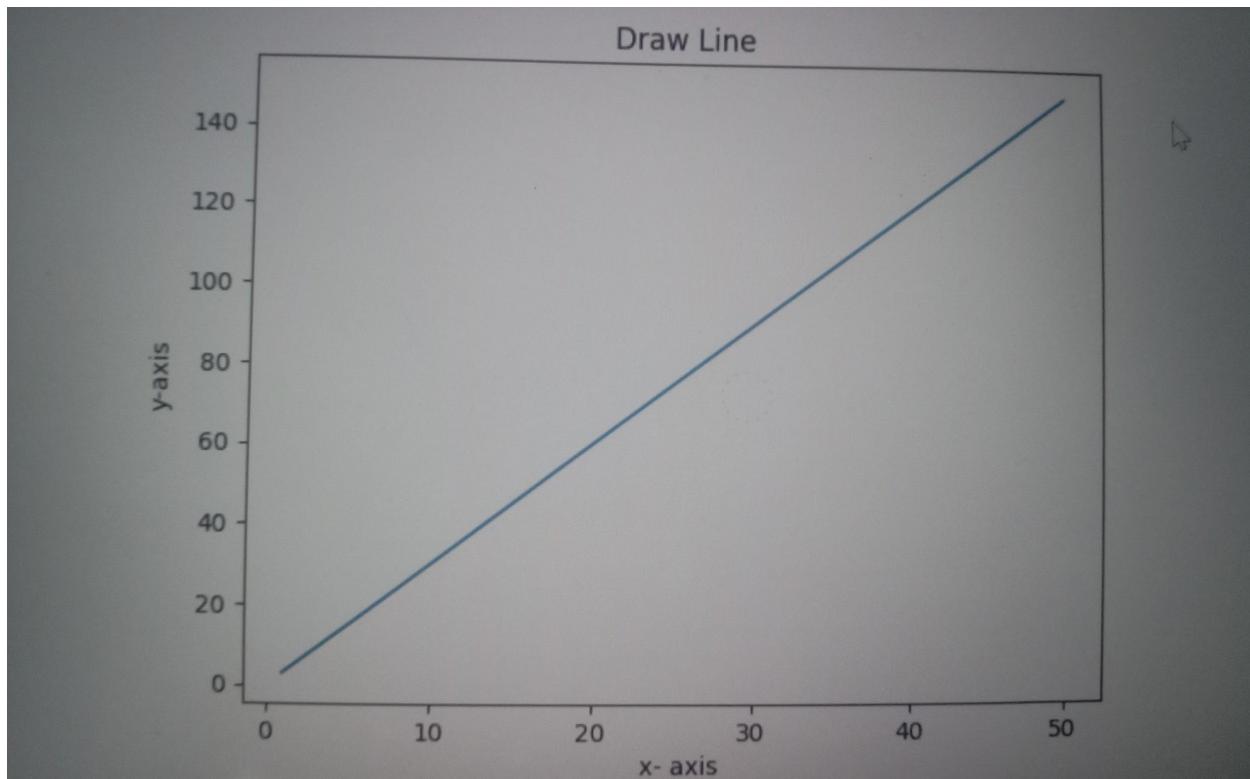


1.write a python programm to draw a line with suitable label in the x axis, y axis and a title.

```
task 8
```

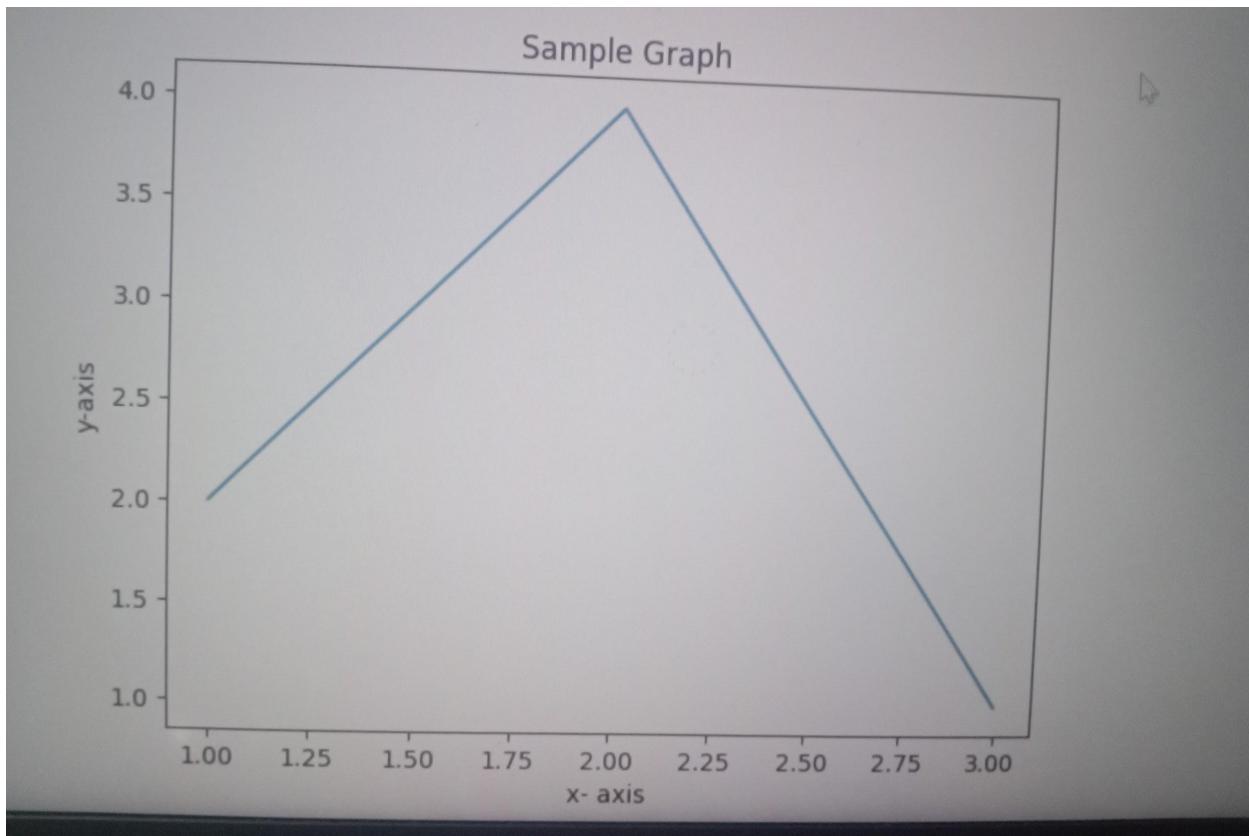
```
] : import numpy as np
import matplotlib.pyplot as plt
x=np.array([1,10,20,30,40,50])
y=np.array([value*3 for value in x])
plt.xlabel("x- axis")
plt.ylabel("y-axis")
plt.title("Draw Line")
plt.plot(x,y)
plt.show
```



2.write a python programm to draw a line with suitable label in the x axis, y axis and a title.

```
In [11]: import numpy as np
import matplotlib.pyplot as plt
x=np.array([1,2,3])
y=np.array([2,4,1])
plt.xlabel("x- axis")
plt.ylabel("y-axis")
plt.title("Sample Graph")
plt.plot(x,y)
plt.show

Out[11]: <function matplotlib.pyplot.show(close=None, block=None)>
```



##3. Write a Python program to draw line charts of the financial data of Alphabet Inc. between October 3, 2016 to October 7, 2016.

...

Sample Financial data (fdata.csv):

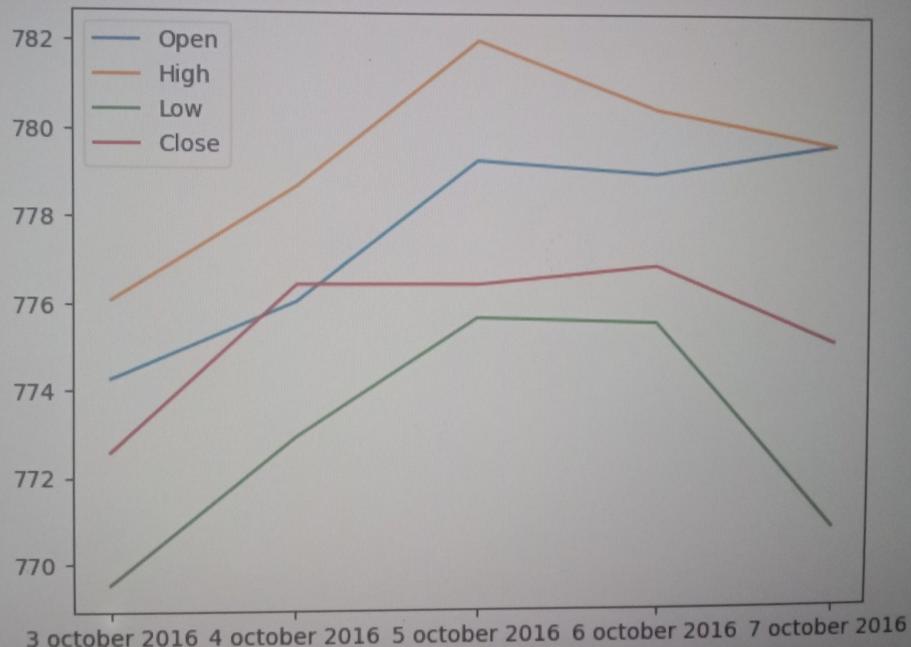
Date,Open,High,Low,Close

10-03-16,774.25,776.065002,769.5,772.559998
10-04-16,776.030029,778.710022,772.890015,776.429993
10-05-16,779.309998,782.070007,775.650024,776.469971
10-06-16,779,780.47998,775.539978,776.859985
10-07-16,779.659973,779.659973,770.75,775.080017

The code snippet gives the output shown in the following screenshot:

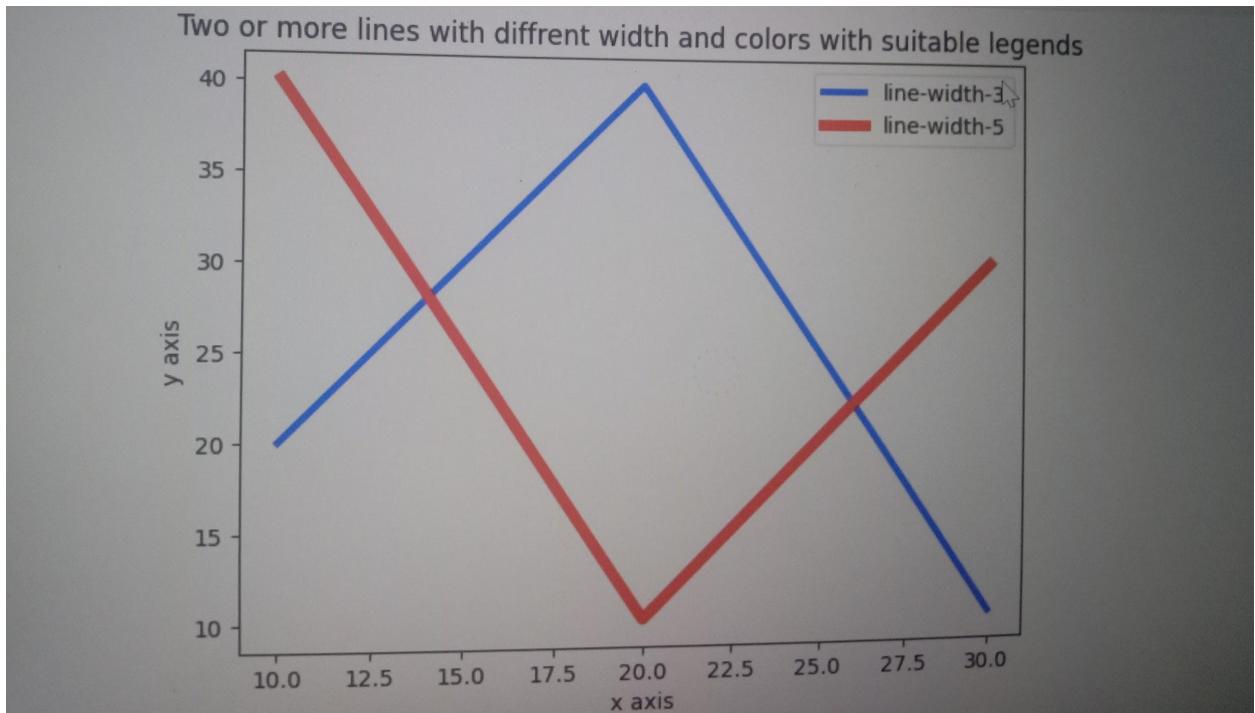
```
In [12]: import numpy as np
import matplotlib.pyplot as plt
x=["3 october 2016","4 october 2016","5 october 2016","6 october 2016","7 october 2016"]
Open=[774.25,776.030029,779.309998,779.779.659973]
High=[776.065002,778.710022,782.070007,780.47998,779.659973]
Low=[769.5,772.890015,775.650024,775.539978,770.75]
Close=[772.559998,776.429993,776.429993,776.859985,775.080017]

plt.plot(x,Open,label='Open')
plt.plot(x,High,label='High')
plt.plot(x,Low,label='Low')
plt.plot(x,Close,label='Close')
plt.legend()
plt.show()
```



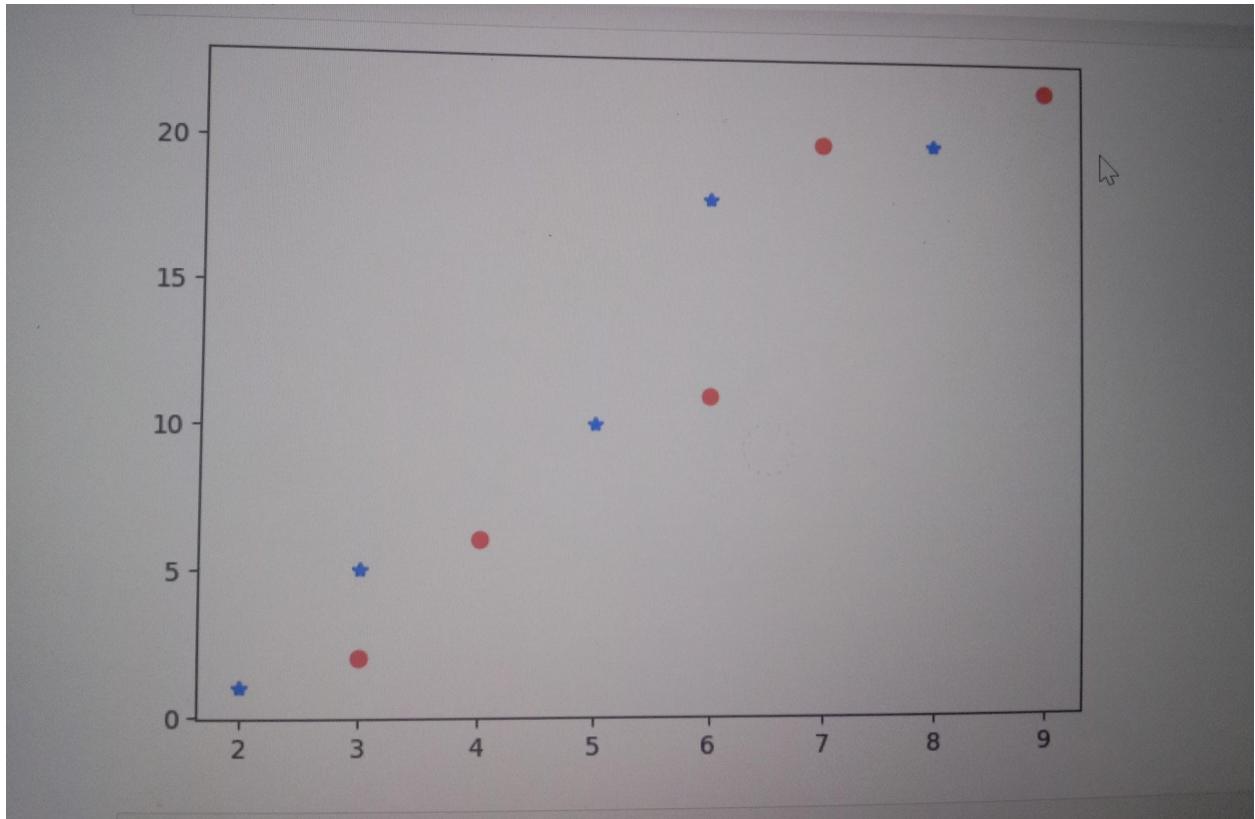
##4. Write a Python program to plot two or more lines with legends, different widths and colors. The code snippet gives the output shown in the following screenshot:

```
In [14]: import matplotlib.pyplot as plt
x=np.array([10,20,30])
y1=np.array([20,40,10])
y2=np.array([40,10,30])
plt.plot(x,y1, color='blue', linewidth=3,label='line-width-3')
plt.plot(x,y2, color='red', linewidth=5,label='line-width-5')
plt.xlabel("x axis")
plt.ylabel("y axis")
plt.title("Two or more lines with diffrent width and colors with suitable legends")
plt.legend()
plt.show()
```



##5 Write a Python program to plot quantities which have an x and y position. The code snippet gives the output shown in the following screenshot:

```
In [16]: import matplotlib.pyplot as plt
x1=np.array([2,3,5,6,8])
y1=np.array([1,5,10,18,20])
x2=np.array([3,4,6,7,9])
y2=np.array([2,6,11,20,22])
plt.plot(x1,y1, 'b*')
plt.plot(x2,y2, 'ro')
plt.show()
```



##6. Write a Python programming to display a bar chart of the popularity of programming Languages.

...

Sample data:

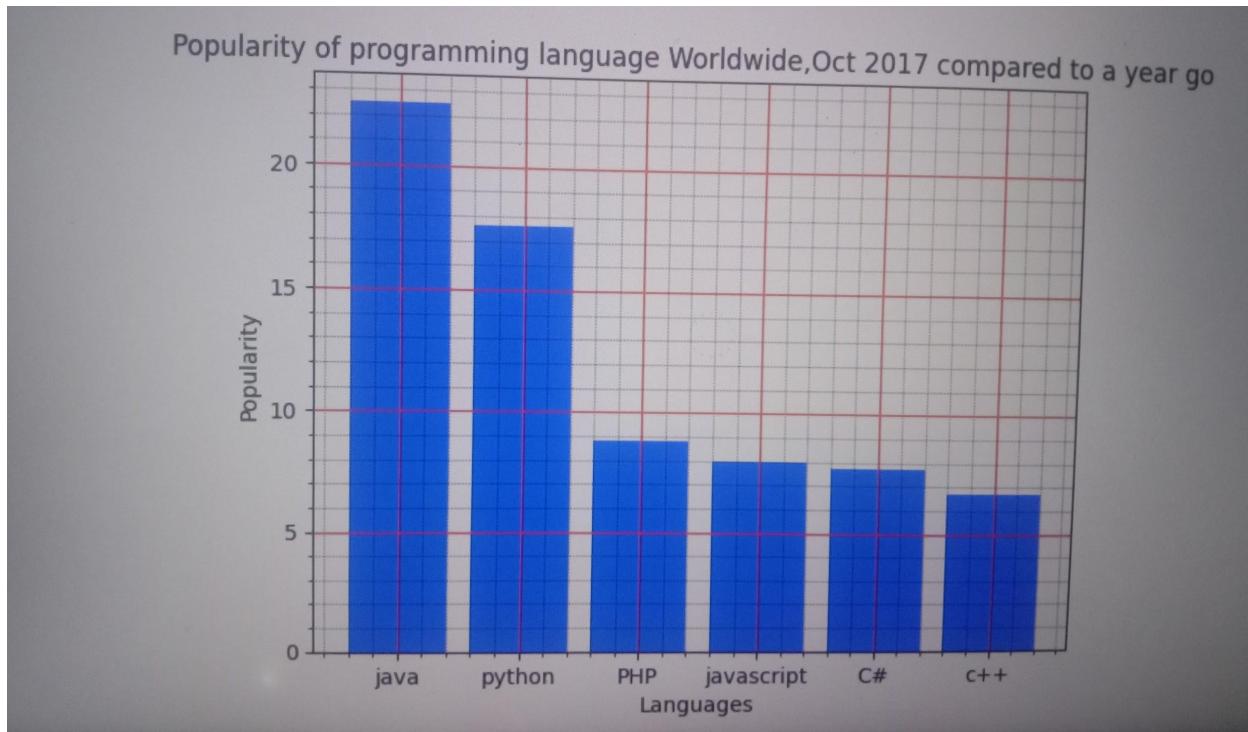
Programming languages: Java, Python, PHP, JavaScript, C#, C++

Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

The code snippet gives the output shown in the following screenshot:

...

```
In [19]: import matplotlib.pyplot as plt
import numpy as np
x=np.array(['java','python','PHP','javascript','C#','c++'])
y=np.array([22.5,17.6,8.8,8,7.7,6.7])
plt.xlabel("Languages")
plt.ylabel("Popularity")
plt.title("Popularity of programming language Worldwide,Oct 2017 compared to a year go")
plt.grid(which='major',linestyle='-',linewidth='0.9',color='red')
plt.minorticks_on()
plt.grid(which='minor',linestyle=':',linewidth='0.5',color='black')
plt.barh(x,y,color='green')
```



##7. Write a Python programming to display a horizontal bar chart of the popularity of programming Languages.

...

Sample data:

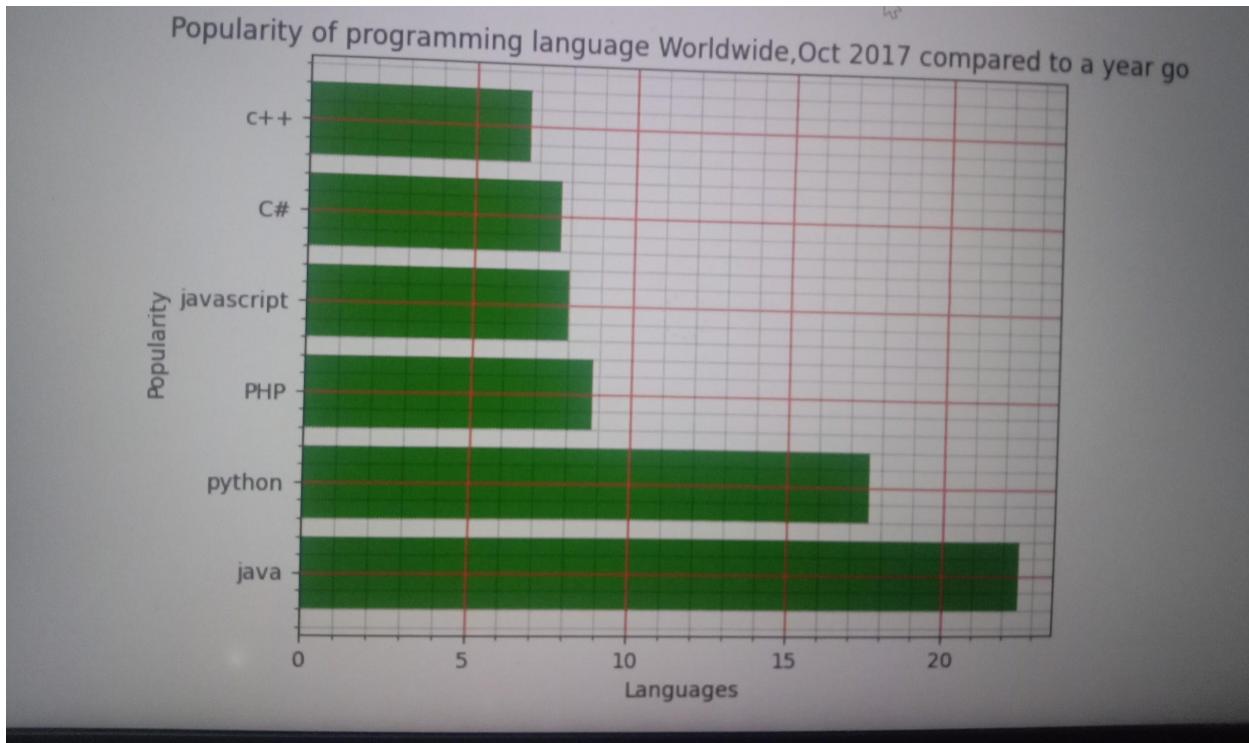
Programming languages: Java, Python, PHP, JavaScript, C#, C++

Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

The code snippet gives the output shown in the following screenshot:

...

```
In [19]: import matplotlib.pyplot as plt
import numpy as np
x=np.array(['java','python','PHP','javascript','C#','c++'])
y=np.array([22.5,17.6,8.8,8,7.7,6.7])
plt.xlabel("Languages")
plt.ylabel("Popularity")
plt.title("Popularity of programming language Worldwide,Oct 2017 compared to a year go")
plt.grid(which='major',linestyle='-',linewidth='0.9',color='red')
plt.minorticks_on()
plt.grid(which='minor',linestyle=':',linewidth='0.5',color='black')
plt.barh(x,y,color='green')
```



##Exercise 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

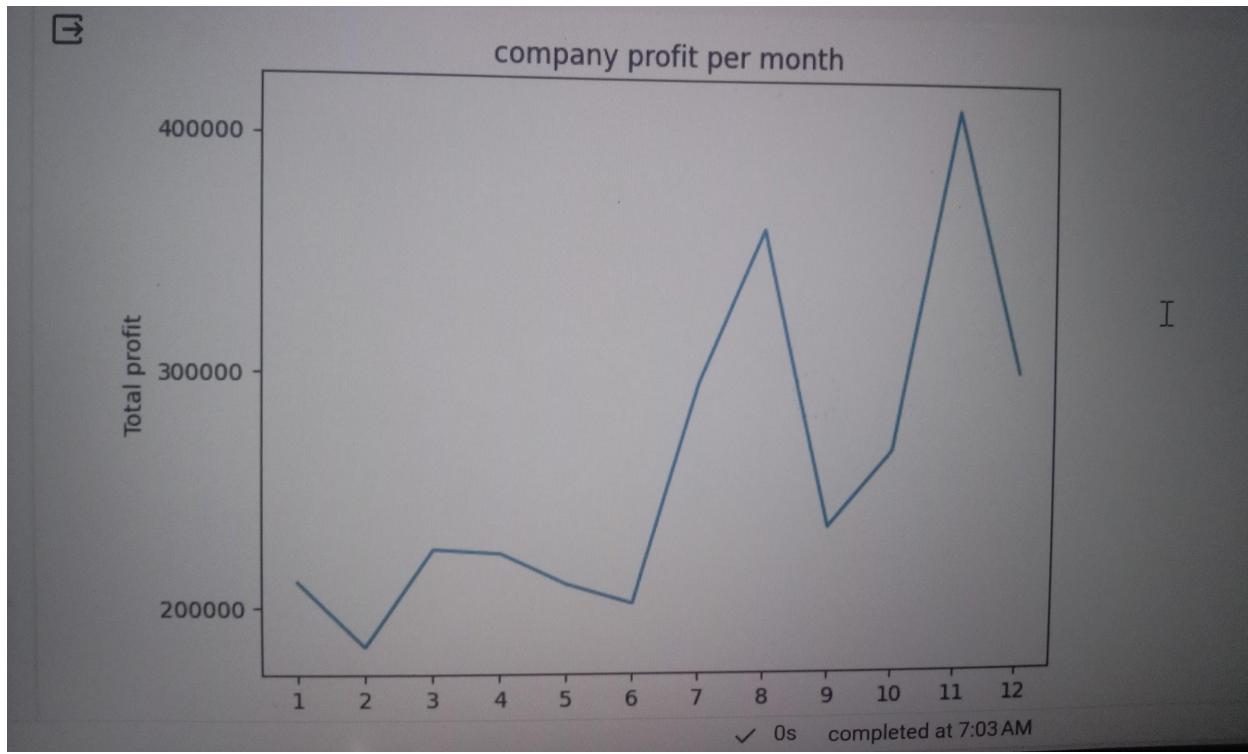
Y label name = Total profit

The line plot graph should look like this.

```

import matplotlib.pyplot as plt
import pandas as pd
df=pd.read_csv("company_sales_data.csv")
profit=df['total_profit'].tolist()
month=df['month_number'].tolist()
plt.xlabel("Month number")
plt.ylabel("Total profit")
plt.title("company profit per month")
plt.xticks(month)
plt.yticks([100000,200000,300000,400000,500000])
plt.plot(month,profit)
plt.show()

```



##Exercise 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

...

The line plot graph should look like this.

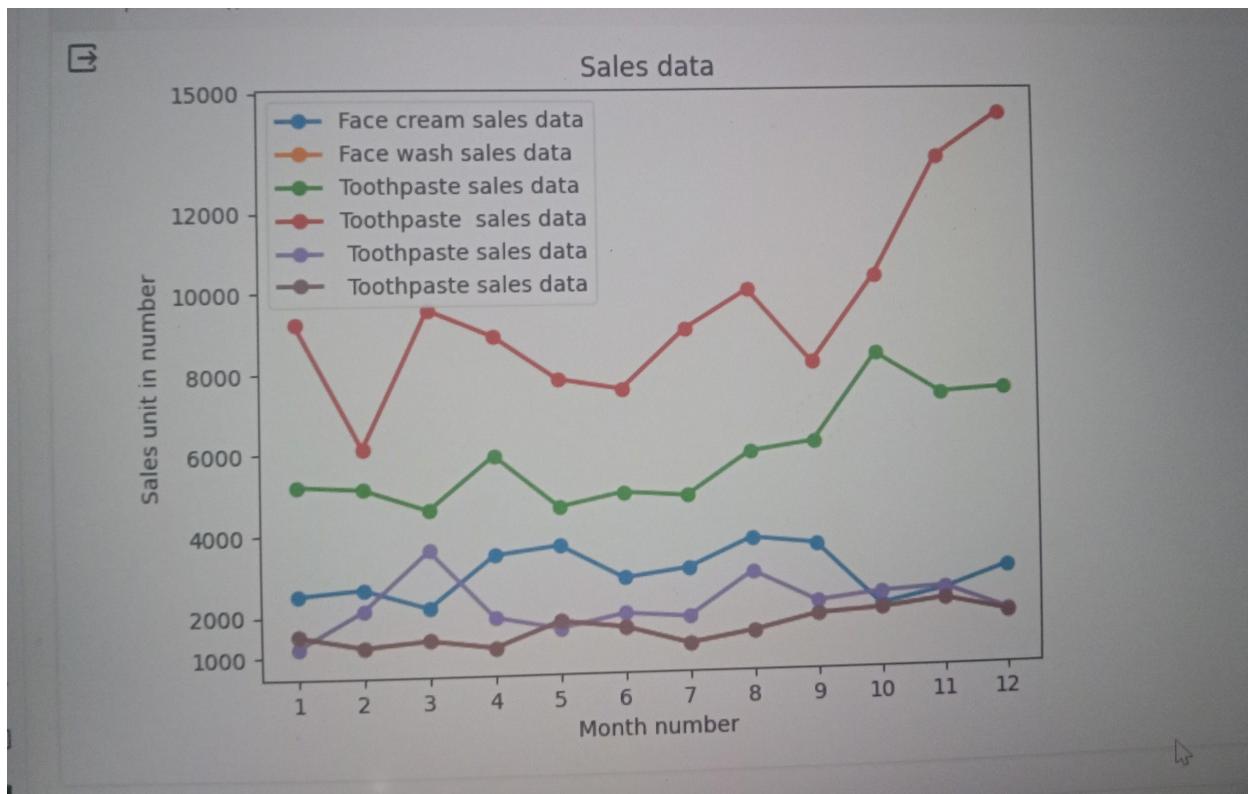
```
import matplotlib.pyplot as plt
import pandas as pd
df=pd.read_csv("company_sales_data.csv")
profit=df['total_profit'].tolist()
month=df['month_number'].tolist()
plt.xlabel("Month number")
plt.ylabel("Total profit")
plt.title("company profit per month")
plt.xticks(month)
plt.yticks([100000,200000,300000,400000,500000])
plt.plot(month,profit,color="r",marker="o",markerfacecolor='k',ls='--',linewidth=3)
plt.show()
```



##Exercise 3: 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).

The graph should look like this.

