In [1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

In [6]:
```
iris = pd.read_csv(r'C:\Users\golu\Downloads\iris.csv')
```

In [7]:
```
iris
```

Out[7]:

	5.1	3.5	1.4	0.2	Iris-setosa
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa
...	...	...	...	...	...
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

149 rows × 5 columns

In [8]:
```
iris.shape
```

Out[8]:
```
(149, 5)
```

In [9]:
```
iris.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 149 entries, 0 to 148
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   5.1           149 non-null    float64
 1   3.5           149 non-null    float64
 2   1.4           149 non-null    float64
 3   0.2           149 non-null    float64
 4   Iris-setosa   149 non-null    object 
dtypes: float64(4), object(1)
memory usage: 5.3+ KB
```

In [10]:
```
iris.isnull().sum()
```

Out[10]:
```
5.1            0
3.5            0
1.4            0
0.2            0
Iris-setosa    0
dtype: int64
```

In [11]:
```
iris.describe()
```

Out[11]:

	5.1	3.5	1.4	0.2
count	149.000000	149.000000	149.000000	149.000000
mean	5.848322	3.051007	3.774497	1.205369
std	0.828594	0.433499	1.759651	0.761292
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.400000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

In [33]:
```
iris0 = iris.rename(columns = { 0 : 'SepalLength'}, inplace = True)
iris1 = iris.rename(columns = { 1 : 'SepalWidth'}, inplace = True)
iris2 = iris.rename(columns = { 2 : 'petalLength'}, inplace = True)
iris3 = iris.rename(columns = { 3 : 'PetalWidth'}, inplace = True)
iris4 = iris.rename(columns = { 4 : 'Species'}, inplace = True)
```

In [34]:
```
iris
```

Out[34]:

	5.1	3.5	1.4	0.2	Iris-setosa
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa
...	...	...	...	...	...
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

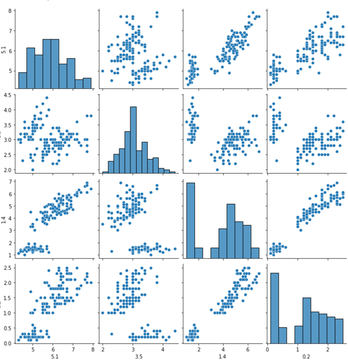
149 rows × 5 columns

In [ ]:
```

```

In [37]:
```
sns.pairplot(data=iris,kind='scatter')
```

Out[37]:
```
<seaborn.axisgrid.PairGrid at 0x3f7ce38>
```



In [38]:
```
corr = iris.corr()
plt.figure(figsize = (5,4))
sns.heatmap(corr, annot = True, vmin = -1.0, cmap = 'mako')
plt.title('Correlation Matrix')
plt.show()
```

In [ ]:
```

```

In [44]:
```
iris.columns
```

Out[44]:
```
Index(['5.1', '3.5', '1.4', '0.2', 'Iris-setosa'], dtype='object')
```

In [45]:
```
iris.isnull()
```

Out[45]:

	5.1	3.5	1.4	0.2	Iris-setosa
0	False	False	False	False	False
1	False	False	False	False	False
2	False	False	False	False	False
3	False	False	False	False	False
4	False	False	False	False	False
...	...	...	...	...	...
144	False	False	False	False	False
145	False	False	False	False	False
146	False	False	False	False	False
147	False	False	False	False	False
148	False	False	False	False	False

149 rows × 5 columns

In [46]:
```
iris.nunique()
```

Out[46]:
```
5.1              35
3.5              23
1.4              43
0.2              22
Iris-setosa       3
dtype: int64
```

In [53]:
```
iris.head()
```

Out[53]:

	5.1	3.5	1.4	0.2	Iris-setosa
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa

In [58]:
```
iris.max()
```

Out[58]:
```
5.1                 7.9
3.5                 4.4
1.4                 6.9
0.2                 2.5
Iris-setosa    Iris-virginica
dtype: object
```

In [51]:
```
iris.min()
```

Out[51]:
```
5.1                 4.3
3.5                 2.0
1.4                 1.0
0.2                 0.1
Iris-setosa    Iris-setosa
dtype: object
```

In [54]:
```
iris.tail()
```

Out[54]:

	5.1	3.5	1.4	0.2	Iris-setosa
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

In [ ]:
```

```

In [ ]:
```

```