

Import libraries

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
from sklearn.datasets import load_iris
import warnings
warnings.filterwarnings("ignore")
```

Load and preprocess data

```
In [2]: data = load_iris()
```

```
In [7]: df = pd.DataFrame()
df[data['feature_names']] = data['data']
df['label'] = data['target']
```

```
In [9]: df.head()
```

```
Out[9]:
```

| | sepal length (cm) | sepal width (cm) | petal length (cm) | petal width (cm) | label |
|---|-------------------|------------------|-------------------|------------------|-------|
| 0 | 5.1 | 3.5 | 1.4 | 0.2 | 0 |
| 1 | 4.9 | 3.0 | 1.4 | 0.2 | 0 |
| 2 | 4.7 | 3.2 | 1.3 | 0.2 | 0 |
| 3 | 4.6 | 3.1 | 1.5 | 0.2 | 0 |
| 4 | 5.0 | 3.6 | 1.4 | 0.2 | 0 |

```
In [10]: df.shape
```

```
Out[10]: (150, 5)
```

In [11]: df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
#   Column                Non-Null Count  Dtype
---  -
0   sepal length (cm)     150 non-null   float64
1   sepal width (cm)      150 non-null   float64
2   petal length (cm)     150 non-null   float64
3   petal width (cm)      150 non-null   float64
4   label                 150 non-null   int32
dtypes: float64(4), int32(1)
memory usage: 5.4 KB
```

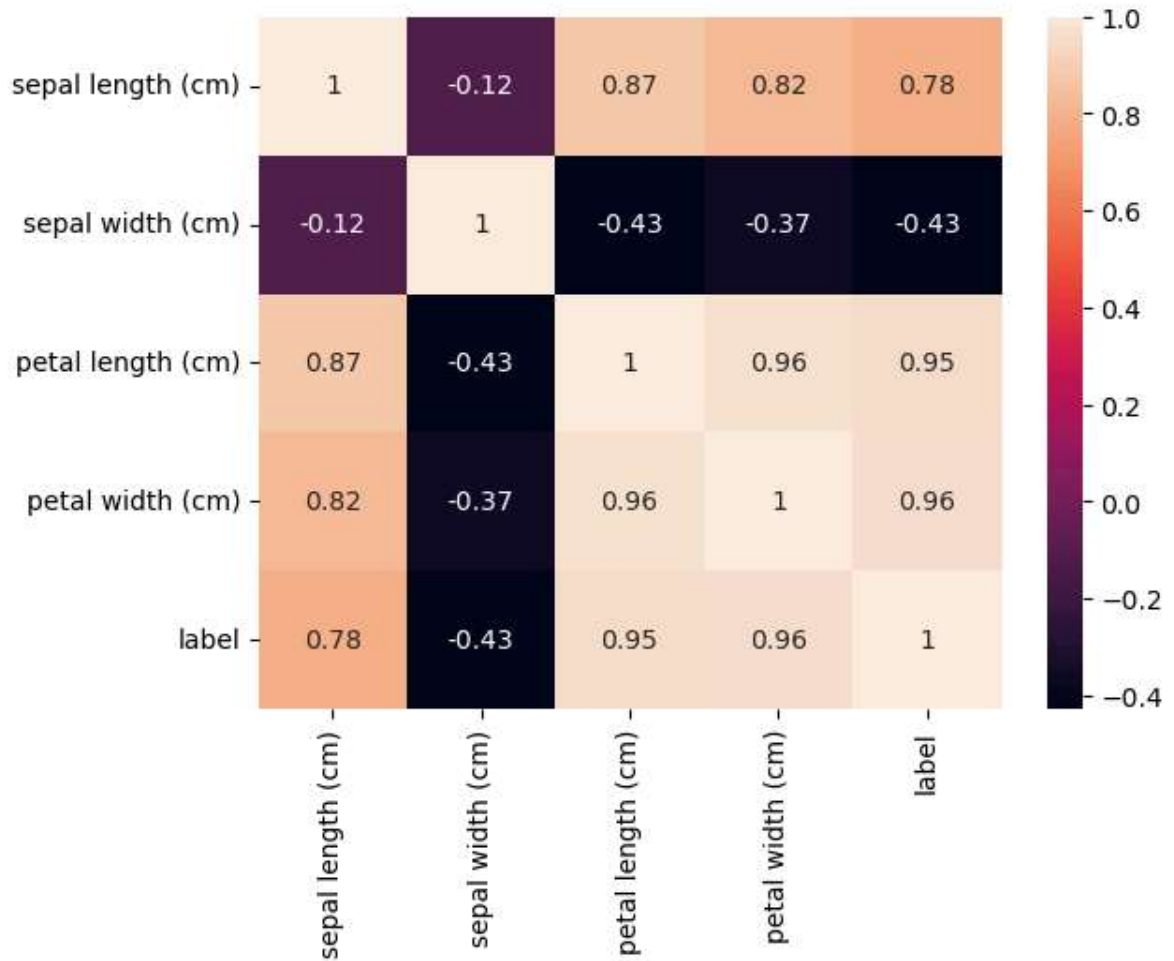
In [12]: df.describe()