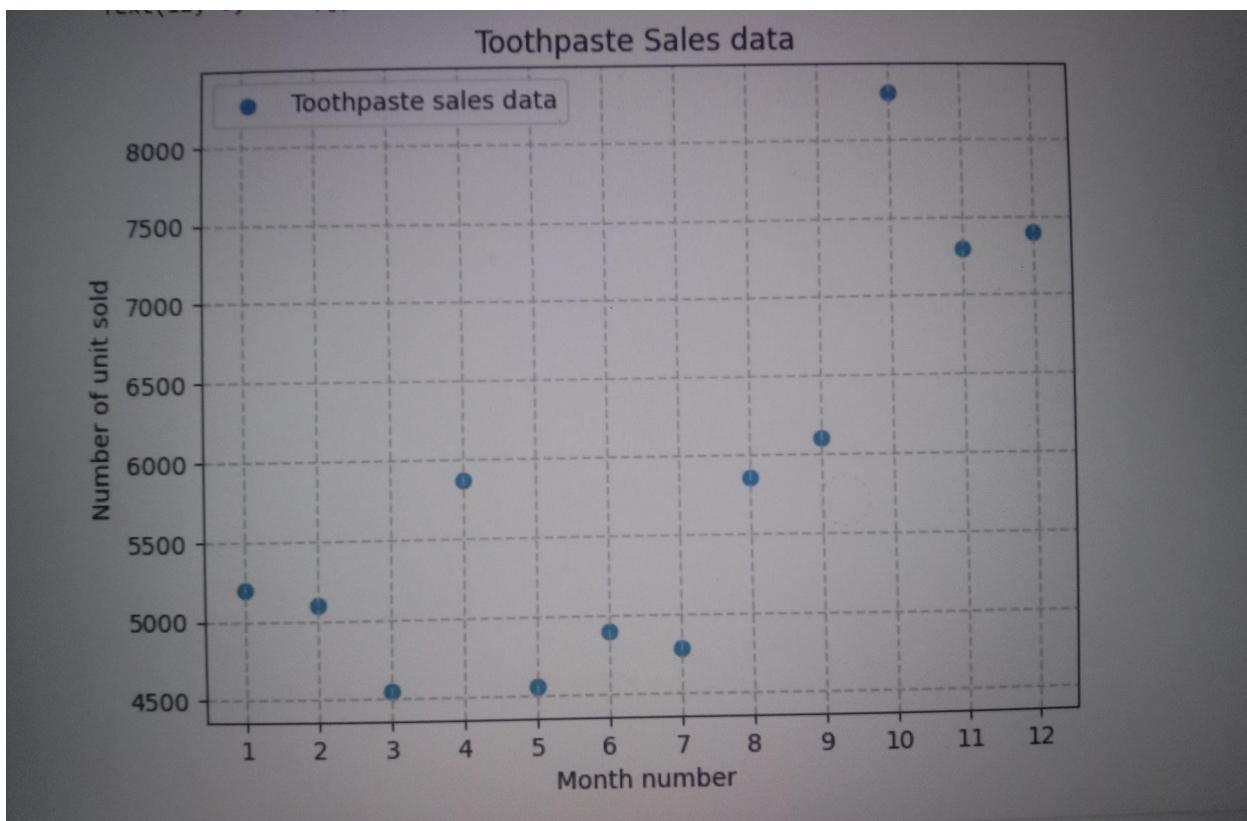
```
{x} ✓ 0s ⏎ import matplotlib.pyplot as plt
import pandas as pd
df=pd.read_csv("company_sales_data.csv")
profit=df['total_profit'].tolist()
month=df['month_number'].tolist()
fcs=df['facecream'].tolist()
fws=df['facewash'].tolist()
tps=df['toothpaste'].tolist()
bss=df['bathingsoap'].tolist()
ss=df['shampoo'].tolist()
ms=df['moisturizer'].tolist()
plt.xlabel("Month number")
plt.ylabel("Sales unit in number")
plt.title("Sales data")
plt.xticks(month)
plt.yticks([1000,2000,4000,6000,8000,10000,12000,15000,18000])
plt.plot(month,fcs,label='Face cream sales data',marker='o',linewidth=2)
plt.plot(month,fws,label='Face wash sales data',marker='o',linewidth=2)
plt.plot(month,tps,label='Toothpaste sales data',marker='o',linewidth=2)
plt.plot(month,bss,label='Toothpaste sales data',marker='o',linewidth=2)
plt.plot(month,ss,label='Toothpaste sales data',marker='o',linewidth=2)
plt.plot(month,ms,label='Toothpaste sales data',marker='o',linewidth=2)
plt.legend()
plt.show()
```



##Exercise 4: Read toothpaste sales data of each month and show it using a scatter plot
Also, add a grid in the plot. gridline style should “-“.

The scatter plot should look like this.

```
In [17]: import matplotlib.pyplot as plt
import pandas as pd
df=pd.read_csv("company_sales_data.csv")
profit=df['total_profit'].tolist()
month=df['month_number'].tolist()
tps=df['toothpaste'].tolist()
plt.xlabel("Month number")
plt.ylabel("Number of units sold")
plt.title("Toothpaste Sales data")
plt.xticks(month)
plt.scatter(month, tps, label='Toothpaste sales data')
plt.grid(True, lw=1, ls='--')
plt.show()
```

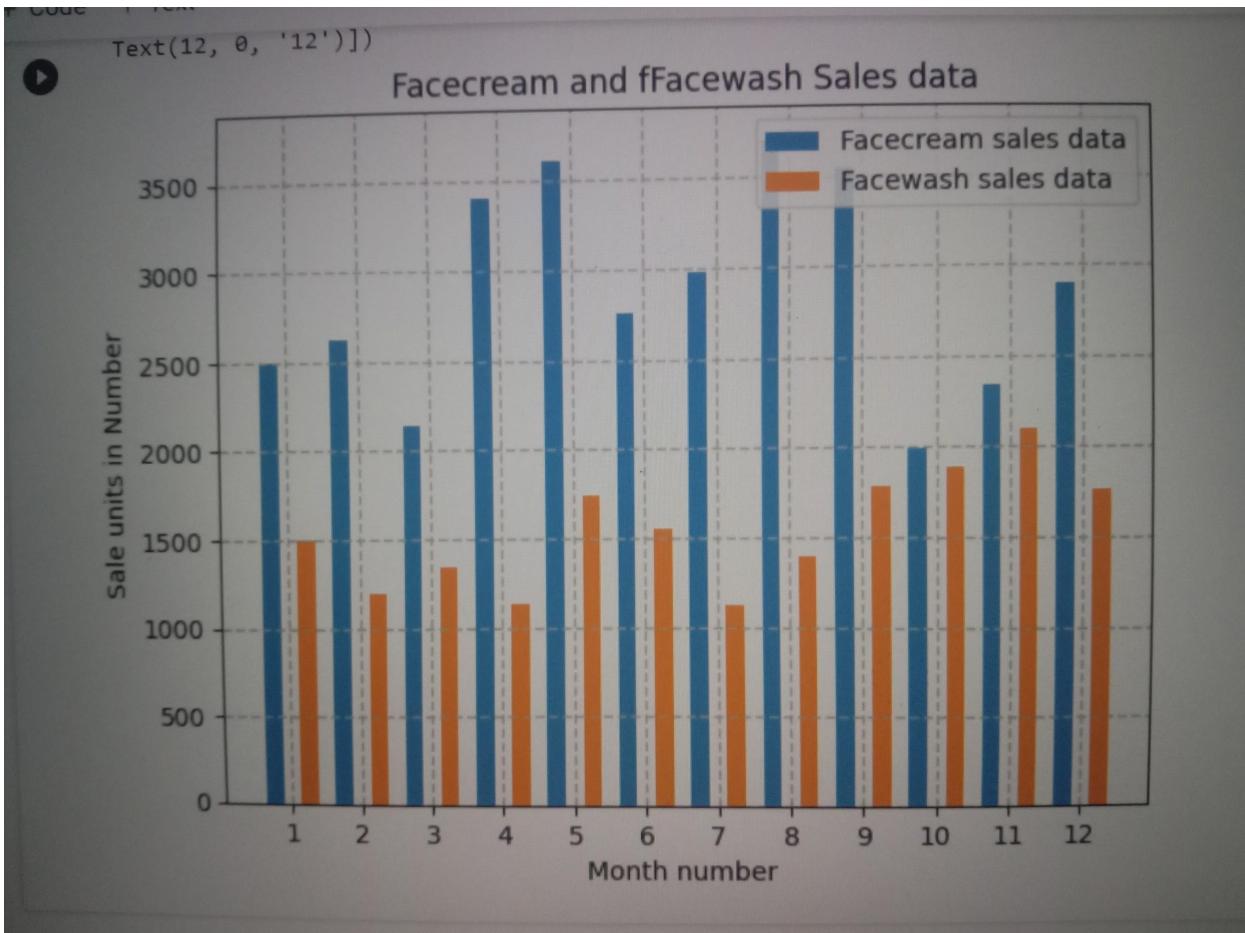


##Exercise 5: Read face cream and facewash product sales data and show it using the bar chart

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.

