In [1]:
```python
import pandas as pd
```

In [2]:
```python
df = pd.read_csv("E:\data science\iris_csv.csv")
```

In [3]:
```python
df.head()
```

Out[3]:

	sepallength	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

In [4]:
```python
df.shape
```

Out[4]: (150, 5)

In [5]:
```python
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   sepallength  150 non-null    float64
 1   sepalwidth   150 non-null    float64
 2   petallength  150 non-null    float64
 3   petalwidth   150 non-null    float64
 4   class        150 non-null    object 
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

In [6]:
```python
df.describe()
```

Out[6]:

	sepallength	sepalwidth	petallength	petalwidth
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.054000	3.758667	1.198667
std	0.828066	0.433594	1.764420	0.763161
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

In [7]:
```python
df.sample(n=2,axis=0)
```

Out[7]:

	sepallength	sepalwidth	petallength	petalwidth	class
11	4.8	3.4	1.6	0.2	Iris-setosa
30	4.8	3.1	1.6	0.2	Iris-setosa

In [8]:
```python
df.isnull()
```

Out[8]:

	sepallength	sepalwidth	petallength	petalwidth	class
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
...	...	...	...	...	...
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	False	False	False	False	False

150 rows × 5 columns

In [9]:
```python
df.isnull().sum()
```

Out[9]:
```
sepallength    0
sepalwidth     0
petallength    0
petalwidth     0
class          0
dtype: int64
```

In [10]:
```python
ndf = df.drop_duplicates()
ndf
```

Out[10]:

	sepallength	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
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica

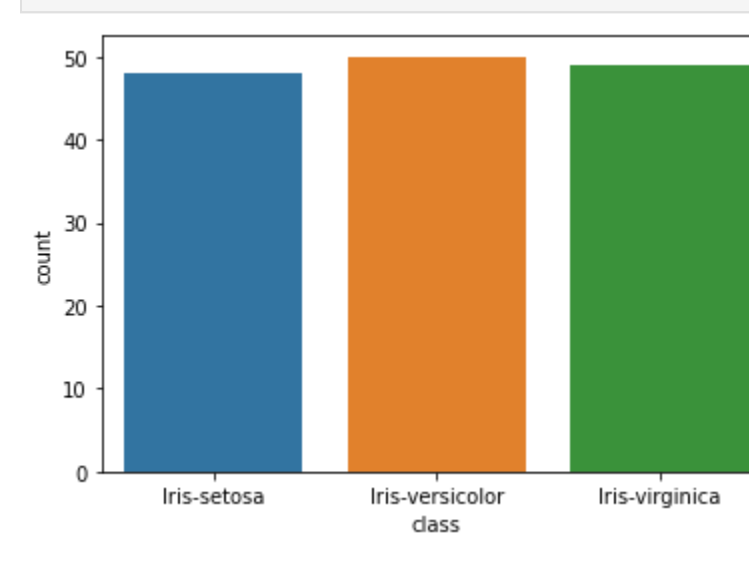
147 rows × 5 columns

In [11]:
```python
ndf.value_counts("class")
```

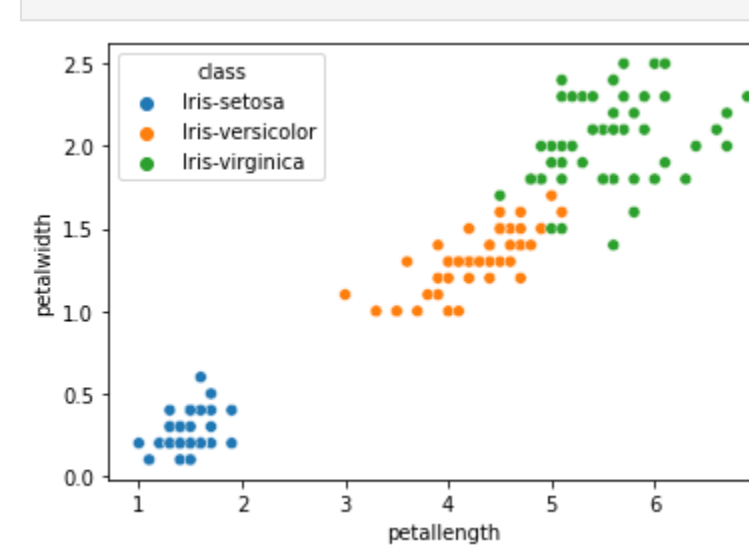
Out[11]:
```
class
Iris-versicolor    50
Iris-virginica     49
Iris-setosa        48
dtype: int64
```

In [12]:
```python
import seaborn as sns
import matplotlib.pyplot as plt
```

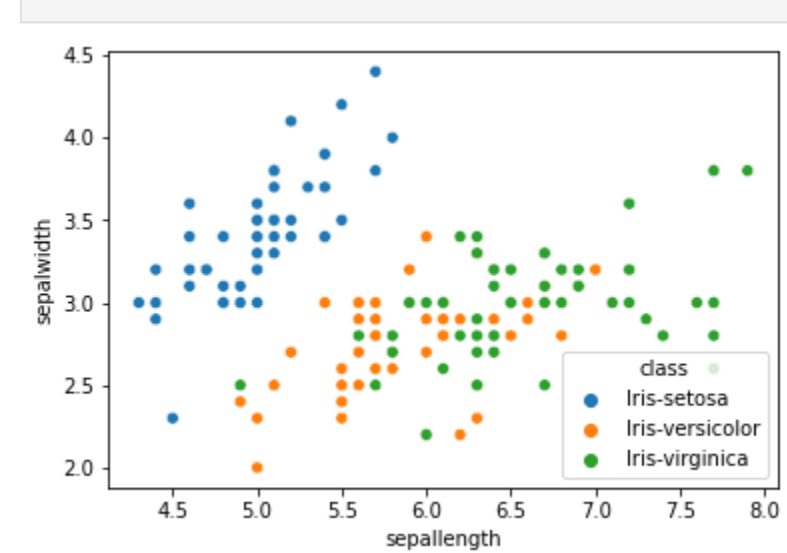
In [13]:
```python
sns.countplot(x="class" , data=ndf)
plt.show()
```



In [14]:
```python
sns.scatterplot(x="petallength",y="petalwidth",hue="class",data=ndf)
plt.show()
```

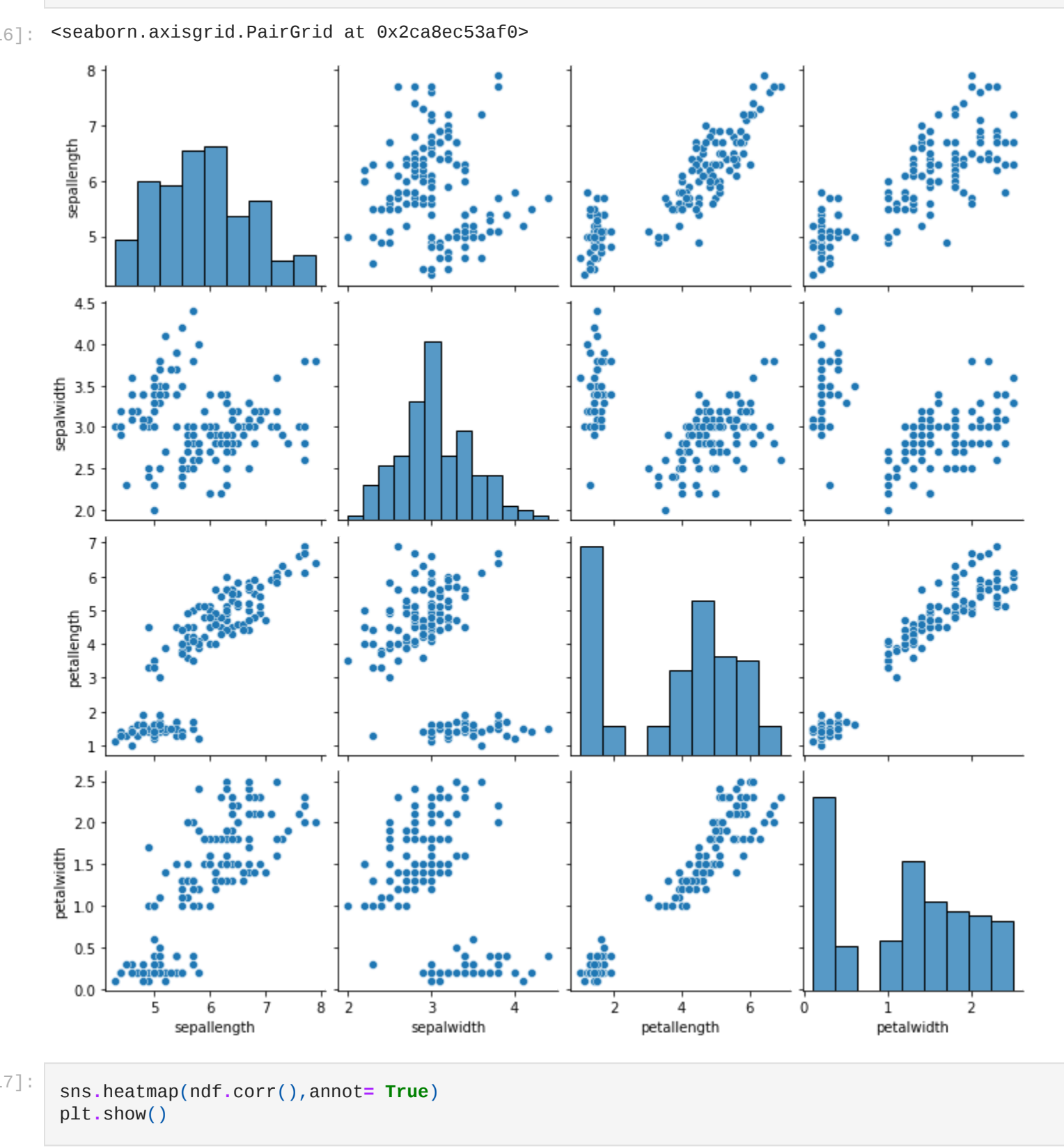


In [15]:
```python
sns.scatterplot(x="sepallength",y="sepalwidth",hue="class",data=ndf)
plt.show()
```

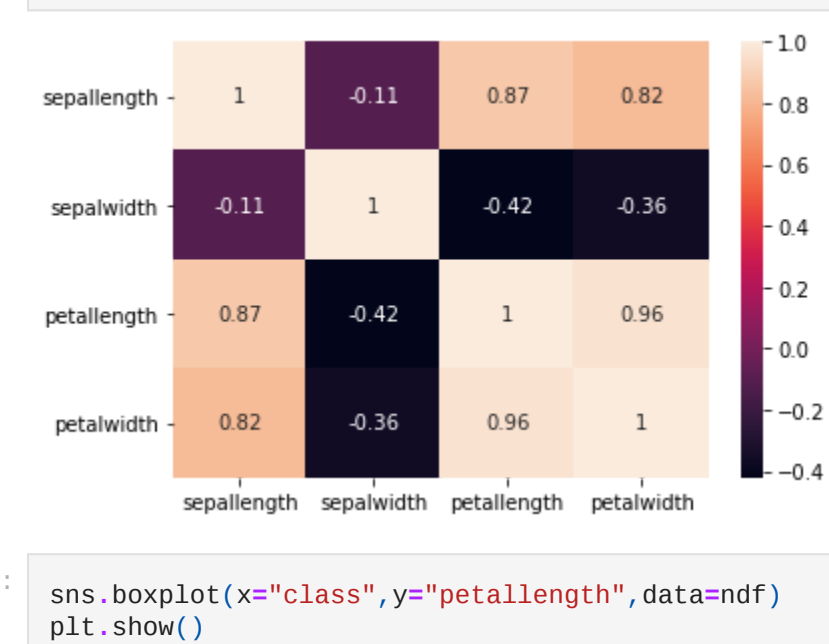