Out[12]:

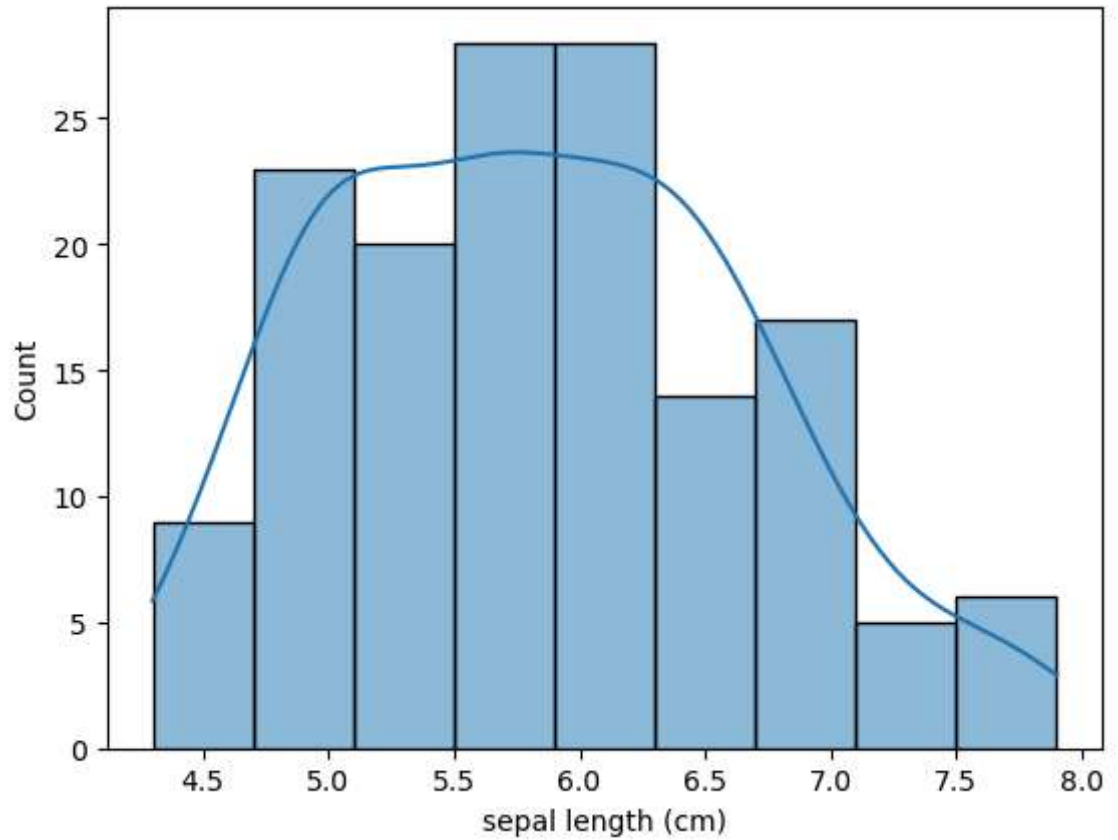
| | sepal length (cm) | sepal width (cm) | petal length (cm) | petal width (cm) | label |
|--------------|-------------------|------------------|-------------------|------------------|------------|
| count | 150.000000 | 150.000000 | 150.000000 | 150.000000 | 150.000000 |
| mean | 5.843333 | 3.057333 | 3.758000 | 1.199333 | 1.000000 |
| std | 0.828066 | 0.435866 | 1.765298 | 0.762238 | 0.819232 |
| min | 4.300000 | 2.000000 | 1.000000 | 0.100000 | 0.000000 |
| 25% | 5.100000 | 2.800000 | 1.600000 | 0.300000 | 0.000000 |
| 50% | 5.800000 | 3.000000 | 4.350000 | 1.300000 | 1.000000 |
| 75% | 6.400000 | 3.300000 | 5.100000 | 1.800000 | 2.000000 |
| max | 7.900000 | 4.400000 | 6.900000 | 2.500000 | 2.000000 |

Visualization

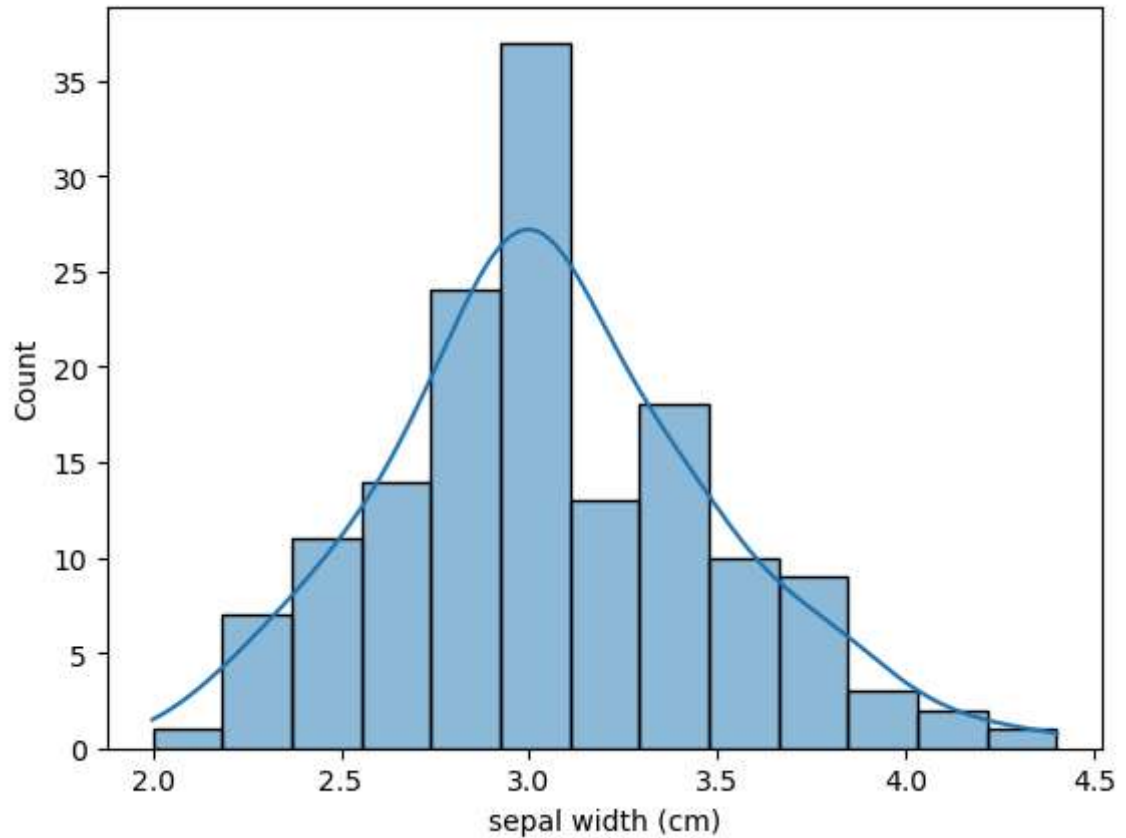
```
In [14]: sns.heatmap(df.corr(), annot=True)  
plt.show()
```



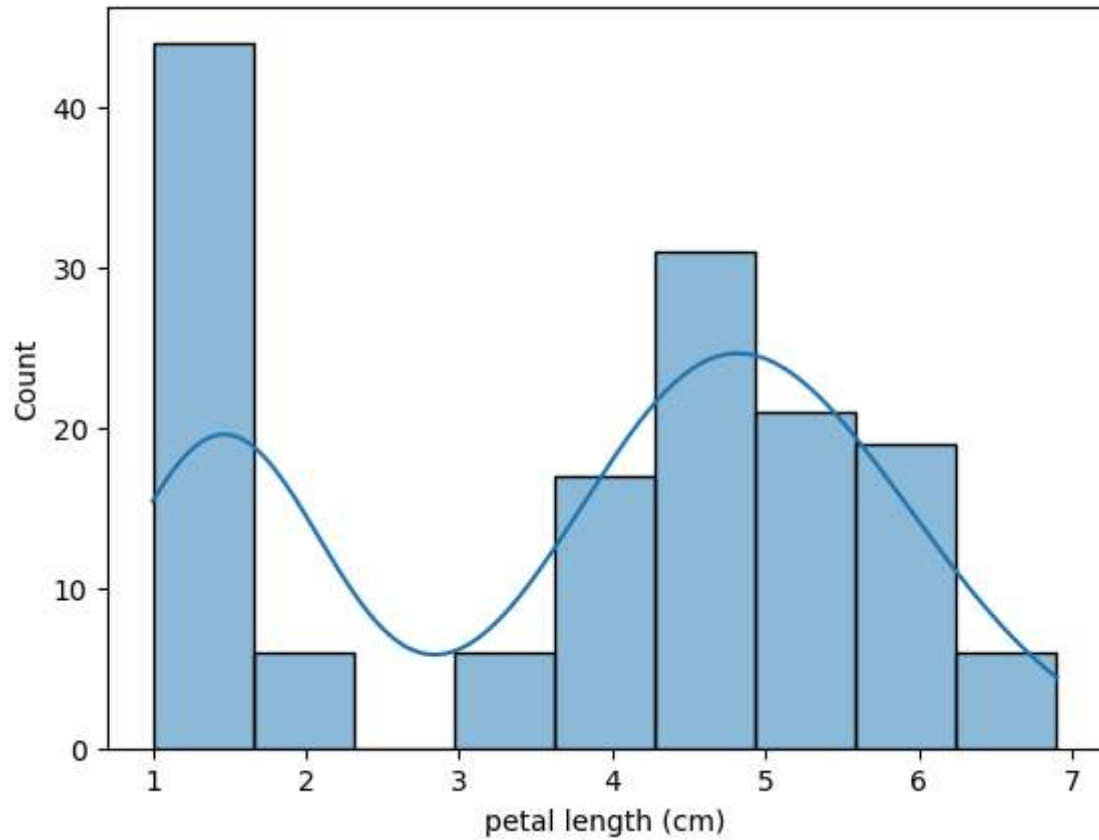
```
In [30]: sns.histplot(df["sepal length (cm)"], kde=True)  
plt.show()
```



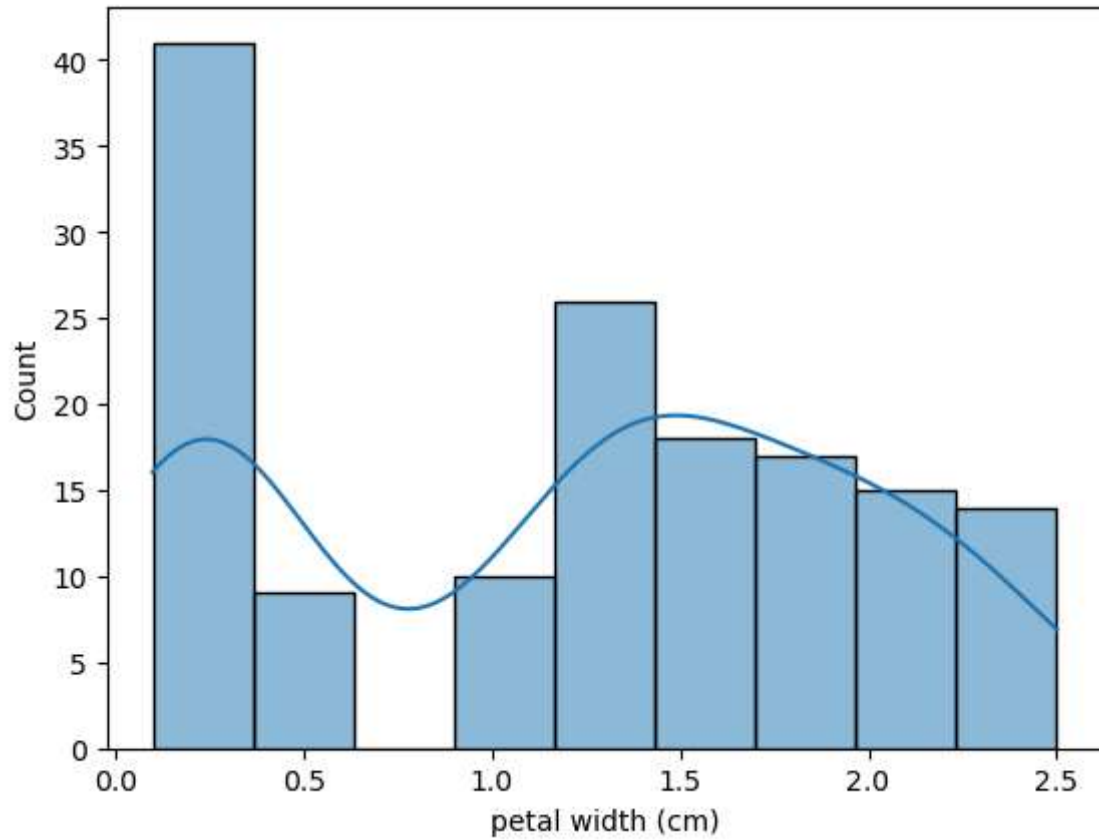
```
In [19]: sns.histplot(df["sepal width (cm)"], kde=True)  
plt.show()
```



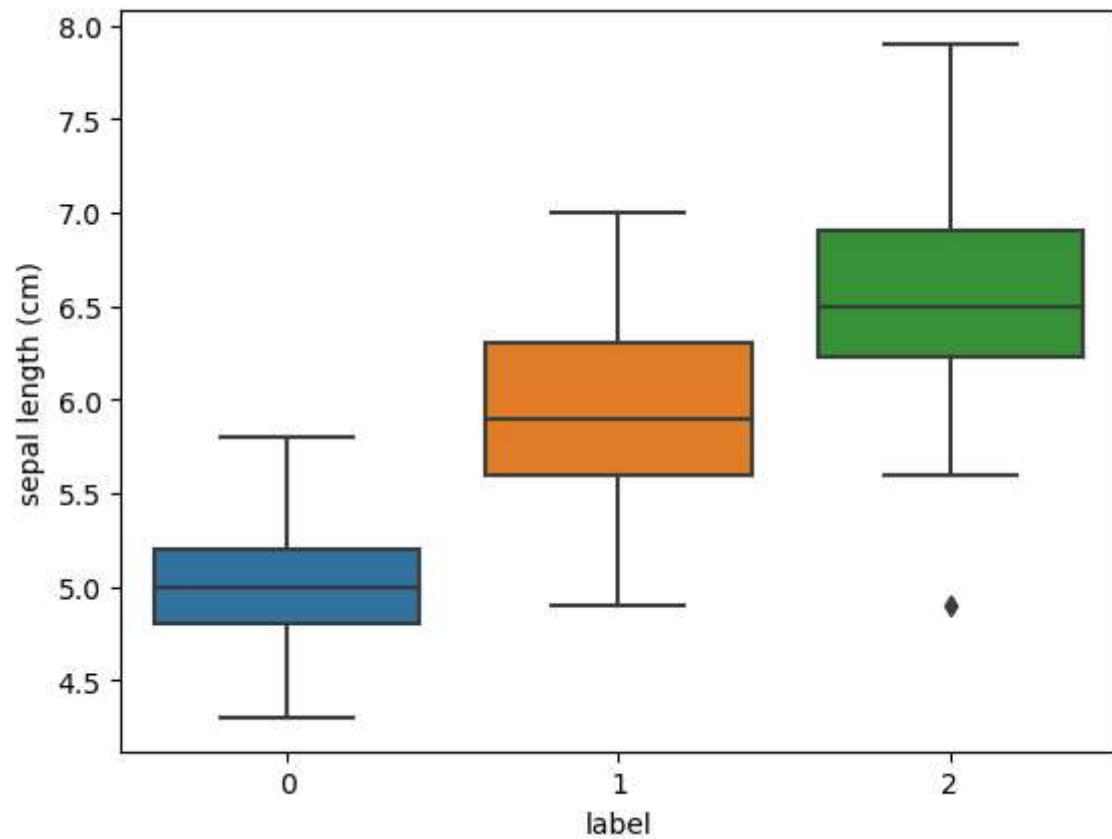
```
In [21]: sns.histplot(df["petal length (cm)"], kde=True)  
plt.show()
```



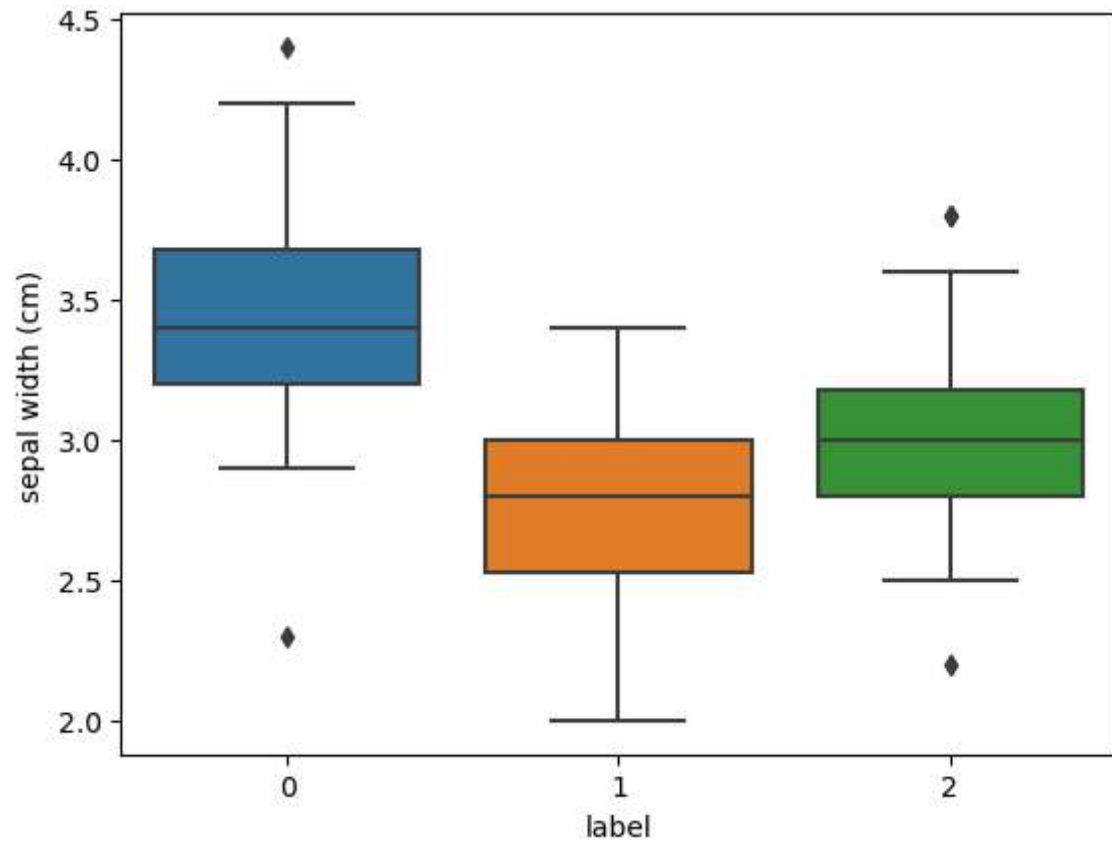
```
In [22]: sns.histplot(df["petal width (cm)"], kde=True)  
plt.show()
```



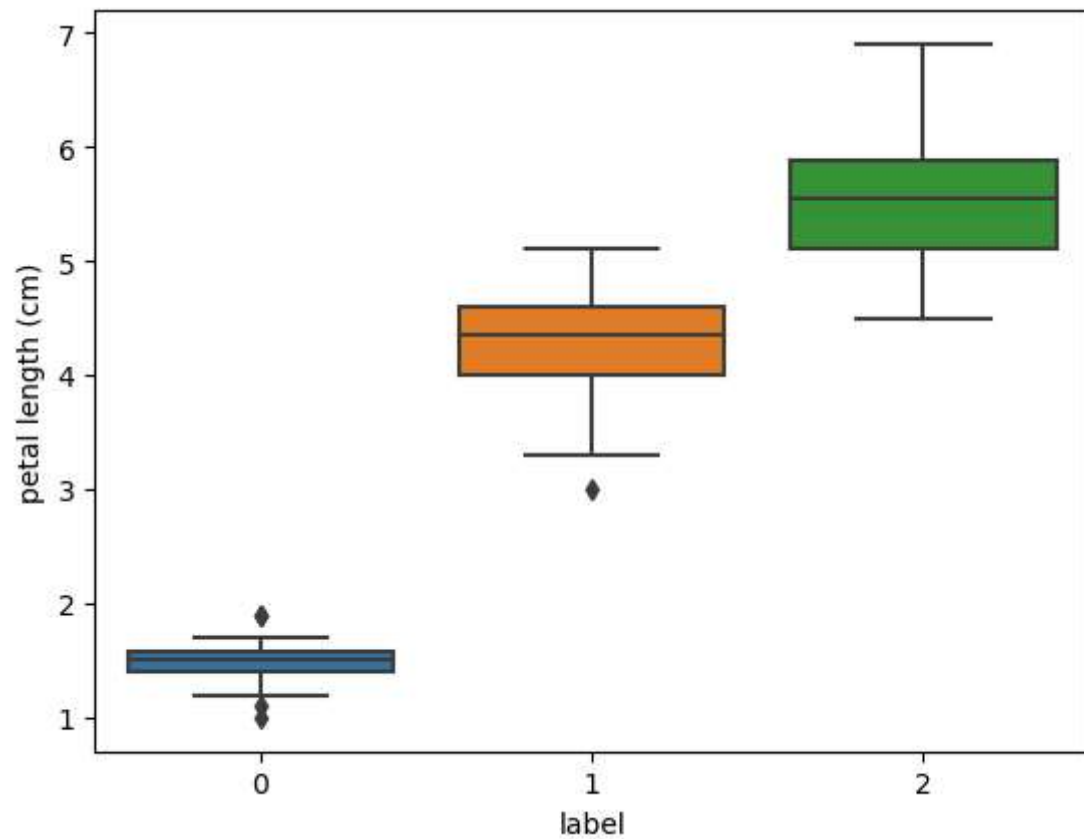
```
In [40]: sns.boxplot(x=df['label'], y=df["sepal length (cm)"])
plt.show()
```




```
In [41]: sns.boxplot(x=df['label'], y=df["sepal width (cm)"])\nplt.show()
```



```
In [42]: sns.boxplot(x=df["label"], y=df["petal length (cm)"])\nplt.show()
```



```
In [43]: sns.boxplot(x=df['label'], y=df["petal width (cm)"])
plt.show()
```