The bar chart should look like this.

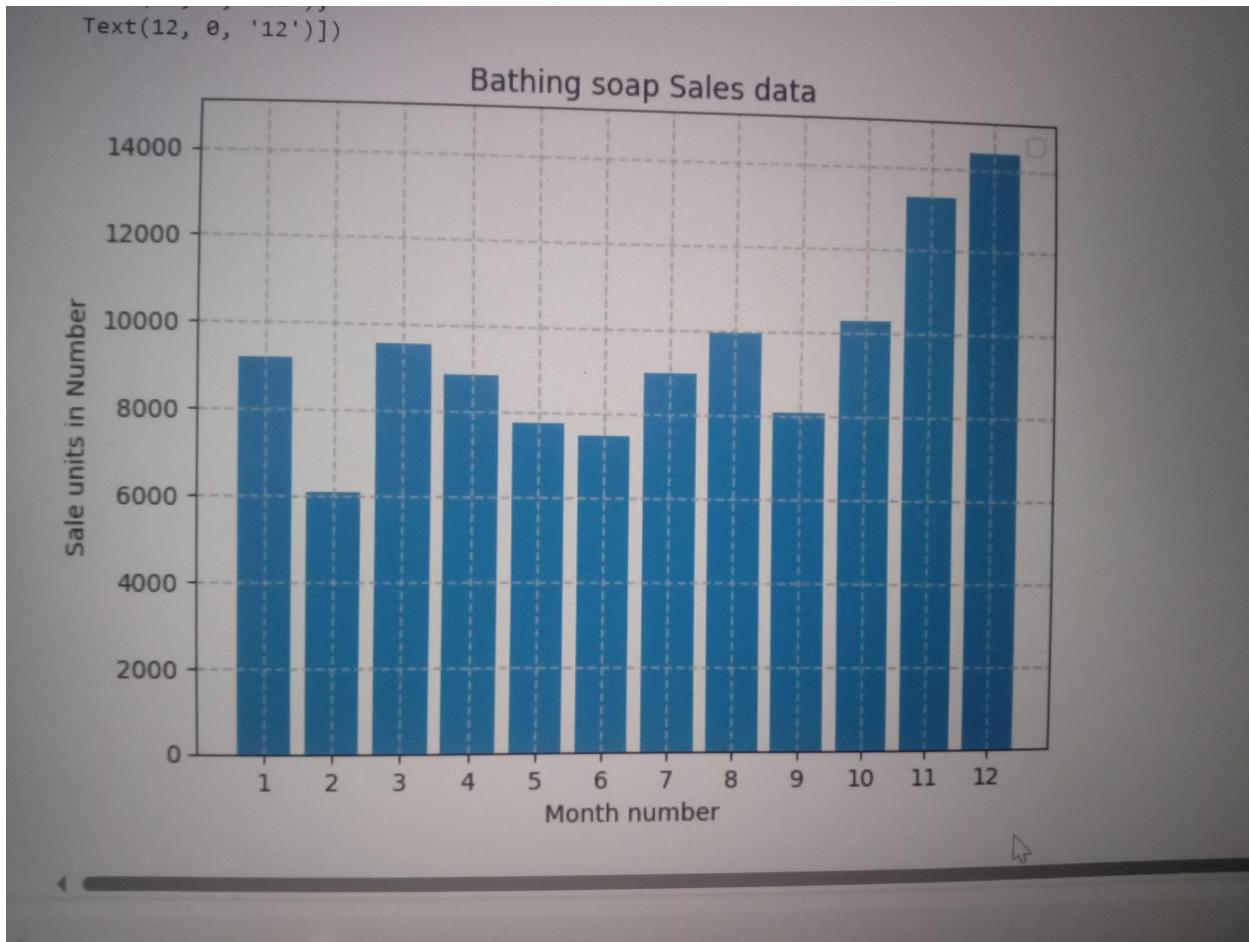
```
✓ 1s   import matplotlib.pyplot as plt
     import pandas as pd
     df=pd.read_csv("company_sales_data.csv")
     profit=df['total_profit'].tolist()
     month=df['month_number'].tolist()
     fcs=df['facecream'].tolist()
     fws=df['facewash'].tolist()
     plt.xlabel("Month number")
     plt.ylabel("Sale units in Number")
     plt.title(" Facecream and fFacewash Sales data")
     plt.bar([a-0.25 for a in month],fcs,width=0.25,label='Facecream sales data')
     plt.bar([a+0.25 for a in month],fws,width=0.25,label='Facewash sales data')
     plt.grid(True,lw=1,ls="--")
     plt.legend()
     plt.xticks(month)
```



##Exercise 6: Read sales data of bathing soap of all months and show it using a bar chart. Save this plot to your hard disk

The bar chart should look like this.

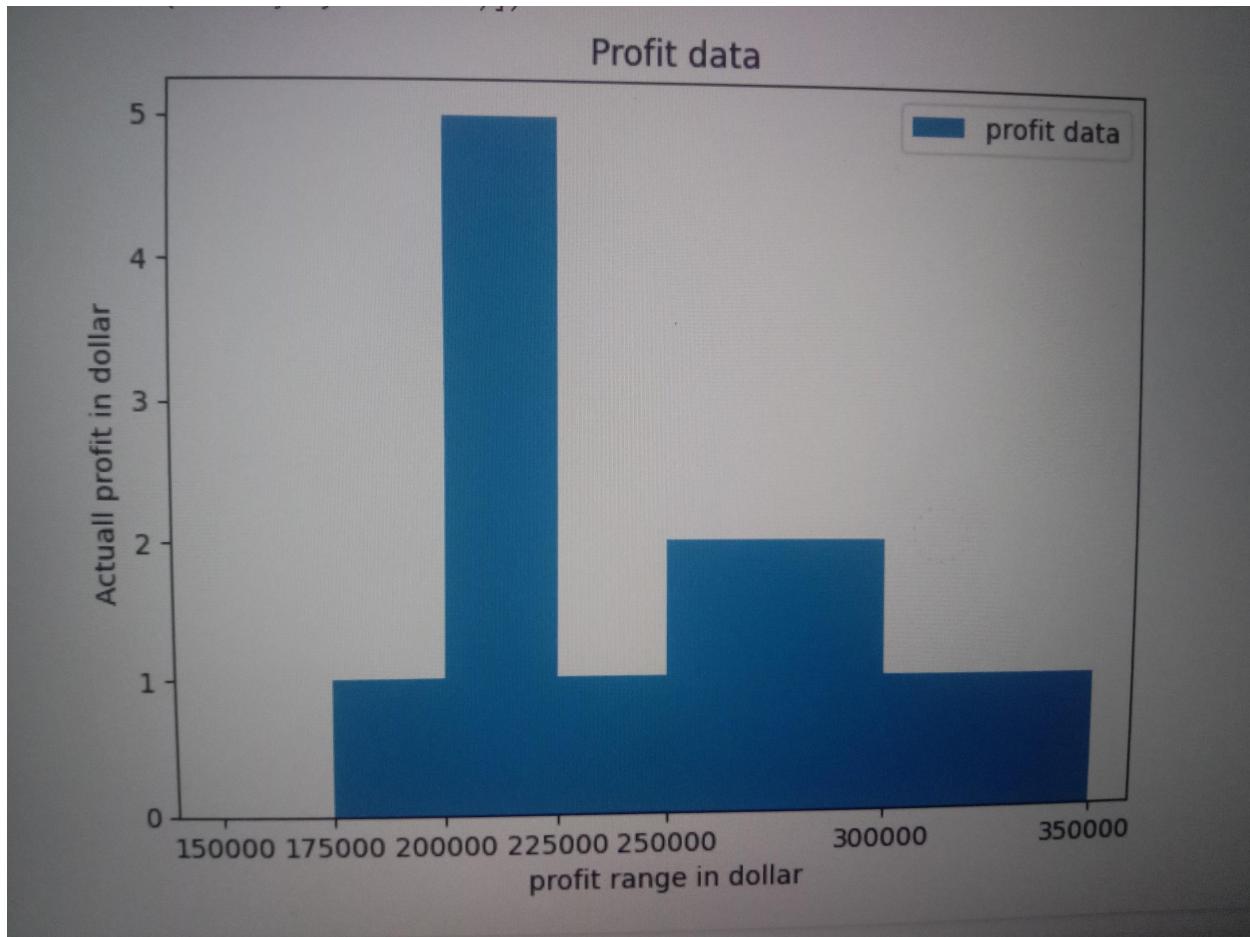
```
✓ 0s import matplotlib.pyplot as plt
    import pandas as pd
    df=pd.read_csv("company_sales_data.csv")
    profit=df['total_profit'].tolist()
    month=df['month_number'].tolist()
    bss=df['bathingsoap'].tolist()
    plt.xlabel("Month number")
    plt.ylabel("Sale units in Number")
    plt.title(" Bathing soap Sales data")
    plt.bar(month,bss)
    plt.grid(True, lw=1, ls="--")
    plt.legend()
    plt.xticks(month)
```



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

The histogram should look like this.

```
import matplotlib.pyplot as plt
import pandas as pd
df=pd.read_csv("company_sales_data.csv")
profit=df['total_profit'].tolist()
labels=['Low','avarage','good','best']
range=[150000,175000,200000,225000,250000,300000,350000]
plt.xlabel("profit range in dollar")
plt.ylabel("Actual profit in dollar")
plt.title(" Profit data")
plt.hist(profit,range,label='profit data')
plt.legend()
plt.xticks(range)
```



##Exercise 8: Calculate total sale data for last year for each product and show it using a Pie chart

Note: In Pie chart display Number of units sold per year for each product in percentage.

The Pie chart should look like this.

File Edit View Insert Runtime Tools Help Saving...

+ Code + Text

profit range in dollar

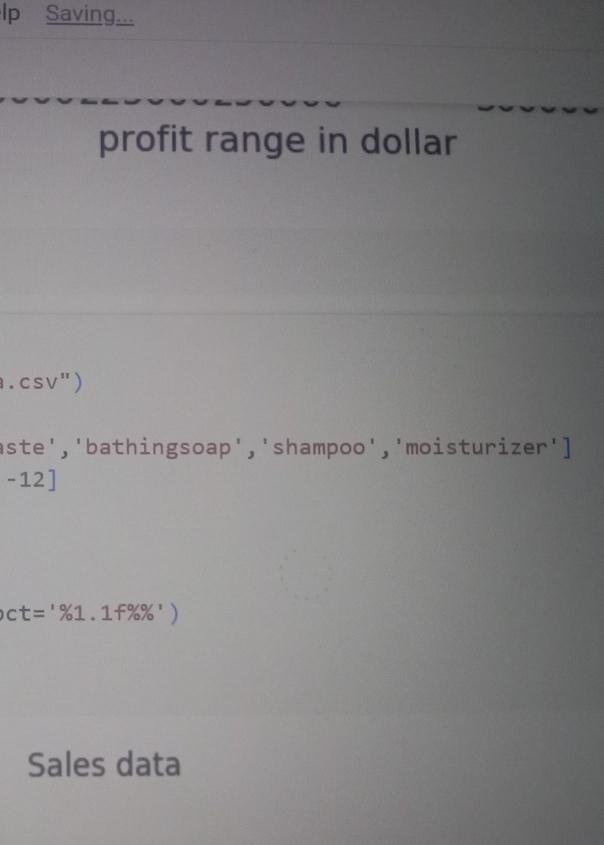
1000 1750 2250 3000

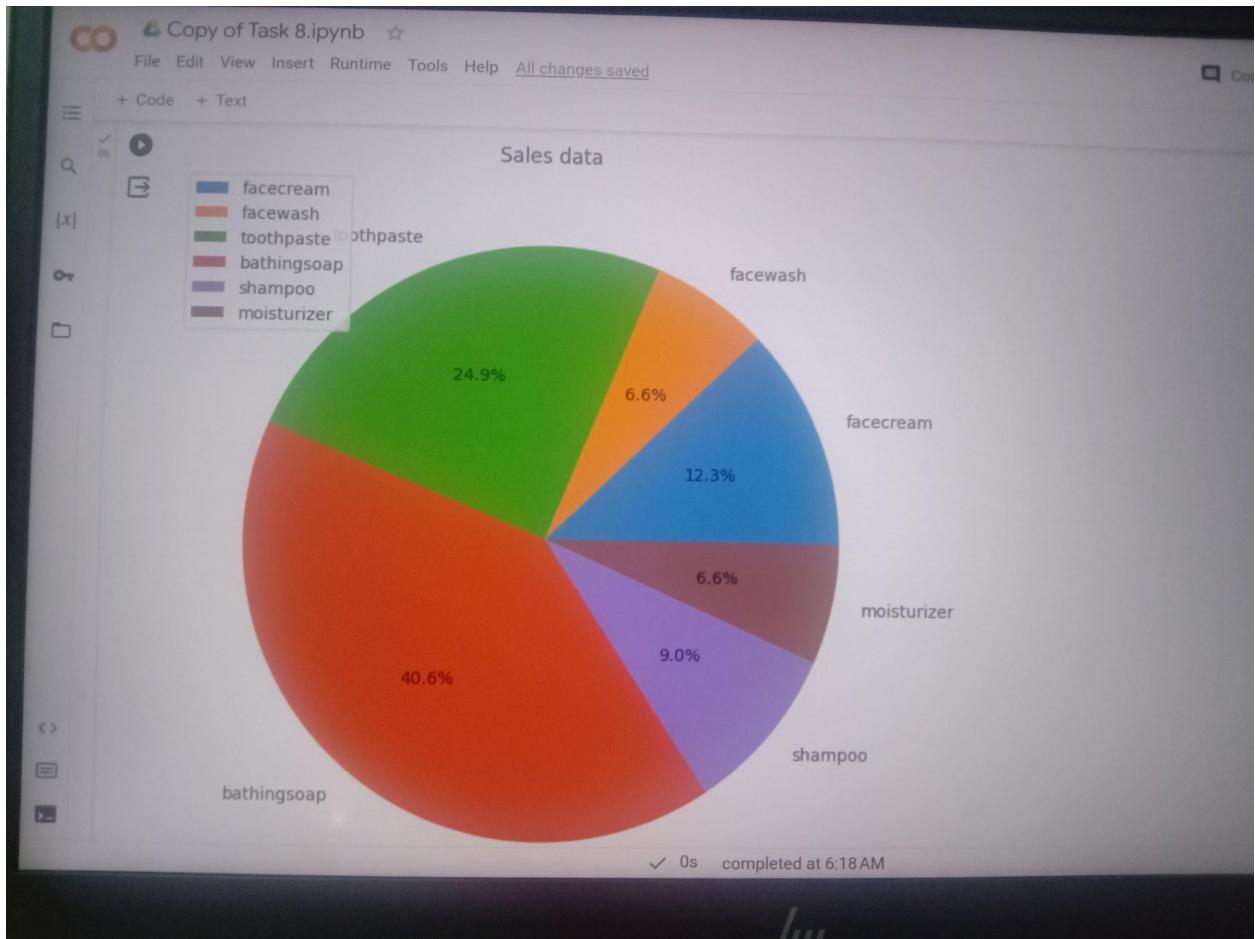
0s

import pandas as pd
df=pd.read_csv("company_sales_data.csv")
month=df['month_number'].max()
x=['facecream','facewash','toothpaste','bathingsoap','shampoo','moisturizer']
data=df[df['month_number']> month -12]
total_sales=data[x].sum()
plt.figure(figsize=(8,8))
plt.title('Sales data')
plt.pie(total_sales,labels=x,autopct='%1.1f%%')
plt.legend()
plt.show()

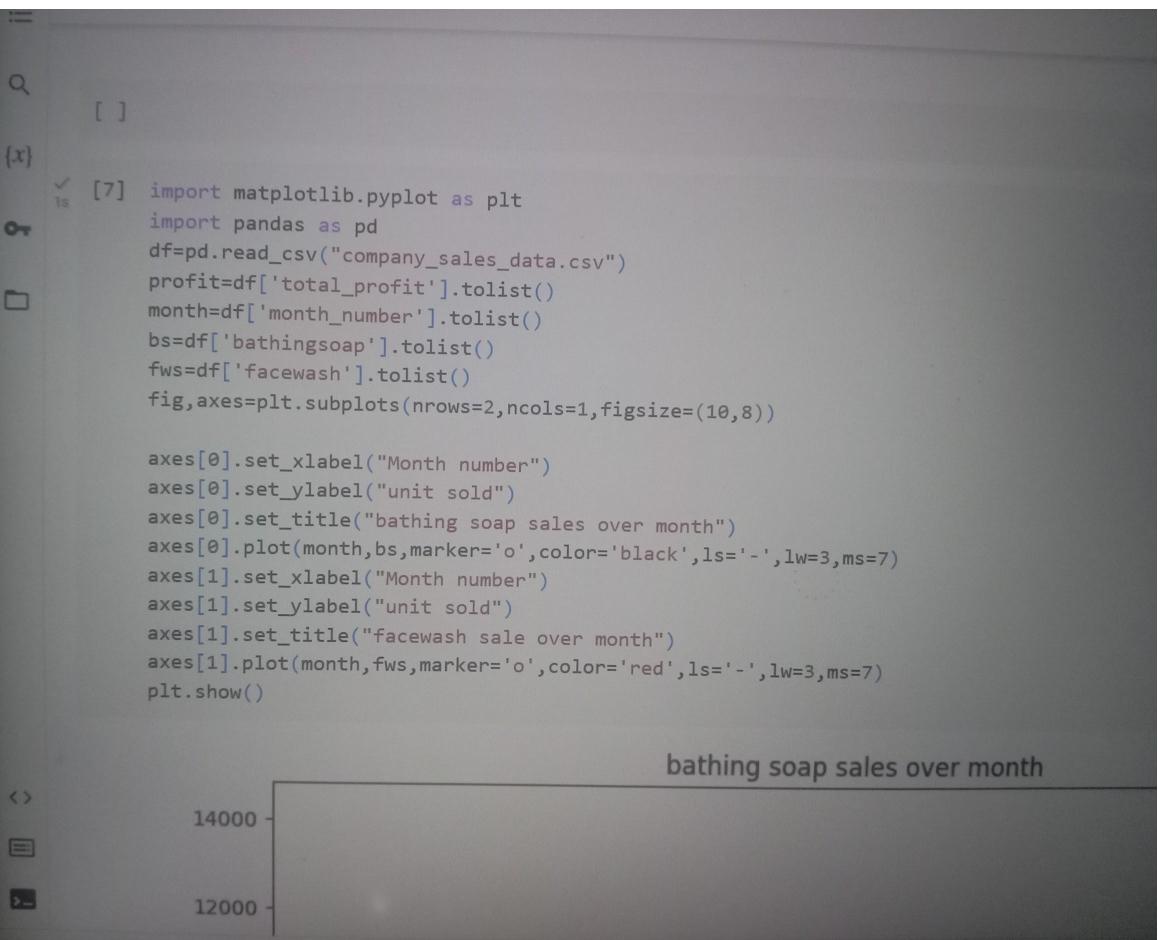
Sales data

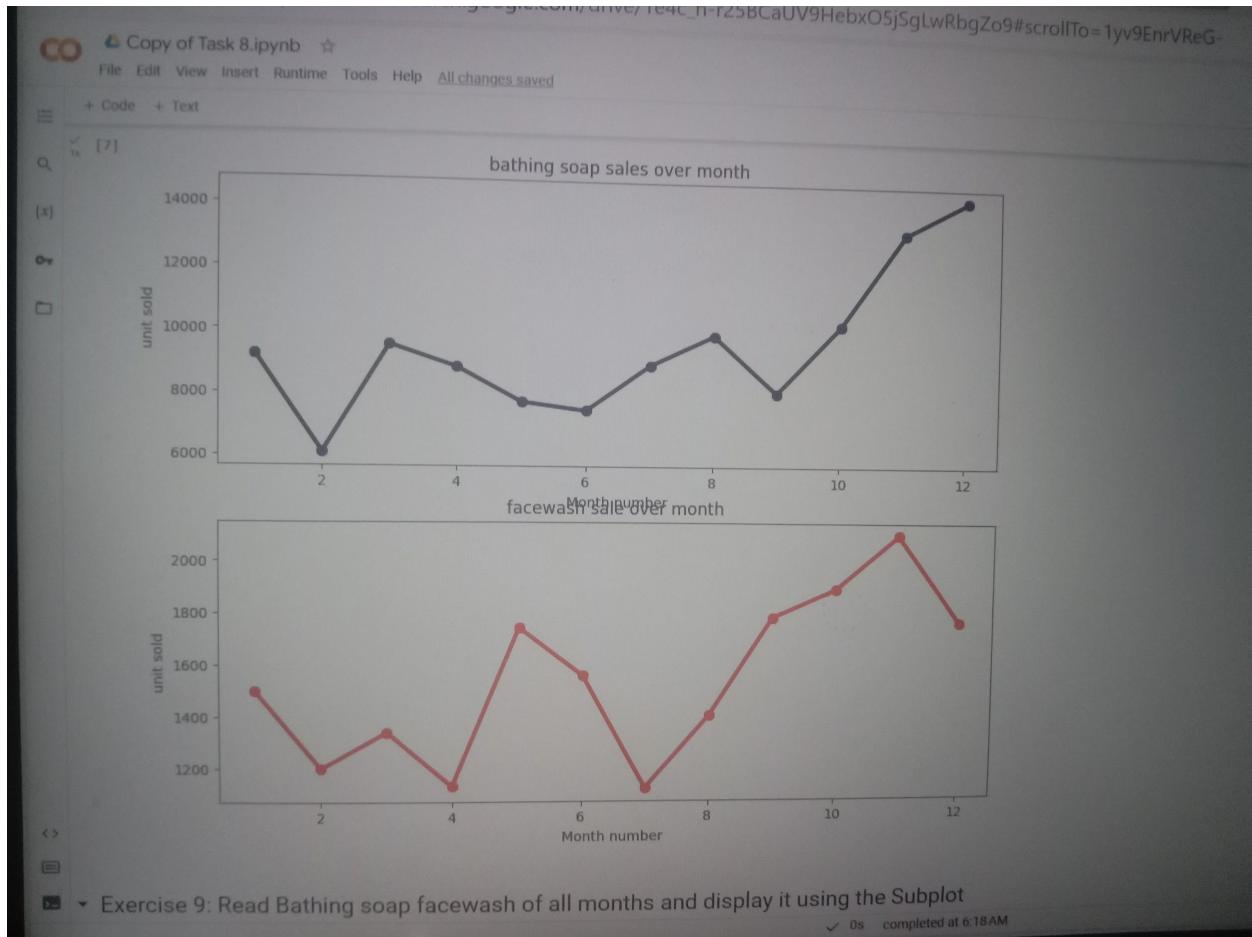
- facecream
- facewash
- toothpaste





##Exercise 9: Read Bathing soap facewash of all months and display it using the subplot





##Exercise 10: Read all products sales data and show it using the stack plot

File Edit View Insert Runtime Tools Help Saving...

+ Code + Text

1 2 3 4 5 6 7 8 9 10

Month Number

{x}

✓ 1s

```
import pandas as pd
import matplotlib.pyplot as plt
df=pd.read_csv("company_sales_data.csv")
month=df['month_number']
x=['facecream','facewash','toothpaste','bathingsoap','shampoo','moisturizer']
data=df[x]
plt.figure(figsize=(9, 6))
plt.stackplot(month,data.T,labels=x,colors=['m','c','r','k','g','y'])
plt.xlabel("Month number"),
plt.ylabel("unit sold")
plt.title(" sales over month")
plt.legend()
```

<matplotlib.legend.Legend at 0x7acbb08e2890>

sales over month

30000

✓ 1s completed at 6:39 AM

