

ASSIGNMENT 3

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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

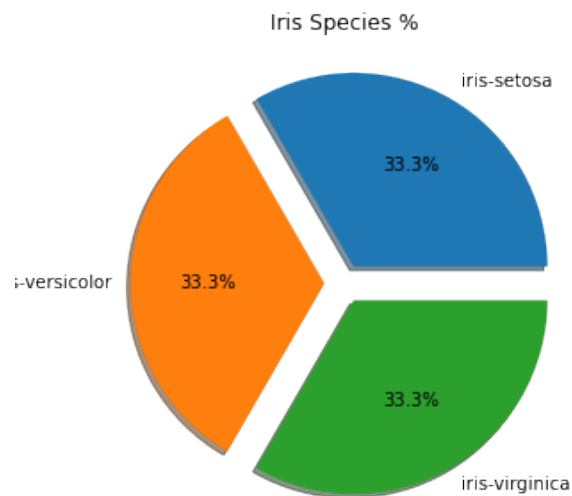
150 rows × 5 columns

Reading the Data

```
1 #Reading the given data:
2
3 import matplotlib.pyplot as plt
4 import numpy as np
5 import pandas as pd
6
7 df=pd.read_csv("iris.csv")
```

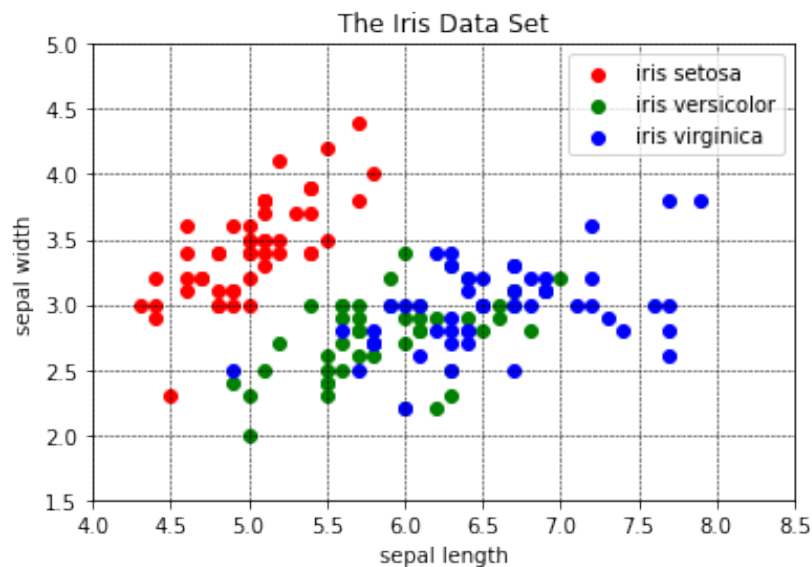
1.Pie Chart

```
1 #1.
2 var_count=df["variety"].value_counts()
3 var_count=dict(var_count)
4 A=["iris-setosa","iris-versicolor","iris-virginica"]
5
6
7 fig=plt.figure(figsize=(5,5))
8 explode=(0.1,0.1,0.1)
9 plt.pie(x=var_count.values(),labels=A,explode=explode,autopct='%1.1
    f%%',shadow=True)
10 plt.title("Iris Species %")
11 plt.show()
```



