G. H. Raisoni College Of Engineering And Management, Wagholi Pune

2021- 2022

Group C :-Assignment no :-16

Department	CE [SUMMER 2022 (Online)]		
Term / Section	III/B	Date Of **submission**	13-12-2021
Subject Name /Code	Python for Data Science / UCSP204		
Roll No.	SCOB77	Name	Pratham Rajkumar pitty
Registration Number	2020AC0E1100107		

Group C: Assignment No 16

Aim:
perform various data visualization using matplotlit library

Theory:

Matplotlib.pyplot in Python:

It is a collection of functions that make matplotlib work like MATLAB. Each pyplot function makes some changes to a figure: eg. creates a figure, create a plotting area in figure, plots some lines in a plotting area, decorating the plot with labels, etc.

Various graphes:

- Line graph
- Two Line on same graph
- Histogram
- Bar graph
- Pie graph
- Scatter plot

Conclusion:-

Hence we conclude that using matplotlib library plot various data visualization can be created

In [5]:

```
print("****************************************")
print("SCOB77_Pratham Pitty_Group C Assignment 16")
print("****************************************")
#line graph
import matplotlib.pyplot as plt
Year = [2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019]
India_Population = [1173108018,1189172906,1205073612,1220800359,1266344631,1309053980,13241
plt.plot(Year, India_Population)
plt.show()
import matplotlib.pyplot as plt
Year = [2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019]
India_Population = [1173108018,1189172906,1205073612,1220800359,1266344631,1309053980,13241
plt.plot(Year, India_Population,'o')
plt.show()
66
# importing the required module
import matplotlib.pyplot as plt
# x axis values
x = [1,2,3]
# corresponding y axis values
y = [2,4,1]
# plotting the points
plt.plot(x, y)
# naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')
# giving a title to my graph
plt.title('My first graph!')
# function to show the plot
plt.show()
import matplotlib.pyplot as plt
# line 1 points
x1 = [1,2,3]
y1 = [2,4,1]
# plotting the line 1 points
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plt.plot(x1, y1, label = "IND")
# line 2 points
x2 = [1,2,3]
y2 = [4,1,3]
# plotting the line 2 points
plt.plot(x2, y2, label = "AUST")
 # naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')
# giving a title to my graph
plt.title('Two lines on same graph!')
 # show a legend on the plot
plt.legend()
 # function to show the plot
plt.show()
# Histrogram graph
# import pandas and matplotlib
import pandas as pd
import matplotlib.pyplot as plt
68
# create 2D array of table given above
```
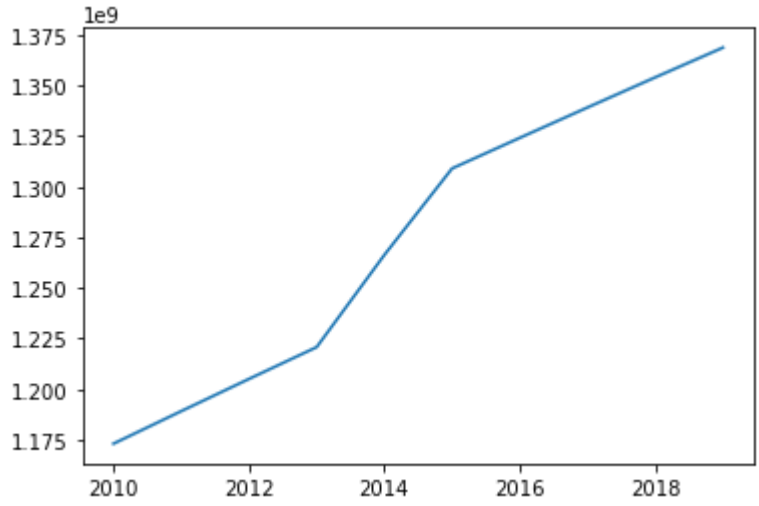
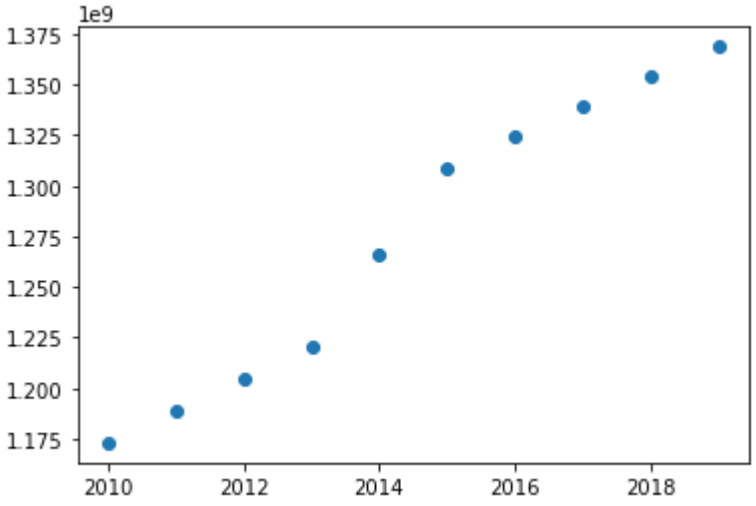
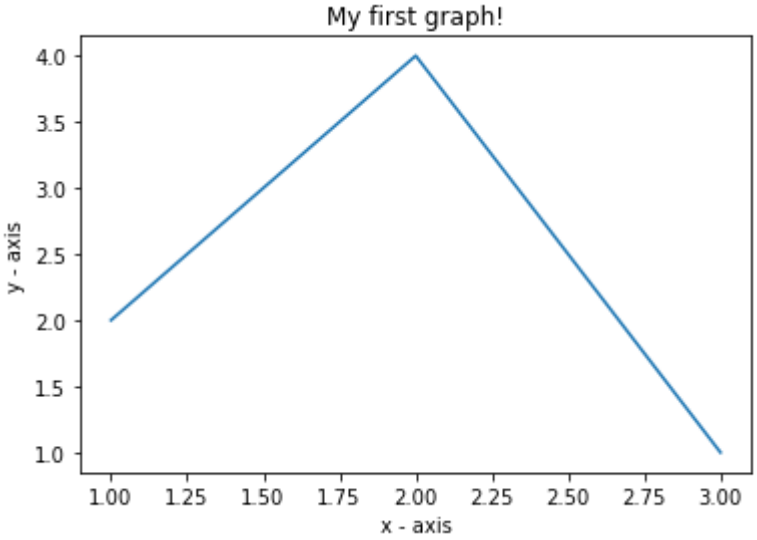
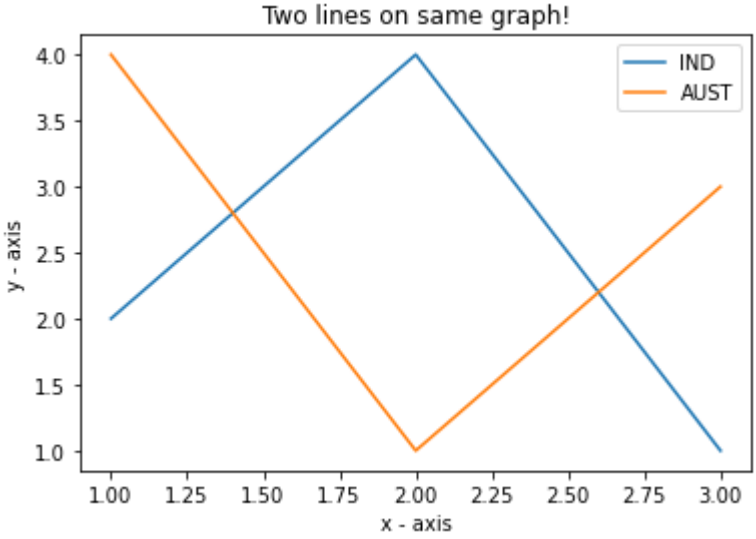

```
data = [['E001', 'M', 34, 123, 'Normal', 350],
 ['E002', 'F', 40, 114, 'Overweight', 450],
 ['E003', 'F', 37, 135, 'Obesity', 169],
 ['E004', 'M', 30, 139, 'Underweight', 189],
 ['E005', 'F', 44, 117, 'Underweight', 183],
 ['E006', 'M', 36, 121, 'Normal', 80],
 ['E007', 'M', 32, 133, 'Obesity', 166],
 ['E008', 'F', 26, 140, 'Normal', 120],
 ['E009', 'M', 32, 133, 'Normal', 75],
 ['E010', 'M', 36, 133, 'Underweight', 40] ]
# dataframe created with the above data array
df = pd.DataFrame(data, columns = ['EMPID', 'Gender',
 'Age', 'Sales',
 'BMI', 'Income'] )
# create histogram for numeric data
df.hist()
# show plot
plt.show()
# bar Graph
plt.bar(df['Age'], df['Sales'])
plt.xlabel("Age")
plt.ylabel("Sales")
plt.title("Bar graph ")
69
plt.show()
#Pie graph
plt.pie(df['Age'], labels = {"A", "B", "C", "D", "E", "F", "G", "H", "I", "J"}, autopct ='%
plt.title("Pie graph of Age")
plt.show()
70
# scatter plot
plt.scatter(df['Income'], df['Age'])
plt.title("Scatter graph between Income and Age")
plt.show()
```

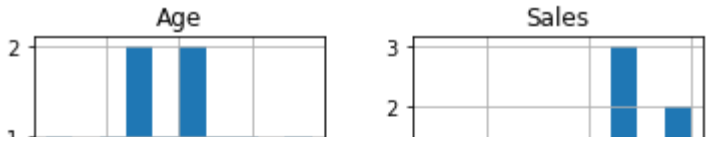
```
****************************************
SCOB77_Pratham Pitty_Group C Assignment 16
****************************************
```

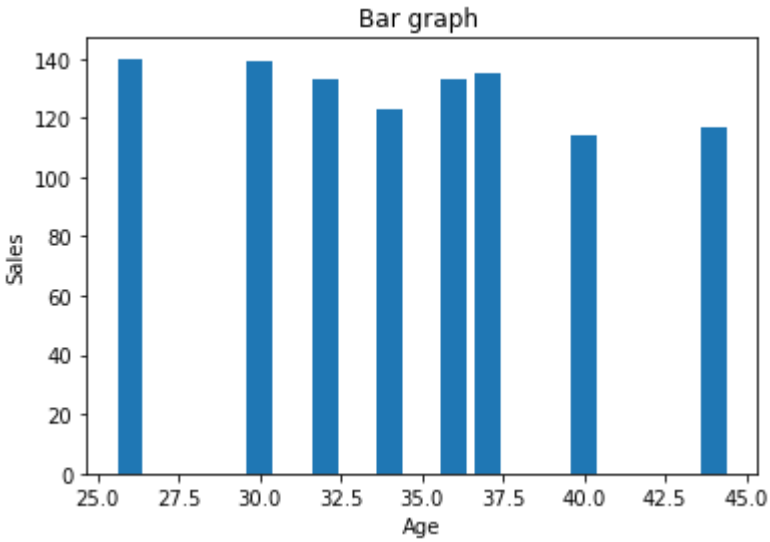


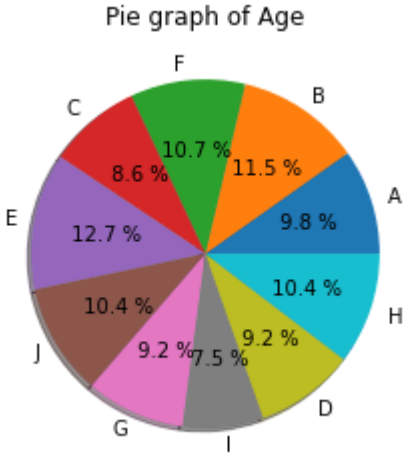

1e9
1.375
1.350
1.325
1.300
1.275
1.250
1.225
1.200
1.175
2010
2012
2014
2016
2018

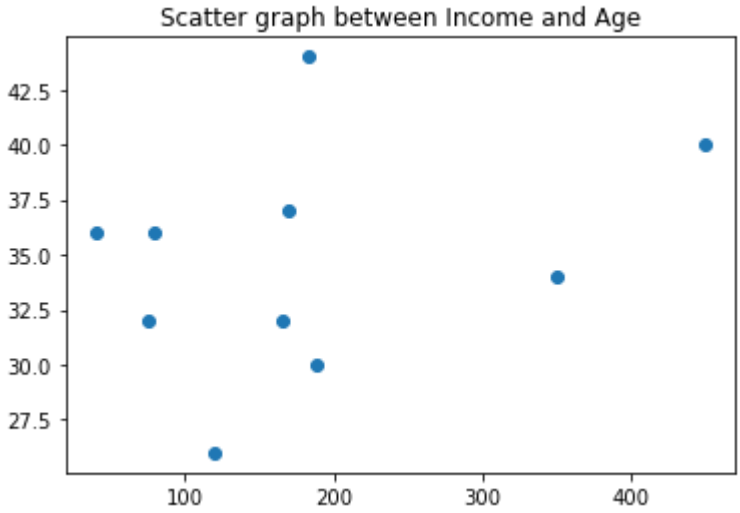

My first graph!
4.0
3.5
3.0
2.5
2.0
1.5
1.0
y - axis
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
x - axis


Two lines on same graph!
IND
AUST
4.0
3.5
3.0
2.5
2.0
1.5
1.0
y - axis
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
x - axis


Age
Sales


Bar graph
Sales
Age


Pie graph of Age
A
B
C
D
E
F
G
H
I
J
9.8 %
11.5 %
8.6 %
10.7 %
12.7 %
10.4 %
9.2 %
7.5 %
9.2 %
10.4 %


Scatter graph between Income and Age

In [ ]: