

PYTHON REVIEW PROGRAMS

1.Review of python programming, Matrix operations, Programs usingmatplotlib / plotly / bokeh / seaborn for data visualisation and programs tohandle data using pandas.

1. Write a program to copy a text file to another file

```
f1=open("a.txt","r")
f2=open("b.txt","w")
for i in f1:
    f2.write(i)
f1.close()
f2.close()
```

2. write a aprogram to append a file with the the contents of another file.

```
f1=open("a.txt","r")
f2=open("b.txt","a")
f2.write(f1.read())
f2.close()
f2=open("b.txt","r")
line=f2.read()
print(line)
f1.close()
f2.close()
```

3. write a program to compare two files.

```
f1=open("a.txt","r")
```

```
f2=open("b.txt","r")
i=0
for j in f1:
    i+=1
    for k in f2:
        if j==k:
            print("same")
            break
        else:
            print("not same")
            break
f1.close()
f2.close()
```

4. write a program to count the number of files in afile.

```
fname=input("enter a file name:")
num_lines=0
with open(fname,'r') as f:
    for line in f:
        num_lines+=1
print("no of lines")
print(num_lines)
```

5. write a program to delete a sentence from the specified position in a file.

```
f1=open("a.txt","r")
lines=f1.readlines()
print(lines)
f1.close()
del lines[1]
```

```
f1=open("a.txt","w+")
for line in lines:
    f1.write(line)
print(lines)
f1.close()
```

6. write a program to count the frequencies of each word from a file.

```
f1=open("a.txt","r")
count=dict()
for line in f1:
    words=line.split()
    for word in words:
        if word in count:
            count[word]+=1
        else:
            count[word]=1
print(count)
f1.close()
```

Matrix programs

1. write a program to get the maximum and minimum value from a given matrix.

```
import numpy as np
arr=np.array([2,7,-1],[2,5,6],[2,8,5]))
a=np.max(arr)
b=np.min(arr)
print("maximum:",a)
print("minimum:",b)
```

2.find the numbers of rows and columns of a given matrix using numpy.

```
import numpy as np
arr=np.array([[1,2,3,4],[4,5,6,7],[8,9,10,11]])
print(arr.shape)
```

3.write a program to find the sum of values in a matrix.

```
import numpy as np
arr=np.array([[2,7,5,9],[2,5,6,7],[3,6,8,5]])
print("sum of matrix")
print(arr.sum())
```

4.write a program to calculate the sum of diagonal elements of a numpy array.

```
import numpy as np
arr=np.array([[2,3,5,6],[4,5,6,7],[3,4,2,5]])
print(arr)
print("the sum of diagonal elemnts are:")
print(np.trace(arr))
```

5.write a program to demonstrate matrix,subtract and division.

```
import numpy as np
a=np.array([[2,3],[4,5],[2,1]])
b=np.array([[2,4],[6,7],[8,6]])
print(a)
print(b)
```

```
print("the sum is:",np.add(a,b))
print("the difference is :",np.subtract(a,b))
print("the division :",np.divide(a,b))
```

Data visualization

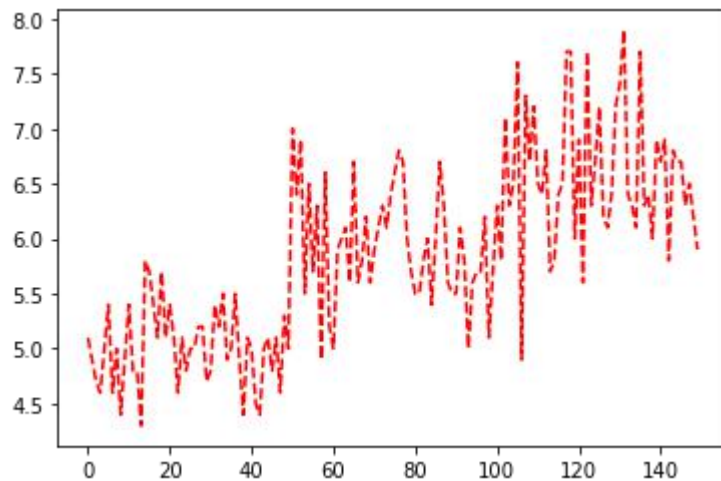
Iris dataset

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_csv("iris_csv.csv")
print(data.head(10))
```

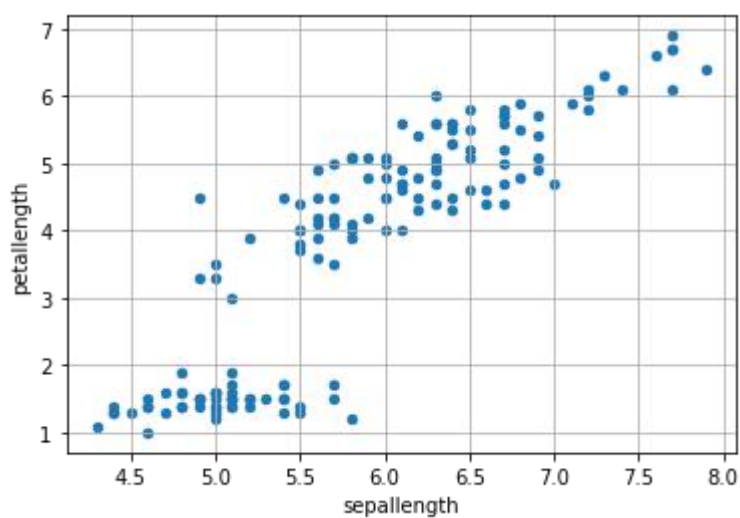
	sepalength	sepalwidth	petallength	petalwidth	class
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.4	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa
8	4.4	2.9	1.4	0.2	Iris-setosa
9	4.9	3.1	1.5	0.1	Iris-setosa

```
import numpy as np
import pandas as pd
```

```
import matplotlib.pyplot as plt
iris=pd.read_csv("iris_csv.csv")
plt.plot(iris["sepalength"],"r--")
plt.show
```

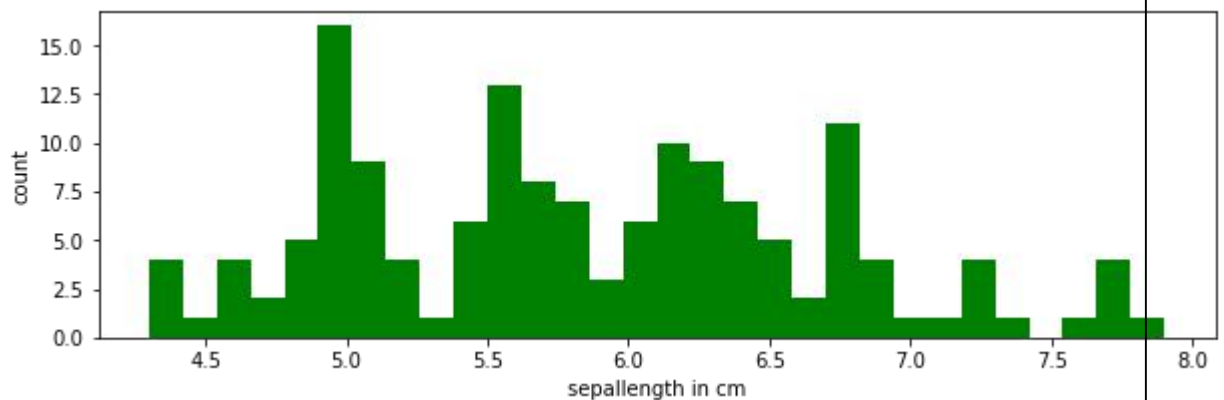


```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
iris=pd.read_csv("iris_csv.csv")
iris.plot(kind="scatter",x="sepalength",y="petallength")
plt.grid()
plt.show()
```



```
import numpy as np
import pandas as pd
```

```
import matplotlib.pyplot as plt
iris=pd.read_csv("iris_csv.csv")
plt.figure(figsize=(10,3))
x=iris["sepalength"]
plt.hist(x,bins=30,color="green")
plt.xlabel("sepalength in cm")
plt.ylabel("count")
plt.show
```



```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_csv("iris_csv.csv")
plt.figure(figsize=(10,3))
data.boxplot()
```