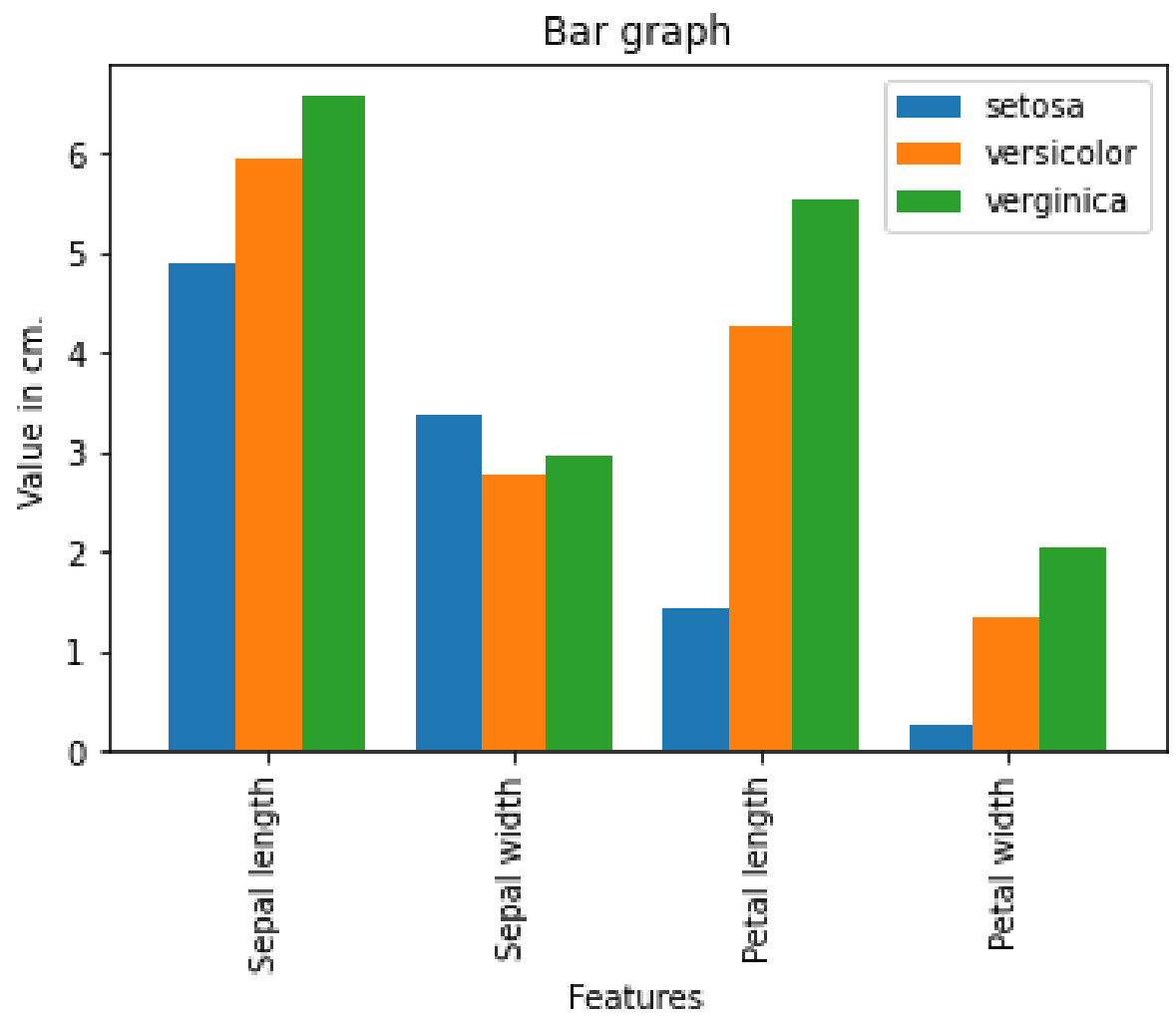
2.Scatter Plot

```
1 #2.
2 a=list(df["sepal.length"])
3 b=list(df["sepal.width"])
4 setosa_sep_len=[a[i] for i in range(0,49)]
5 setosa_sep_wid=[b[i] for i in range(0,49)]
6
7 a=list(df["sepal.length"])
8 b=list(df["sepal.width"])
9 versicolor_sep_len=[a[i] for i in range(50,100)]
10 versicolor_sep_wid=[b[i] for i in range(50,100)]
11
12 a=list(df["sepal.length"])
13 b=list(df["sepal.width"])
14 virginica_sep_len=[a[i] for i in range(100,150)]
15 virginica_sep_wid=[b[i] for i in range(100,150)]
16
17 fig=plt.figure()
18 plt.scatter(setosa_sep_len,setosa_sep_wid,color="red")
19 plt.scatter(versicolor_sep_len,versicolor_sep_wid,color="green")
20 plt.scatter(virginica_sep_len,virginica_sep_wid,color="blue")
21 plt.ylabel("sepal width")
22 plt.xlabel("sepal length")
23 plt.xlim(4,8.5)
24 plt.ylim(1.5,5)
25 plt.grid(color = 'black', linestyle = '--', linewidth = 0.5)
26 plt.title("The Iris Data Set")
27 plt.legend(["iris setosa","iris versicolor","iris virginica"])
28 plt.show()
```



3.Bar Graph

```
1 #3.
2 a=list(df["petal.length"])
3 b=list(df["petal.width"])
4 setosa_pet_len=[a[i] for i in range(0,49)]
5 setosa_pet_wid=[b[i] for i in range(0,49)]
6
7 a=list(df["petal.length"])
8 b=list(df["petal.width"])
9 versicolor_pet_len=[a[i] for i in range(50,100)]
10 versicolor_pet_wid=[b[i] for i in range(50,100)]
11
12 a=list(df["petal.length"])
13 b=list(df["petal.width"])
14 virginica_pet_len=[a[i] for i in range(100,150)]
15 virginica_pet_wid=[b[i] for i in range(100,150)]
16
17 a1=(sum(setosa_pet_len)/50)#setosa_petlen_avg
18 a2=(sum(setosa_pet_wid)/50)#setosa_petwid_avg
19 a3=(sum(versicolor_pet_len)/50)#versicolor_petlen_avg
20 a4=(sum(versicolor_pet_wid)/50)#versicolor_petwid_avg
21
22 b1=(sum(virginica_pet_len)/50)#virginica_petlen_avg
23 b2=(sum(virginica_pet_wid)/50)#virginica_petwid_avg
24 b3=(sum(setosa_pet_len)/50)#setosa_petlen_avg
25 b4=(sum(setosa_pet_wid)/50)#setosa_petwid_avg
26
27 c1=(sum(versicolor_pet_len)/50)#versicolor_petlen_avg
28 c2=(sum(versicolor_pet_wid)/50)#versicolor_petwid_avg
29 c3=(sum(virginica_pet_len)/50)#virginica_petlen_avg
30 c4=(sum(virginica_pet_wid)/50)#virginica_petwid_avg
31
32
33
34 df = pd.DataFrame({
35     'Features': ['Sepal length', 'Sepal width', 'Petal length',
36                 'Petal width'],
37     'setosa': [a1,a2,a3,a4],
38     'versicolor': [b1,b2,b3,b4],
39     'virginica': [c1,c2,c3,c4]
40 })
41 df.plot(x="Features", y=["setosa", "versicolor","virginica"], kind=
42         "bar",width=0.8,
43         title="Bar graph",ylabel="Value in cm.")
```



4.Iris Histograms

```
1 #4.
2 df=pd.read_csv("iris.csv")
3
4 fig=plt.figure(figsize=(5,3))
5 plt.hist(x=list(df["sepal.length"]))
6 plt.xlabel("sepal length(cm)")
7 plt.ylabel("Frequency")
8 plt.show()
9
10 fig=plt.figure(figsize=(5,3))
11 plt.hist(x=list(df["sepal.width"]),color="orange")
12 plt.xlabel("sepal width(cm)")
13 plt.ylabel("Frequency")
14 plt.show()
15
16 fig=plt.figure(figsize=(5,3))
17 plt.hist(x=list(df["petal.length"]),color="green")
18 plt.xlabel("petal length(cm)")
19 plt.ylabel("Frequency")
20 plt.show()
21
22 fig=plt.figure(figsize=(5,3))
23 plt.hist(x=list(df["petal.width"]),color="red")
24 plt.xlabel("petal width(cm)")
25 plt.ylabel("Frequency")
26 plt.show()
```

