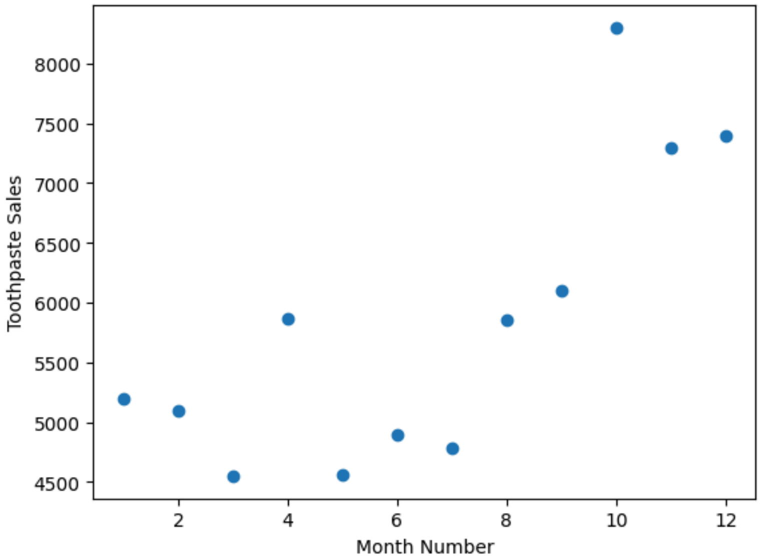


4 Read toothpaste sales data of each month and show it using a scatter plot

Generate | **4 Read toothpaste sales data of each month and show it using a scatter plot** | Close

‹ 1 of 4 › Undo Changes Use code with caution

```
toothpaste_sales = df['toothpaste']
month_number = df['month_number']

plt.scatter(month_number, toothpaste_sales)
plt.xlabel('Month Number')
plt.ylabel('Toothpaste Sales')
plt.show()
```

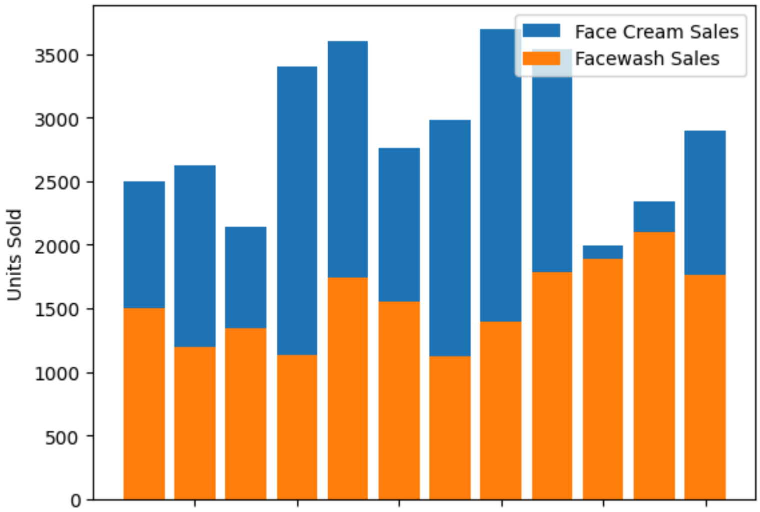


Q.5 Read face cream and facewash product sales data and show it using the bar chart. The bar chart should display the number of units sold per month for each product. Add a separate bar for each product in the same chart.

Generate | **Q.5 Read face cream and facewash product sales data and show it using the bar chart.
The bar chart should display the number of units sold per month for each product. Add a separate bar for each product in the same | Close

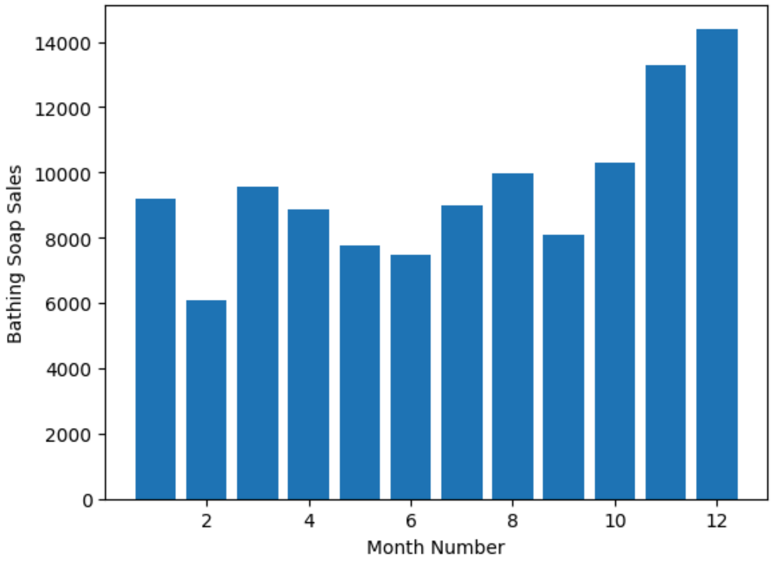
‹ 1 of 4 › Undo Changes Use code with caution

```
face_cream_sales = df['facecream']
facewash_sales = df['facewash']
month_number = df['month_number']

x = month_number
y1 = face_cream_sales
y2 = facewash_sales

plt.bar(x, y1, label='Face Cream Sales')
plt.bar(x, y2, label='Facewash Sales')
plt.xlabel('Month Number')
plt.ylabel('Units Sold')
plt.legend()
plt.show()
```



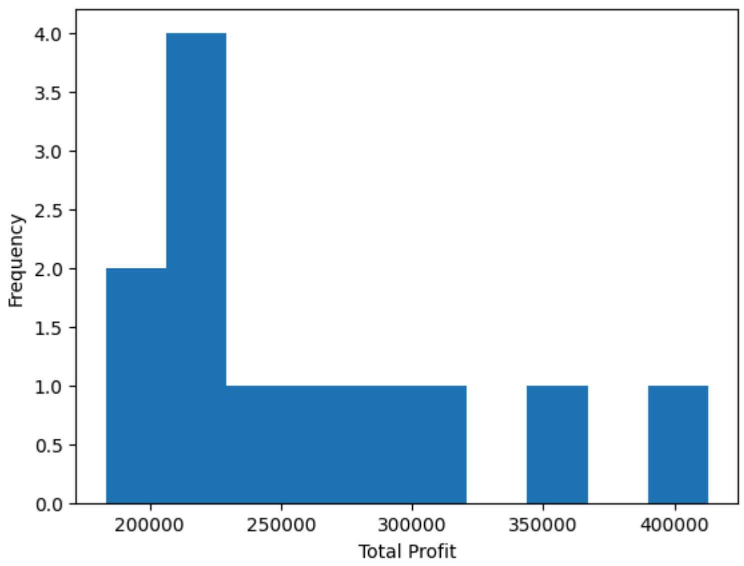
Q.6 Read sales data of bathing soap of all months and show it using a bar chart.

```
x = df['month_number']
y = df['bathingsoap']

plt.bar(x, y)
plt.xlabel('Month Number')
plt.ylabel('Bathing Soap Sales')
plt.show()
```



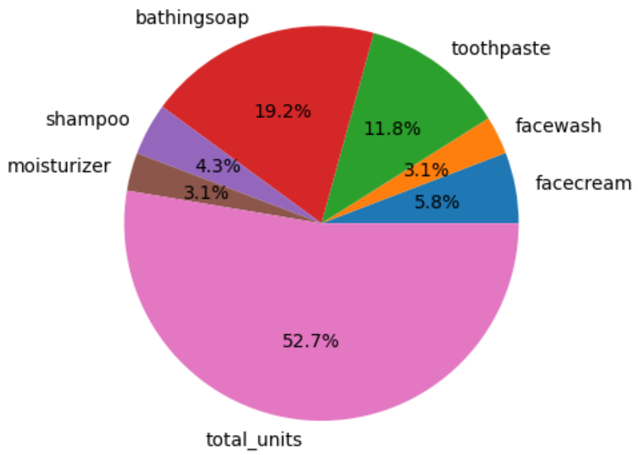
7 Read the total profit of each month and show it using the histogram to see the most common profit ranges.

```
total_profit = df['total_profit']

plt.hist(total_profit, bins=10)
plt.xlabel('Total Profit')
plt.ylabel('Frequency')
plt.show()
```



Q.8 Calculate the total sale data for last year for each product and show it using a Pie chart.

```
total_sales = df.drop(['month_number', 'total_profit'], axis=1)
plt.pie(total_sales.sum(), labels=total_sales.columns, autopct='%1.1f%%')
plt.show()
```



Q.9 Read bathing soap facewash of all months and display it using the subplot:

Generate **Q.9 Read bathing soap facewash of all months and display it using the subplot:** Close

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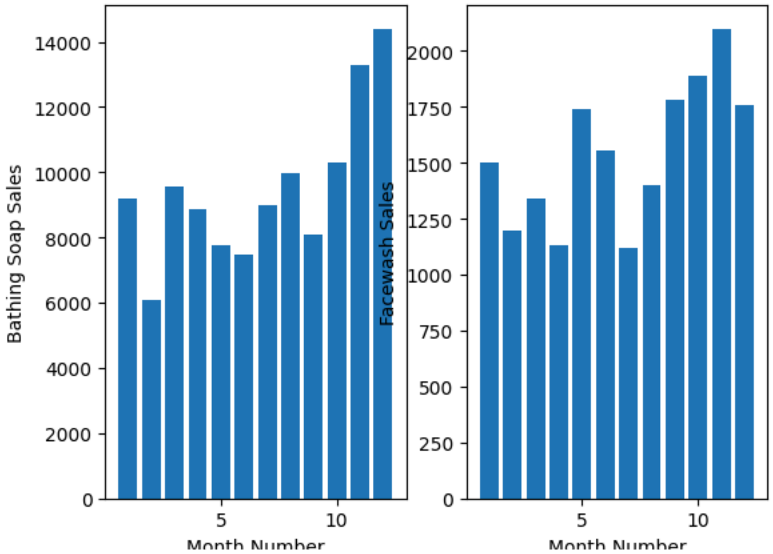
```
bathing_soap_sales = df['bathingsoap']
facewash_sales = df['facewash']
month_number = df['month_number']

plt.subplot(1, 2, 1)

plt.bar(month_number, bathing_soap_sales)
plt.xlabel('Month Number')
plt.ylabel('Bathing Soap Sales')

plt.subplot(1, 2, 2)

plt.bar(month_number, facewash_sales)
plt.xlabel('Month Number')
plt.ylabel('Facewash Sales')

plt.show()
```

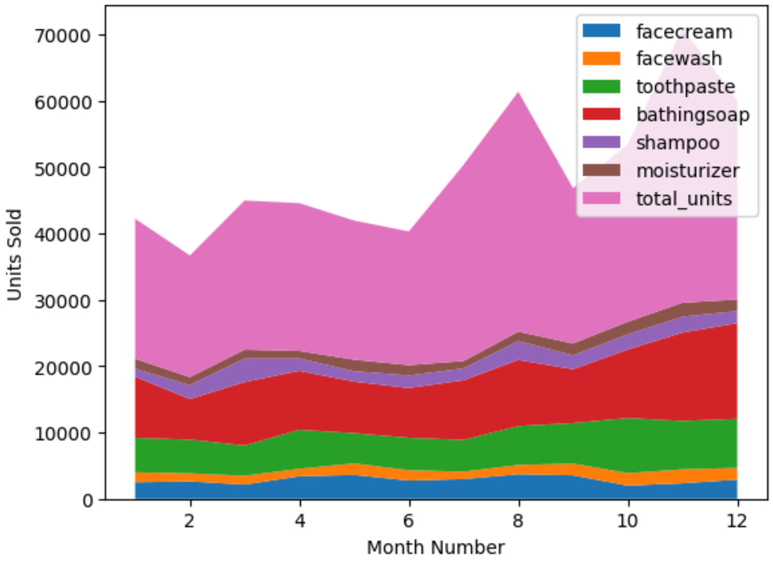


Q.10 Read all product sales data and show it using the stack plot.\

```
products.values.T
```

```
array([[ 2500,  2630,  2140,  3400,  3600,  2760,  2980,  3700,  3540,
         1990,  2340,  2900],
       [ 1500,  1200,  1340,  1130,  1740,  1555,  1120,  1400,  1780,
         1890,  2100,  1760],
       [ 5200,  5100,  4550,  5870,  4560,  4890,  4780,  5860,  6100,
         8300,  7300,  7400],
       [ 9200,  6100,  9550,  8870,  7760,  7490,  8980,  9960,  8100,
        10300, 13300, 14400],
       [ 1200,  2100,  3550,  1870,  1560,  1890,  1780,  2860,  2100,
         2300,  2400,  1800],
       [ 1500,  1200,  1340,  1130,  1740,  1555,  1120,  1400,  1780,
         1890,  2100,  1760],
       [21100, 18330, 22470, 22270, 20960, 20140, 29550, 36140, 23400,
        26670, 41280, 30020]])
```

```
products = df.drop(['month_number', 'total_profit'], axis=1)

plt.stackplot(df['month_number'], products.values.T, labels=products.columns)
plt.xlabel('Month Number')
plt.ylabel('Units Sold')
plt.legend()
plt.show()
```



```
Start coding or generate with AI.
```