In [16]:
```python
sns.pairplot(data=ndf)
```

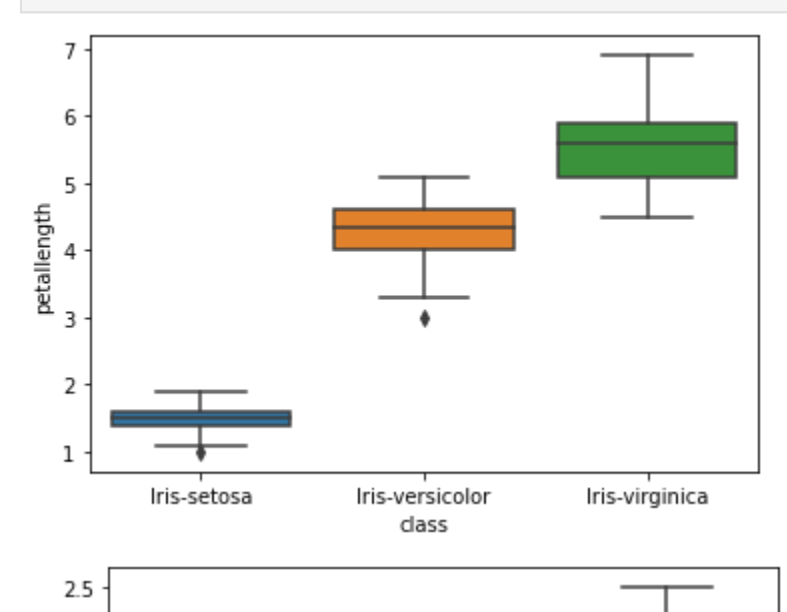
Out[16]: <seaborn.axisgrid.PairGrid at 0x2ca8ec53af0>

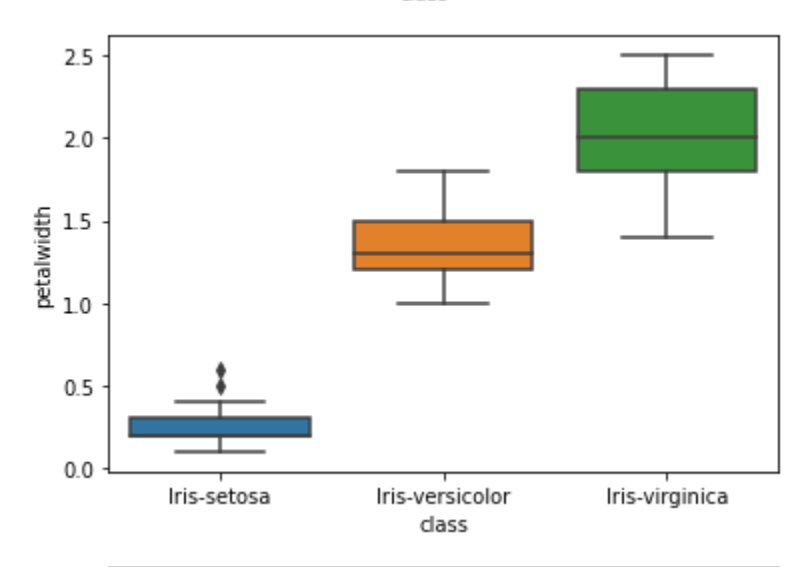


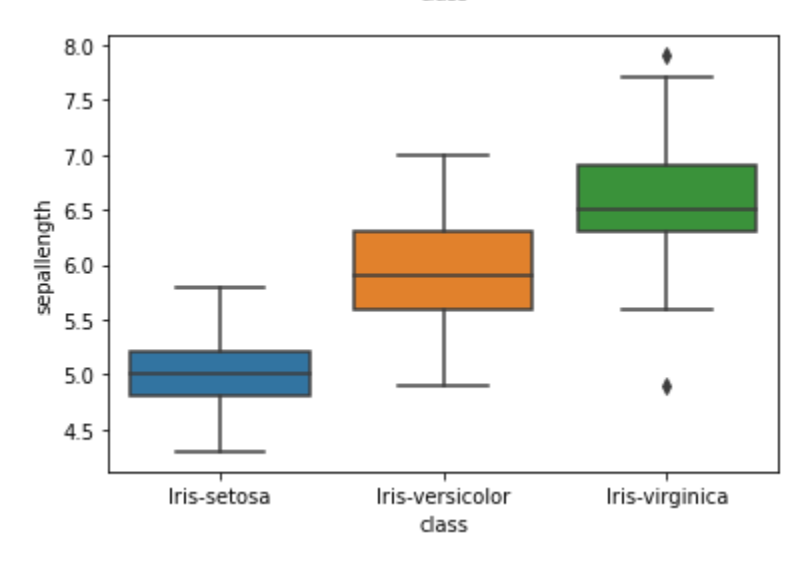
In [17]:
```python
sns.heatmap(ndf.corr(),annot= True)
plt.show()
```

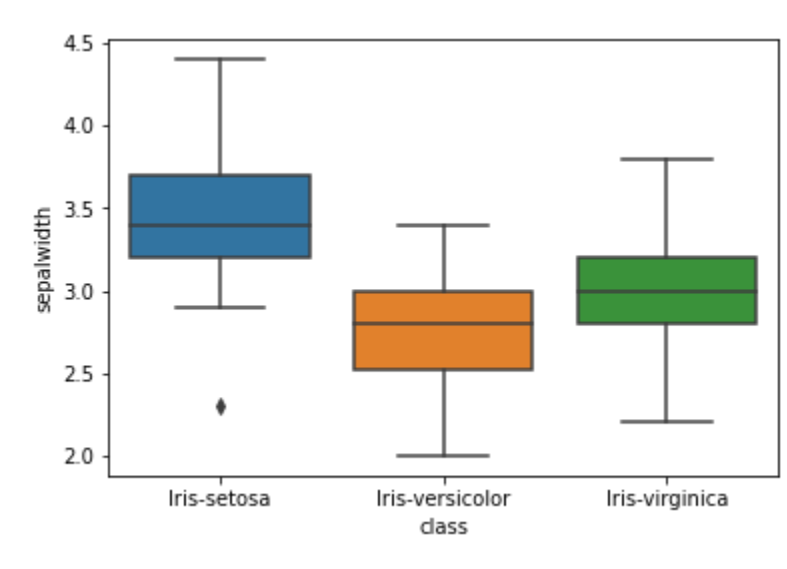


In [18]:
```python
sns.boxplot(x="class",y="petallength",data=ndf)
plt.show()
sns.boxplot(x="class",y="petalwidth",data=ndf)
plt.show()
