WEEK-02: DATA ANALYSIS\_AND\_VISUALISATION\_WITH\_PYTHON

Questions and Solutions

1. Follow along with these steps:

1. Create a figure object called fig using plt.figure()
2. Use add\_axes to add an axis to the figure canvas at [0,0,1,1]. Call this new axis ax.
3. Plot (x,y) on that axes and set the labels and titles to match the plot below:

Solutions:

fig = plt.figure()

ax = fig.add\_axes([0,0,1,1])

ax.plot(x,y)

ax.set\_xlabel('x')

ax.set\_ylabel('y')

ax.set\_title('title')

2. Create a figure object and put two axes on it, ax1 and ax2. Located at [0,0,1,1] and [0.2,0.5,.2,.2] respectively. Now plot (x,y) on both axes. And call your figure object to show it.

Solutions:

fig = plt.figure()

ax1 = fig.add\_axes([0,0,1,1])

ax2 = fig.add\_axes([0.2,0.5,.2,.2])

ax1.plot(x,y)

ax1.set\_xlabel('x')

ax1.set\_ylabel('y')

ax2.plot(x,y)

ax2.set\_xlabel('x')

ax2.set\_ylabel('y')

3. Use the company sales dataset csv file, 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

Sloutions:

import pandas as pd

import matplotlib.pyplot as plt

df = pd.read\_csv("D:\\Python\\Articles\\matplotlib\\sales\_data.csv")

profitList = df ['total\_profit'].tolist()

monthList = df ['month\_number'].tolist()

plt.plot(monthList, profitList, label = 'Month-wise Profit data of last year')

plt.xlabel('Month number')

plt.ylabel('Profit in dollar')

plt.xticks(monthList)

plt.title('Company profit per month')

plt.yticks([100000, 200000, 300000, 400000, 500000])

plt.show()

4. Use the company sales dataset csv file, get total profit of all months and show line plot with the following Style properties. Generated line plot must include following Style properties: –

1. Line Style dotted and Line-color should be red
2. Show legend at the lower right location.
3. X label name = Month Number
4. Y label name = Sold units number
5. Add a circle marker.
6. Line marker color as read
7. Line width should be 3

Solutions:

import pandas as pd

import matplotlib.pyplot as plt

df = pd.read\_csv("D:\\Python\\Articles\\matplotlib\\sales\_data.csv")

profitList = df ['total\_profit'].tolist()

monthList = df ['month\_number'].tolist()

plt.plot(monthList, profitList, label = 'Profit data of last year',

color='r', marker='o', markerfacecolor='k',

linestyle='--', linewidth=3)

plt.xlabel('Month Number')

plt.ylabel('Profit in dollar')

plt.legend(loc='lower right')

plt.title('Company Sales data of last year')

plt.xticks(monthList)

plt.yticks([100000, 200000, 300000, 400000, 500000])

plt.show()

Additional Questions

1. Use the company sales dataset csv file, read all product sales data and show it using a multiline plot.

Display the number of units sold per month or each product using multiline plots. (i.e., Separate Plotline

for each product ).

Solutions:

import pandas as pd

import matplotlib.pyplot as plt

df = pd.read\_csv("D:\\Python\\Articles\\matplotlib\\sales\_data.csv")

monthList = df ['month\_number'].tolist()

faceCremSalesData = df ['facecream'].tolist()

faceWashSalesData = df ['facewash'].tolist()

toothPasteSalesData = df ['toothpaste'].tolist()

bathingsoapSalesData = df ['bathingsoap'].tolist()

shampooSalesData = df ['shampoo'].tolist()

moisturizerSalesData = df ['moisturizer'].tolist()

plt.plot(monthList, faceCremSalesData, label = 'Face cream Sales Data', marker='o', linewidth=3)

plt.plot(monthList, faceWashSalesData, label = 'Face Wash Sales Data', marker='o', linewidth=3)

plt.plot(monthList, toothPasteSalesData, label = 'ToothPaste Sales Data', marker='o', linewidth=3)

plt.plot(monthList, bathingsoapSalesData, label = 'ToothPaste Sales Data', marker='o', linewidth=3)

plt.plot(monthList, shampooSalesData, label = 'ToothPaste Sales Data', marker='o', linewidth=3)

plt.plot(monthList, moisturizerSalesData, label = 'ToothPaste Sales Data', marker='o', linewidth=3)

plt.xlabel('Month Number')

plt.ylabel('Sales units in number')

plt.legend(loc='upper left')

plt.xticks(monthList)

plt.yticks([1000, 2000, 4000, 6000, 8000, 10000, 12000, 15000, 18000])

plt.title('Sales data')

plt.show()

2. 2. Use the company sales dataset csv file, 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.

Solutions:

import pandas as pd

import matplotlib.pyplot as plt

df = pd.read\_csv("D:\\Python\\Articles\\matplotlib\\sales\_data.csv")

monthList = df ['month\_number'].tolist()

labels = ['FaceCream', 'FaseWash', 'ToothPaste', 'Bathing soap', 'Shampoo', 'Moisturizer']

salesData = [df ['facecream'].sum(), df ['facewash'].sum(), df ['toothpaste'].sum(),

df ['bathingsoap'].sum(), df ['shampoo'].sum(), df ['moisturizer'].sum()]

plt.axis("equal")

plt.pie(salesData, labels=labels, autopct='%1.1f%%')

plt.legend(loc='lower right')

plt.title('Sales data')

plt.show()