PYTHON ASSIGNMENT

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DATA:

	sepal.length	sepal.width	petal.length	petal.width	variety
0	5.1	3.5	1.4	0.2	Setosa
1	4.9	3.0	1.4	0.2	Setosa
2	4.7	3.2	1.3	0.2	Setosa
3	4.6	3.1	1.5	0.2	Setosa
4	5.0	3.6	1.4	0.2	Setosa
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	Virginica
146	6.3	2.5	5.0	1.9	Virginica
147	6.5	3.0	5.2	2.0	Virginica
148	6.2	3.4	5.4	2.3	Virginica
149	5.9	3.0	5.1	1.8	Virginica

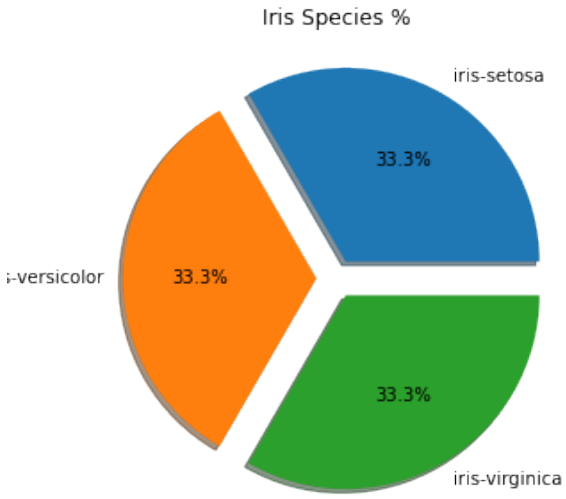
150 rows × 5 columns

Reading the Data

```
#Reading the given data:

import matplotlib.pyplot as plt
import numpy as np
import pandas as pd

df=pd.read_csv("iris.csv")
```

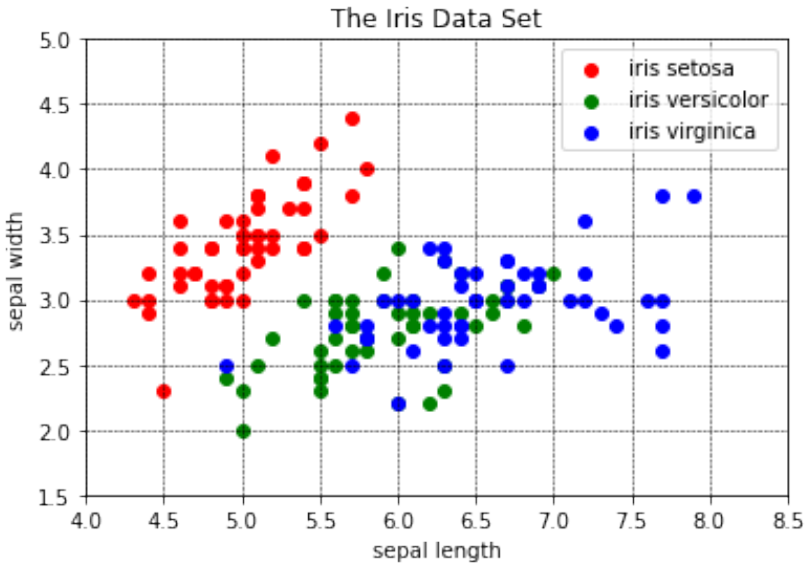
1.Pie Chart

```
#1.
var_count=df["variety"].value_counts()
var_count=dict(var_count)
A=["iris-setosa","iris-versicolor","iris-virginica"]


fig=plt.figure(figsize=(5,5))
explode=(0.1,0.1,0.1)
plt.pie(x=var_count.values(),labels=A,explode=explode,autopct='%1.1
    f%%',shadow=True)
plt.title("Iris Species %")
plt.show()
```



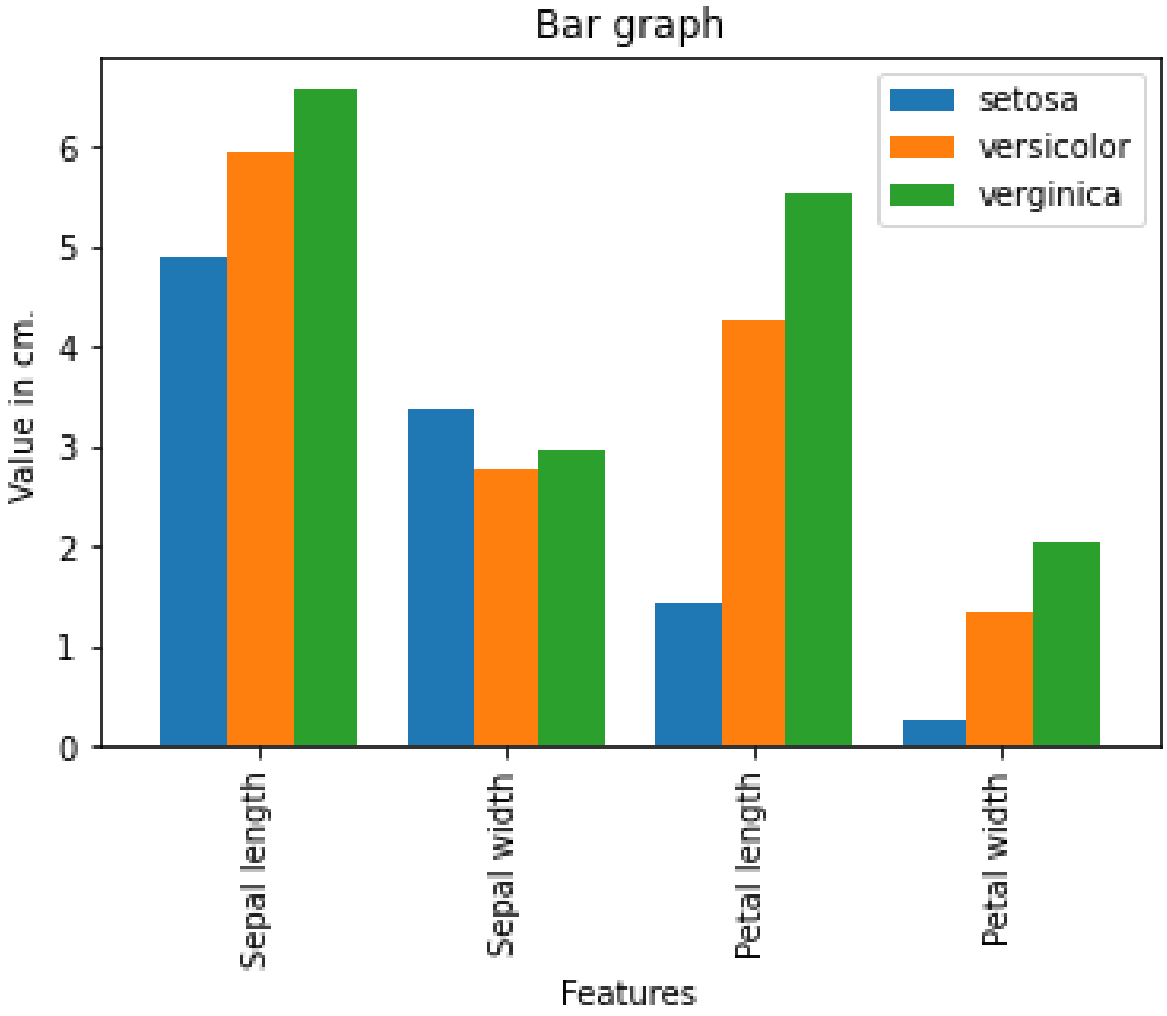
2.Scatter Plot

```
#2.
a=list(df["sepal.length"])
b=list(df["sepal.width"])
setosa_sep_len=[a[i] for i in range(0,49)]
setosa_sep_wid=[b[i] for i in range(0,49)]

a=list(df["sepal.length"])
b=list(df["sepal.width"])
versi_sep_len=[a[i] for i in range(50,100)]
versi_sep_wid=[b[i] for i in range(50,100)]

a=list(df["sepal.length"])
b=list(df["sepal.width"])
vergi_sep_len=[a[i] for i in range(100,150)]
vergi_sep_wid=[b[i] for i in range(100,150)]

fig=plt.figure()
plt.scatter(setosa_sep_len,setosa_sep_wid,color="red")
plt.scatter(versi_sep_len,versi_sep_wid,color="green")
plt.scatter(vergi_sep_len,vergi_sep_wid,color="blue")
plt.ylabel("sepal width")
plt.xlabel("sepal length")
plt.xlim(4,8.5)
plt.ylim(1.5,5)
plt.grid(color = 'black', linestyle = '--', linewidth = 0.5)
plt.title("The Iris Data Set")
plt.legend(["iris setosa","iris versicolor","iris virginica"])
plt.show()
```



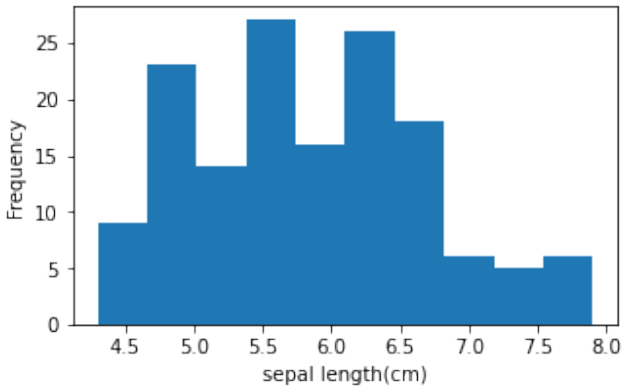
3.Bar Graph

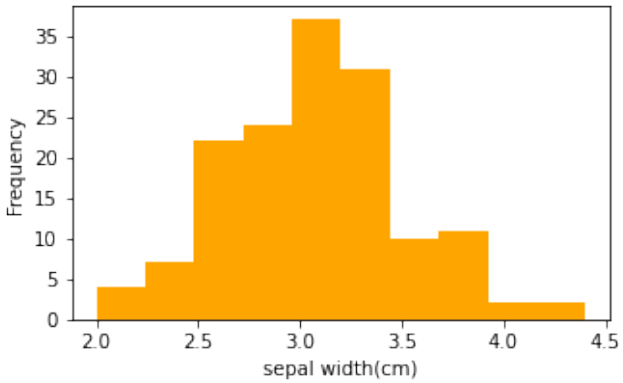
```
#3.
a=list(df["petal.length"])
b=list(df["petal.width"])
setosa_pet_len=[a[i] for i in range(0,49)]
setosa_pet_wid=[b[i] for i in range(0,49)]

a=list(df["petal.length"])
b=list(df["petal.width"])
versi_pet_len=[a[i] for i in range(50,100)]
versi_pet_wid=[b[i] for i in range(50,100)]

a=list(df["petal.length"])
b=list(df["petal.width"])
vergi_pet_len=[a[i] for i in range(100,150)]
vergi_pet_wid=[b[i] for i in range(100,150)]

a1=(sum(setosa_sep_len)/50)#setosa_seplen_avg
a2=(sum(setosa_sep_wid)/50)#setosa_sepwid_avg
a3=(sum(setosa_pet_len)/50)#setosa_petlen_avg
a4=(sum(setosa_pet_wid)/50)#setosa_petwid_avg

b1=(sum(versi_sep_len)/50)#versi_seplen_avg
b2=(sum(versi_sep_wid)/50)#versi_sepwid_avg
b3=(sum(versi_pet_len)/50)#versi_petlen_avg
b4=(sum(versi_pet_wid)/50)#versi_petwid_avg

c1=(sum(vergi_sep_len)/50)#vergi_seplen_avg
c2=(sum(vergi_sep_wid)/50)#vergi_sepwid_avg
c3=(sum(vergi_pet_len)/50)#vergi_petlen_avg
c4=(sum(vergi_pet_wid)/50)#vergi_petwid_avg



df = pd.DataFrame({
    'Features': ['Sepal length', 'Sepal width', 'Petal length','
    Petal width'],
    'setosa': [a1,a2,a3,a4],
    'versicolor': [b1,b2,b3,b4],
    'verginica':[c1,c2,c3,c4]
     })

df.plot(x="Features", y=["setosa", "versicolor","verginica"], kind=
    "bar",width=0.8,
        title="Bar graph",ylabel="Value in cm.")
```

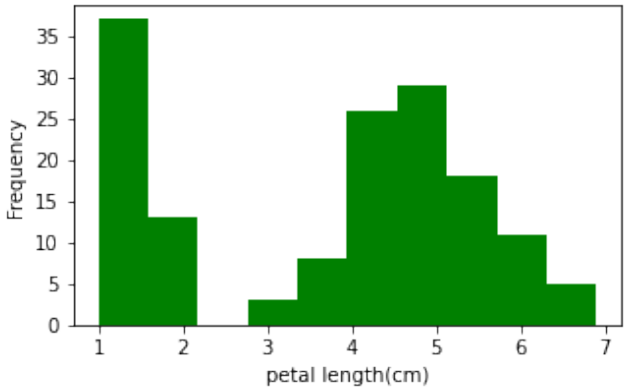

Bar graph
setosa
versicolor
verginica
Value in cm.
0
1
2
3
4
5
6
Sepal length
Sepal width
Petal length
Petal width
Features

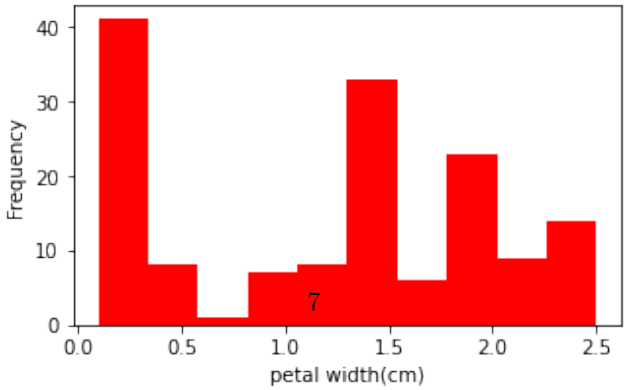
4.Iris Histograms

```
#4.
df=pd.read_csv("iris.csv")

fig=plt.figure(figsize=(5,3))
plt.hist(x=list(df["sepal.length"]))
plt.xlabel("sepal length(cm)")
plt.ylabel("Frequency")
plt.show()

fig=plt.figure(figsize=(5,3))
plt.hist(x=list(df["sepal.width"]),color="orange")
plt.xlabel("sepal width(cm)")
plt.ylabel("Frequency")
plt.show()

fig=plt.figure(figsize=(5,3))
plt.hist(x=list(df["petal.length"]),color="green")
plt.xlabel("petal length(cm)")
plt.ylabel("Frequency")
plt.show()

fig=plt.figure(figsize=(5,3))
plt.hist(x=list(df["petal.width"]),color="red")
plt.xlabel("petal width(cm)")
plt.ylabel("Frequency")
plt.show()
```


Frequency
0
5
10
15
20
25
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
sepal length(cm)


Frequency
0
5
10
15
20
25
30
35
2.0
2.5
3.0
3.5
4.0
4.5
sepal width(cm)


Frequency
0
5
10
15
20
25
30
35
1
2
3
4
5
6
7
petal length(cm)


Frequency
0
10
20
30
40
0.0
0.5
1.0
1.5
2.0
2.5
petal width(cm)