sns.boxplot(x="class",y="sepallength",data=ndf)
plt.show()
sns.boxplot(x="class",y="sepalwidth",data=ndf)
plt.show()
```

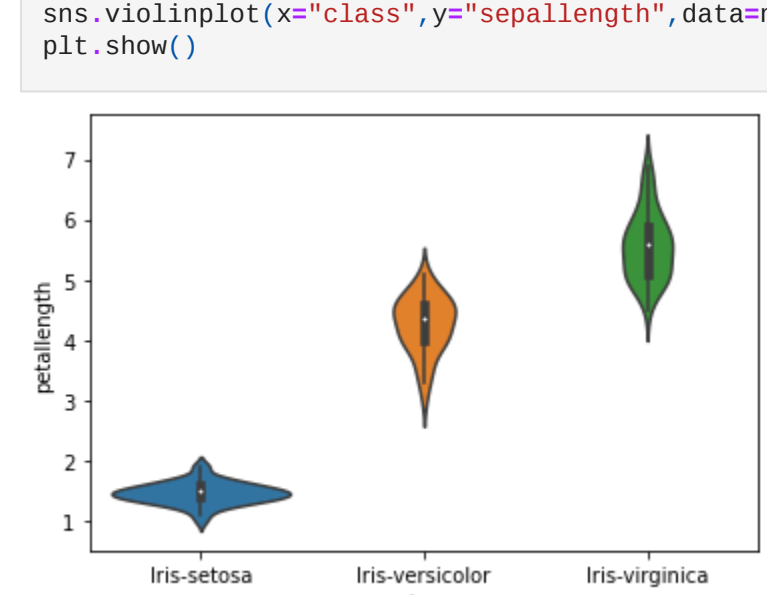


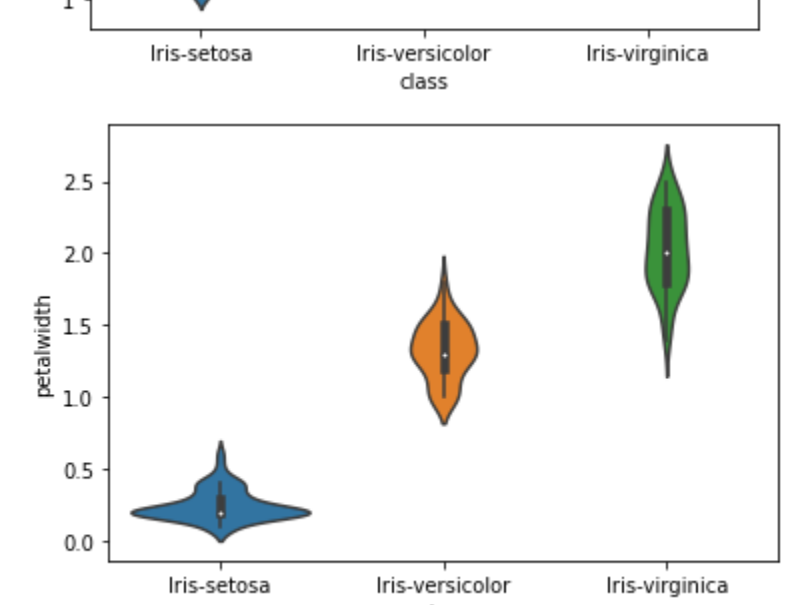


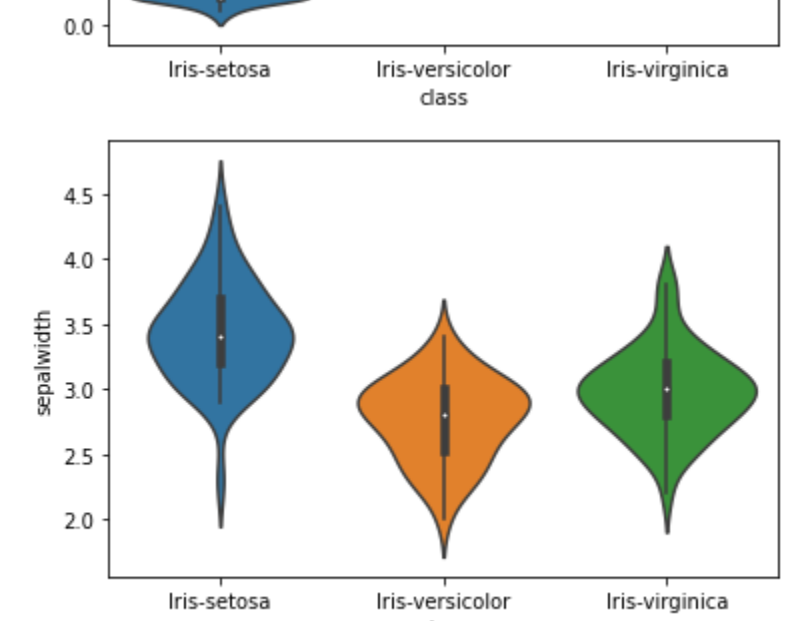


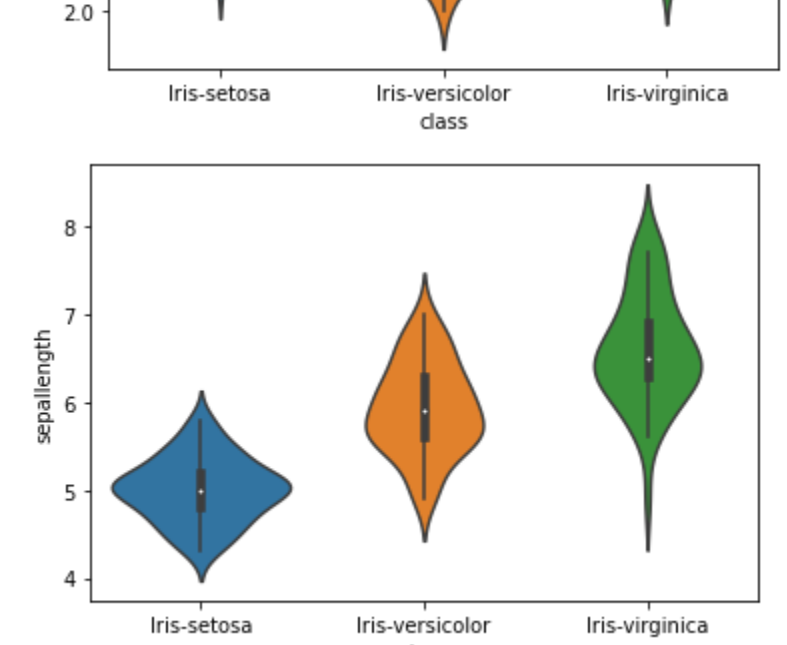


In [19]:
```python
sns.violinplot(x="class",y="petallength",data=ndf)
plt.show()
sns.violinplot(x="class",y="petalwidth",data=ndf)
plt.show()
sns.violinplot(x="class",y="sepalwidth",data=ndf)
plt.show()
sns.violinplot(x="class",y="sepallength",data=ndf)
plt.show()
```

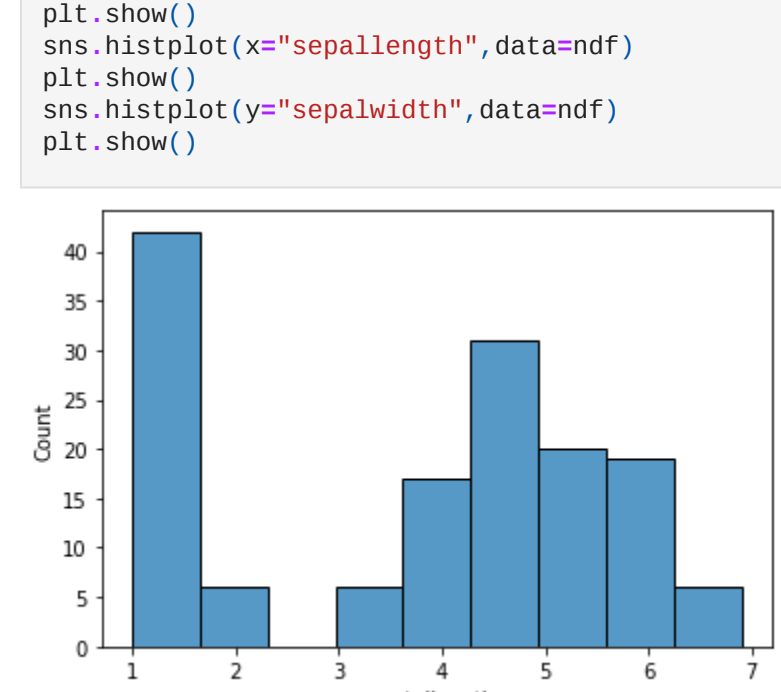


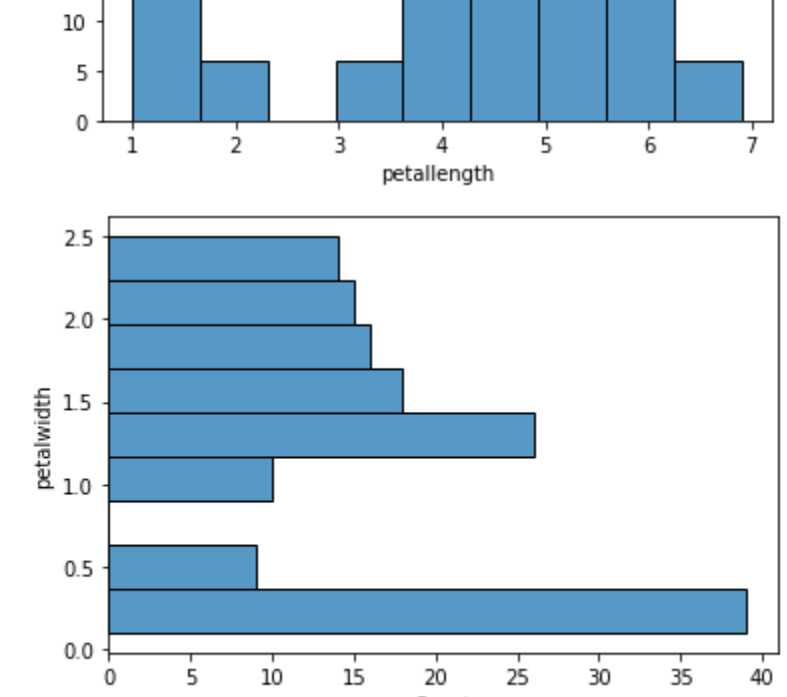


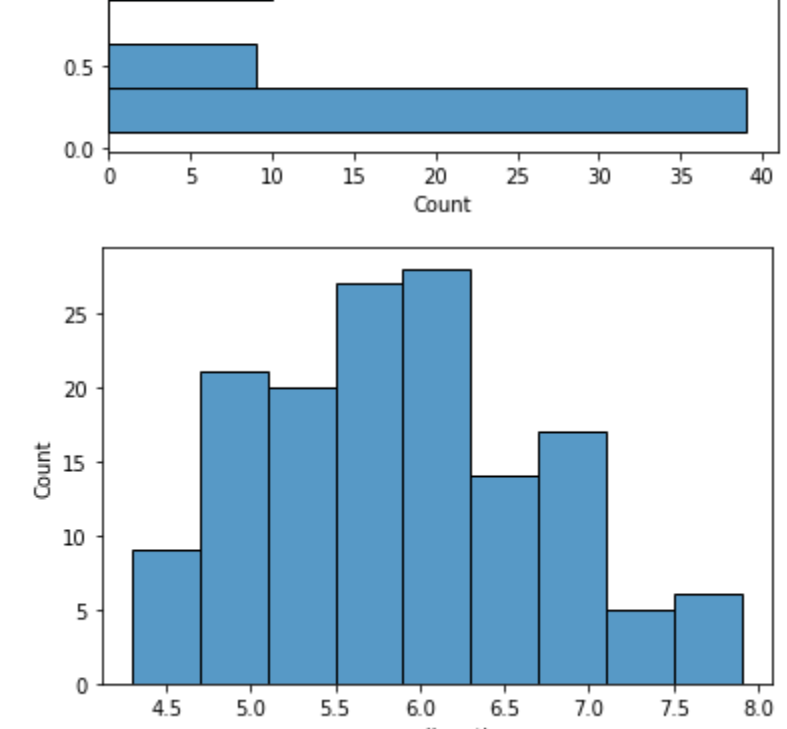


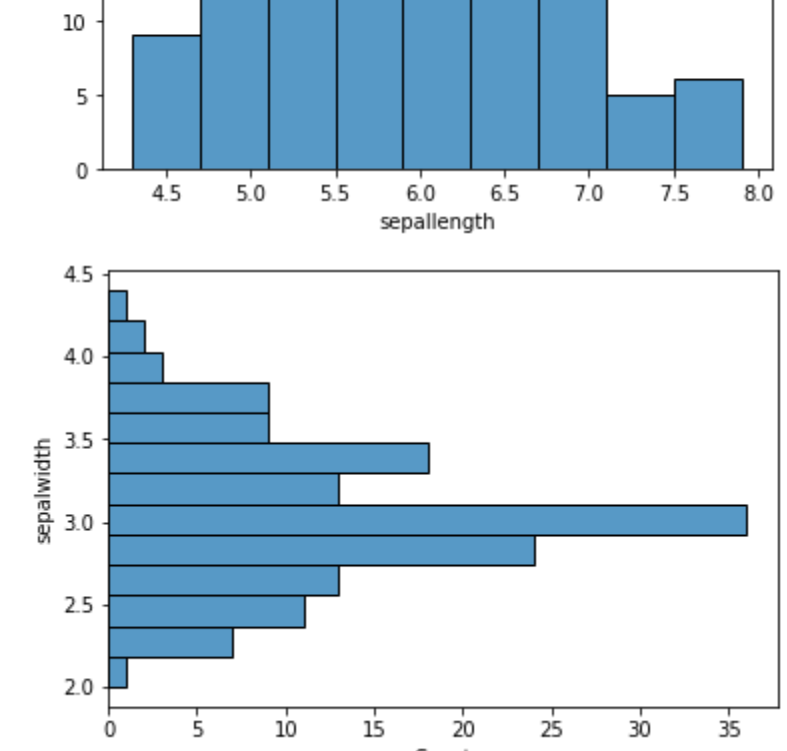


In [20]:
```python
sns.histplot(x="petallength",data=ndf)
plt.show()
sns.histplot(y="petalwidth",data=ndf)
plt.show()
sns.histplot(x="sepallength",data=ndf)
plt.show()
sns.histplot(y="sepalwidth",data=ndf)
plt.show()
```









In [ ]: