In [2]:
```
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")
```

In [3]:
```
data = load_iris()
```

In [4]:
```
data
```

Out[4]:
```
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```

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a Set Characteristics:**\n\n:Number of Instances: 150 (50 in each of three classe
s)\n:Number of Attributes: 4 numeric, predictive attributes and the class\n:Attrib
ute Information:\n    - sepal length in cm\n    - sepal width in cm\n    - petal l
ength in cm\n    - petal width in cm\n    - class:\n            - Iris-Setosa\n
- Iris-Versicolour\n            - Iris-Virginica\n\n:Summary Statistics:\n\n======
======== ==== ==== ======= ===== ====================\n                Min  Max
Mean    SD   Class Correlation\n============== ==== ==== ======= ===== ===========
```

```
=========\nsepal length:   4.3  7.9   5.84   0.83    0.7826\nsepal width:    2.0
4.4   3.05   0.43   -0.4194\npetal length:   1.0  6.9   3.76   1.76    0.9490  (hi
gh!)\npetal width:    0.1  2.5   1.20   0.76    0.9565  (high!)\n============== ==
== ==== ======= ===== ====================\n\n:Missing Attribute Values: None\n:Cl
ass Distribution: 33.3% for each of 3 classes.\n:Creator: R.A. Fisher\n:Donor: Mic
hael Marshall (MARSHALL%PLU@io.arc.nasa.gov)\n:Date: July, 1988\n\nThe famous Iris
database, first used by Sir R.A. Fisher. The dataset is taken\nfrom Fisher\'s pape
r. Note that it\'s the same as in R, but not as in the UCI\nMachine Learning Repos
itory, which has two wrong data points.\n\nThis is perhaps the best known database
to be found in the\npattern recognition literature.  Fisher\'s paper is a classic
in the field and\nis referenced frequently to this day.  (See Duda & Hart, for exa
mple.)  The\ndata set contains 3 classes of 50 instances each, where each class re
fers to a\ntype of iris plant.  One class is linearly separable from the other 2;
the\nlatter are NOT linearly separable from each other.\n\n|details-start|\n**Refe
rences**\n|details-split|\n\n- Fisher, R.A. "The use of multiple measurements in t
axonomic problems"\n  Annual Eugenics, 7, Part II, 179-188 (1936); also in "Contri
butions to\n  Mathematical Statistics" (John Wiley, NY, 1950).\n- Duda, R.O., & Ha
rt, P.E. (1973) Pattern Classification and Scene Analysis.\n  (Q327.D83) John Wile
y & Sons.  ISBN 0-471-22361-1.  See page 218.\n- Dasarathy, B.V. (1980) "Nosing Ar
ound the Neighborhood: A New System\n  Structure and Classification Rule for Recog
nition in Partially Exposed\n  Environments".  IEEE Transactions on Pattern Analys
is and Machine\n  Intelligence, Vol. PAMI-2, No. 1, 67-71.\n- Gates, G.W. (1972)
"The Reduced Nearest Neighbor Rule".  IEEE Transactions\n  on Information Theory,
May 1972, 431-433.\n- See also: 1988 MLC Proceedings, 54-64.  Cheeseman et al"s AU
TOCLASS II\n  conceptual clustering system finds 3 classes in the data.\n- Many, m
any more ...\n\n|details-end|\n',
 'feature_names': ['sepal length (cm)',
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  'petal width (cm)'],
 'filename': 'iris.csv',
 'data_module': 'sklearn.datasets.data'}
```

In [5]:
```
df = pd.DataFrame()
df[data['feature_names']] = data['data']
df['label'] = data['target']
```

In [6]:
```
df.head()
```

Out[6]:

	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 [7]:
```
df.shape
```

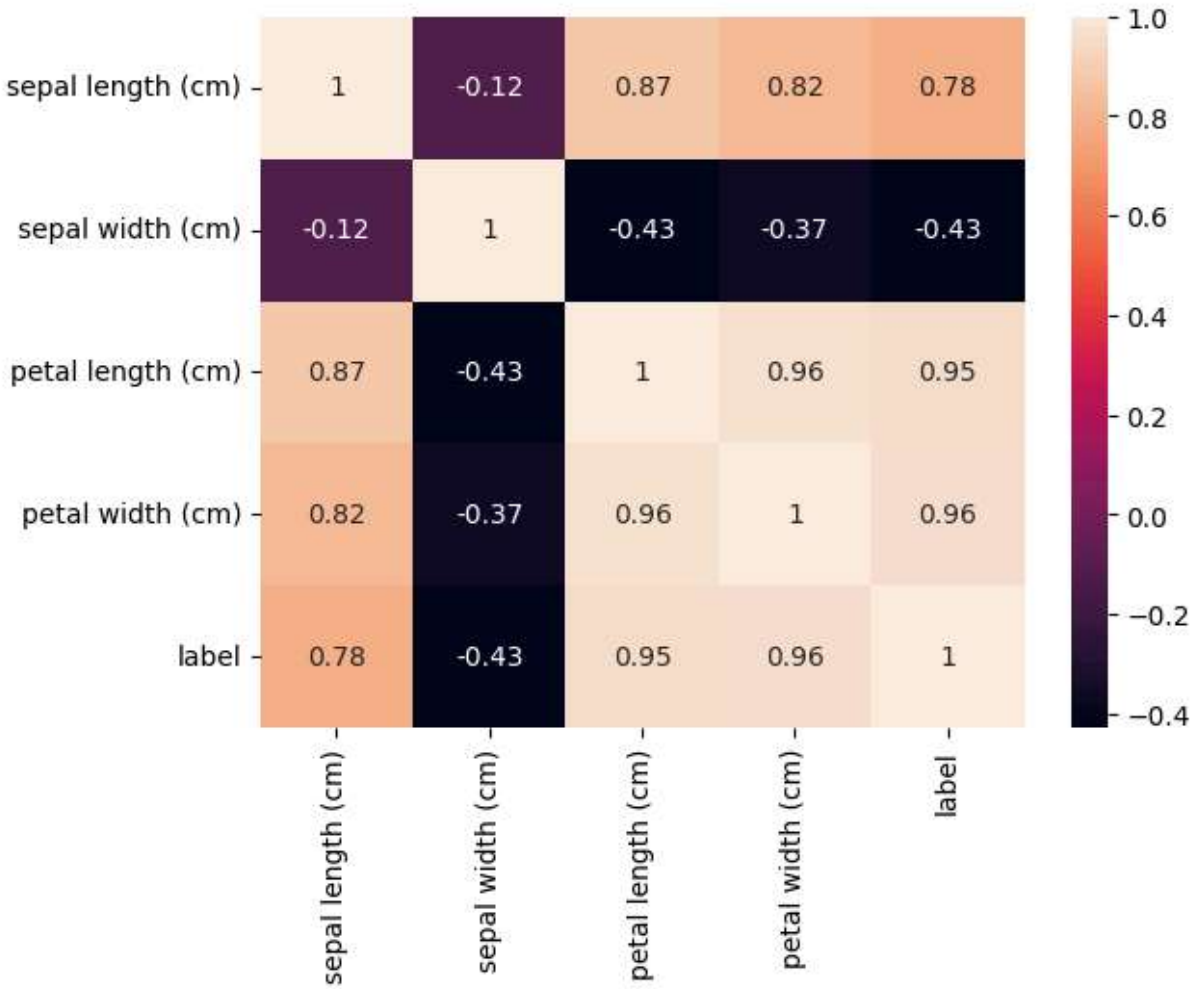
Out[7]:
```
(150, 5)
```

In [8]:
```
df.describe()
```

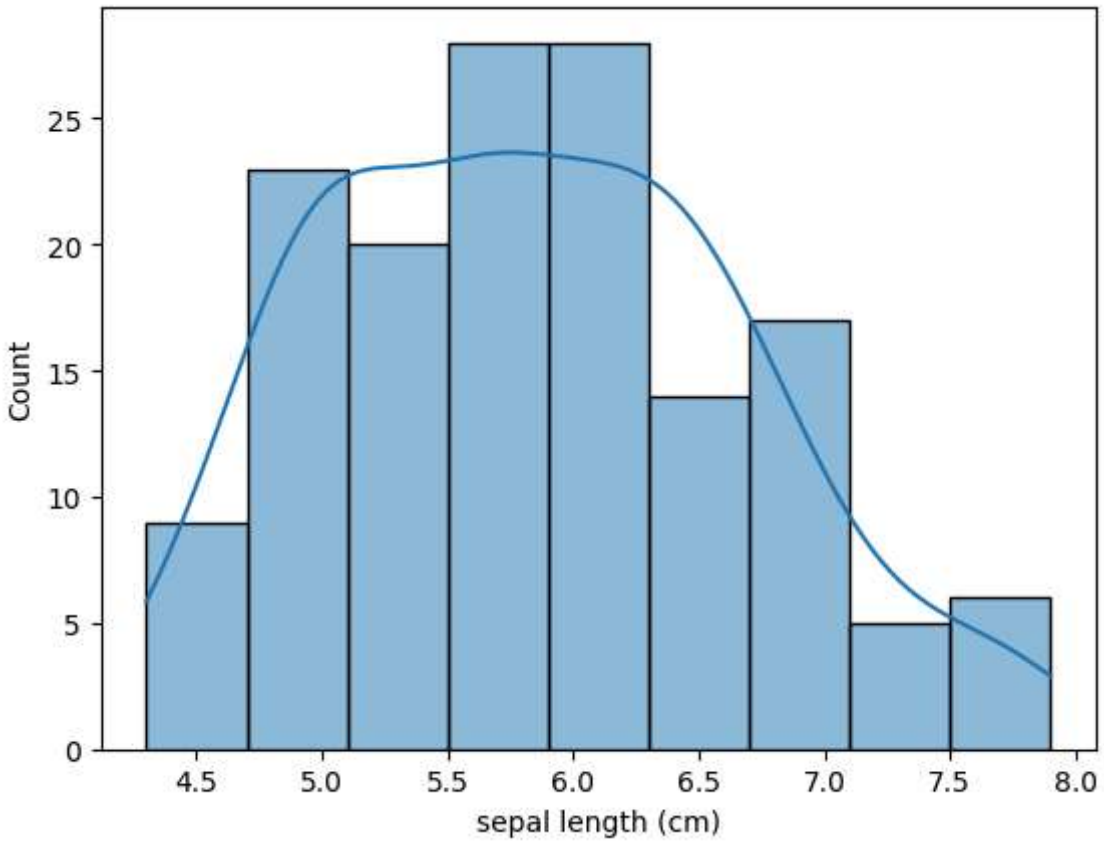
Out[8]:

	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

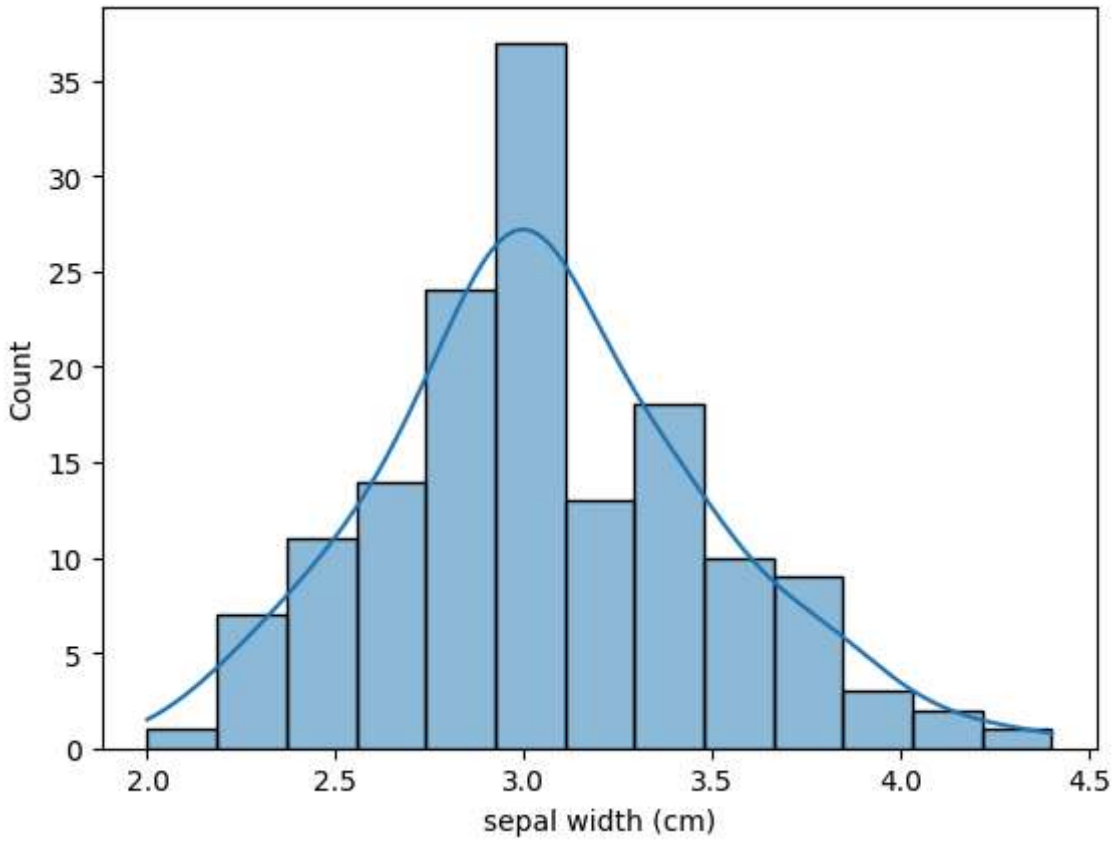
In [9]:
```
 sns.heatmap(df.corr(), annot=True)
plt.show()
```



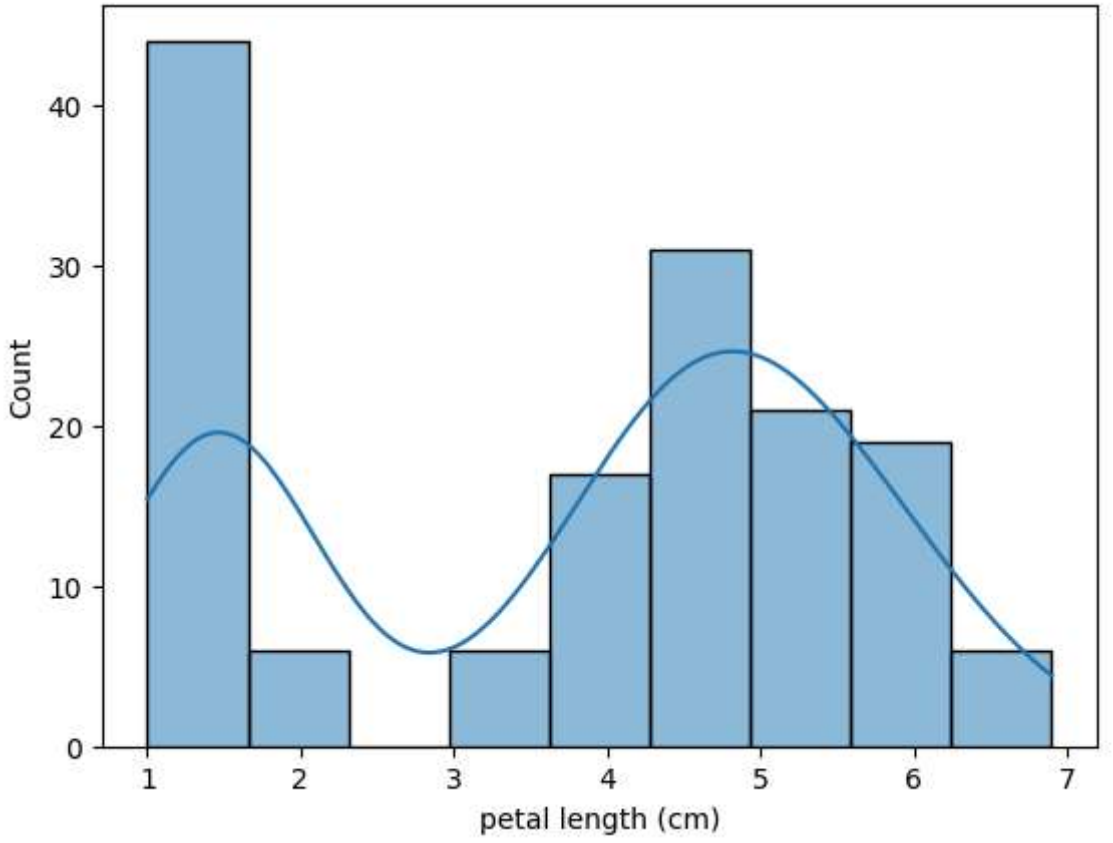
In [10]:
```
sns.histplot(df["sepal length (cm)"], kde=True)
plt.show()
```



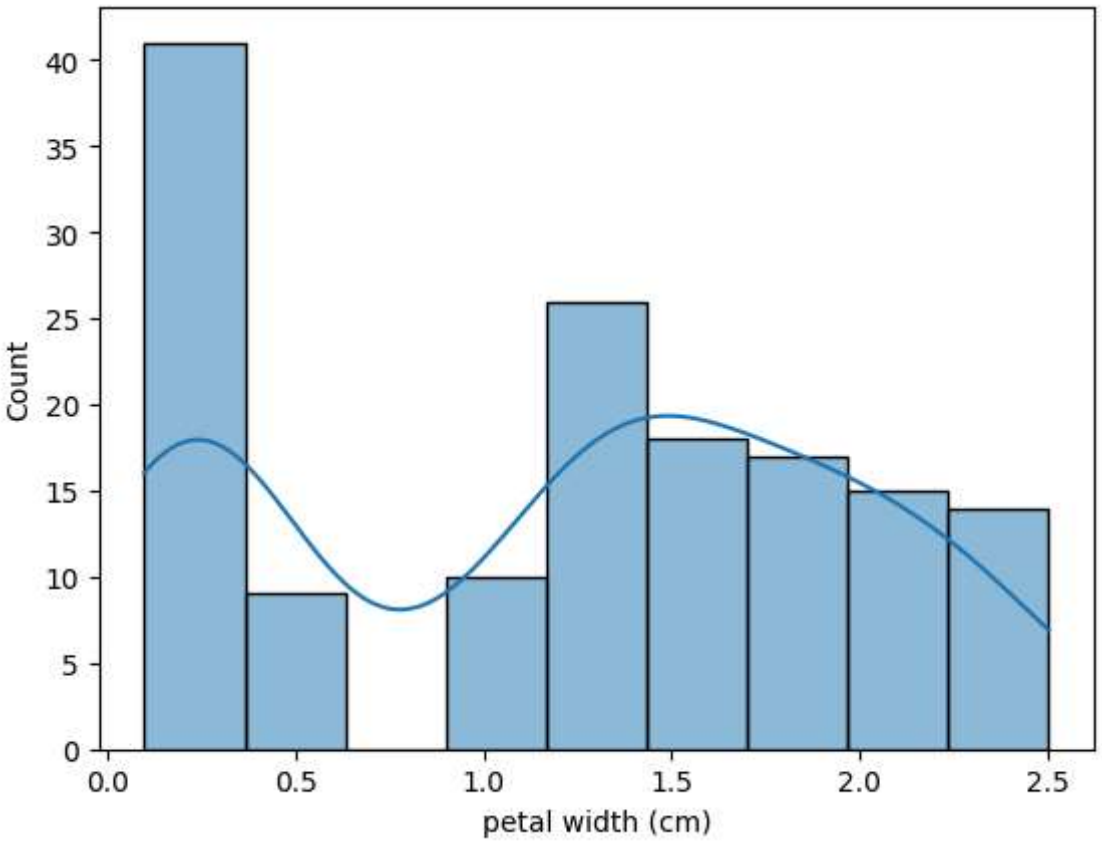
In [11]:
```
sns.histplot(df["sepal width (cm)"], kde=True)
plt.show()
```



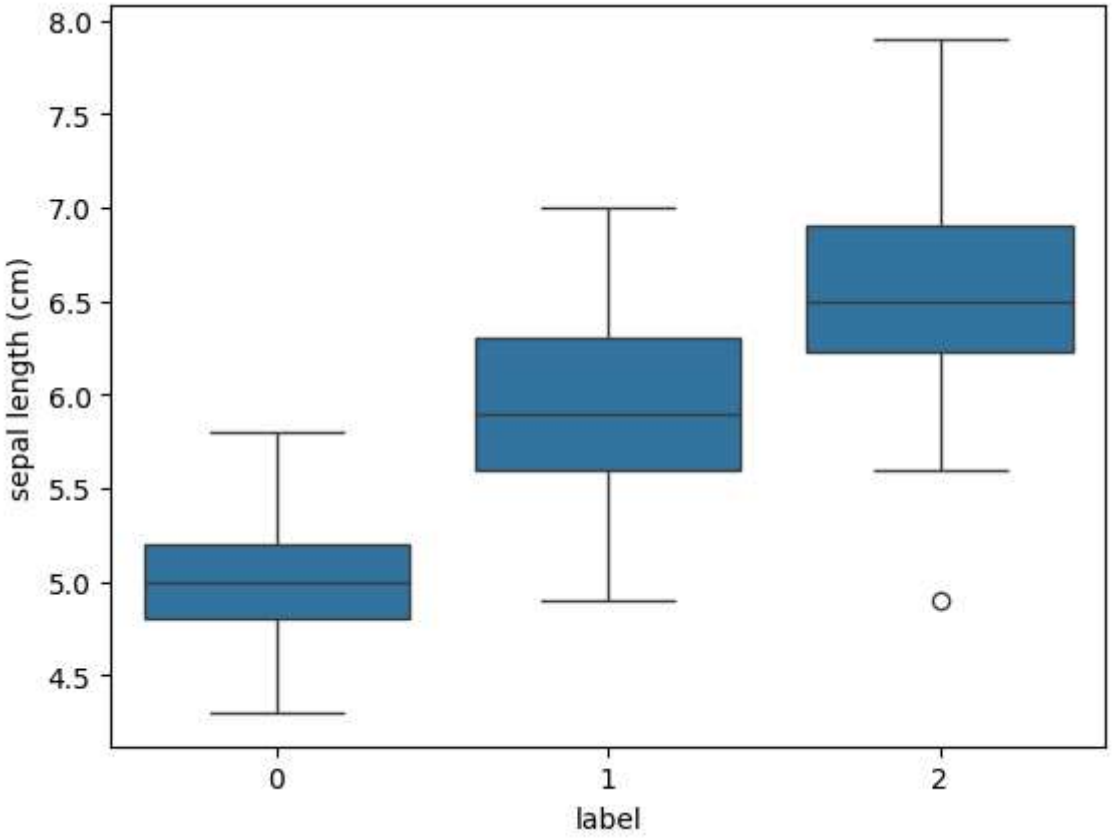
In [12]:
```
sns.histplot(df["petal length (cm)"], kde=True)
plt.show()
```



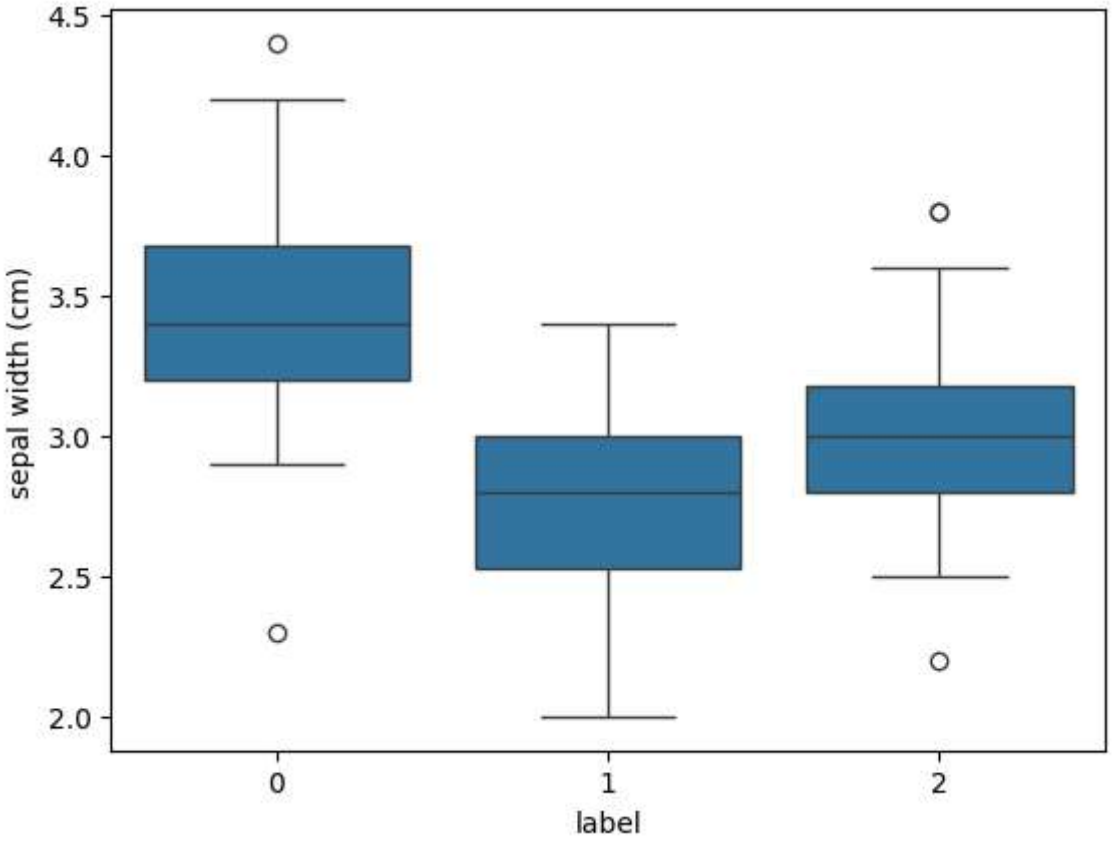
In [13]:
```
sns.histplot(df["petal width (cm)"], kde=True)
plt.show()
```



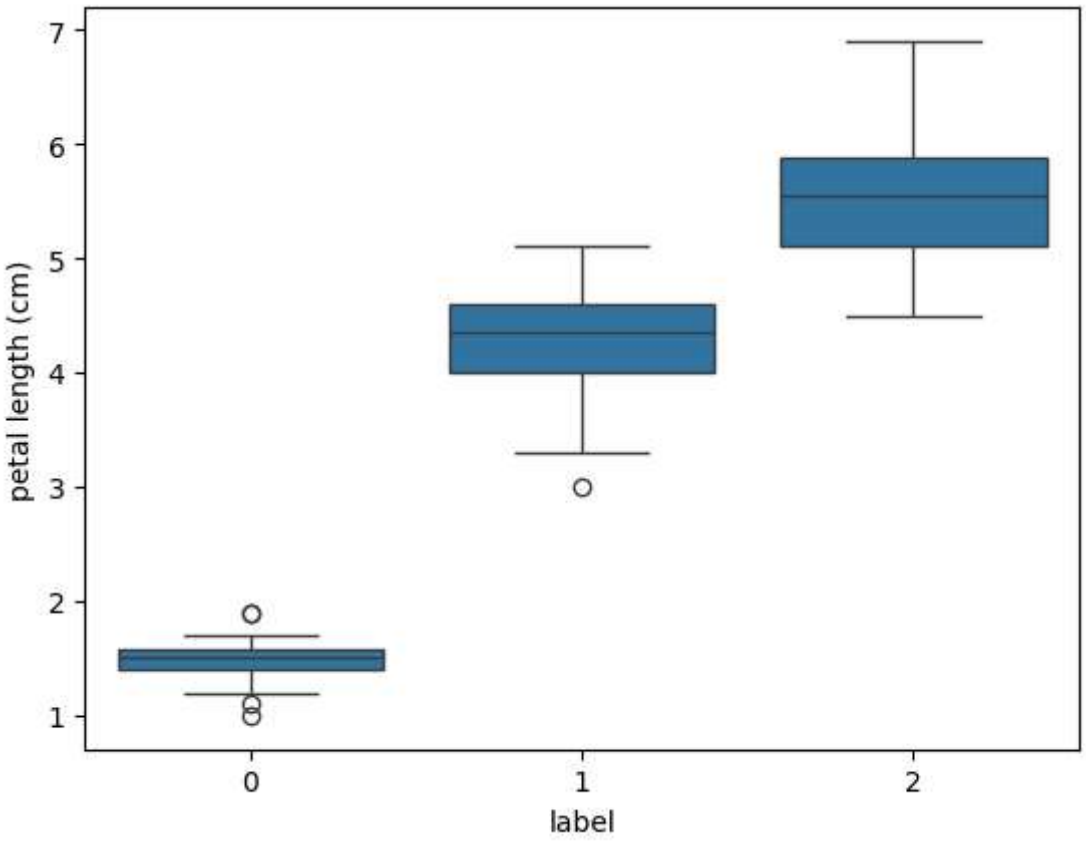
In [14]:
```
sns.boxplot(x=df['label'], y=df["sepal length (cm)"])
plt.show()
```



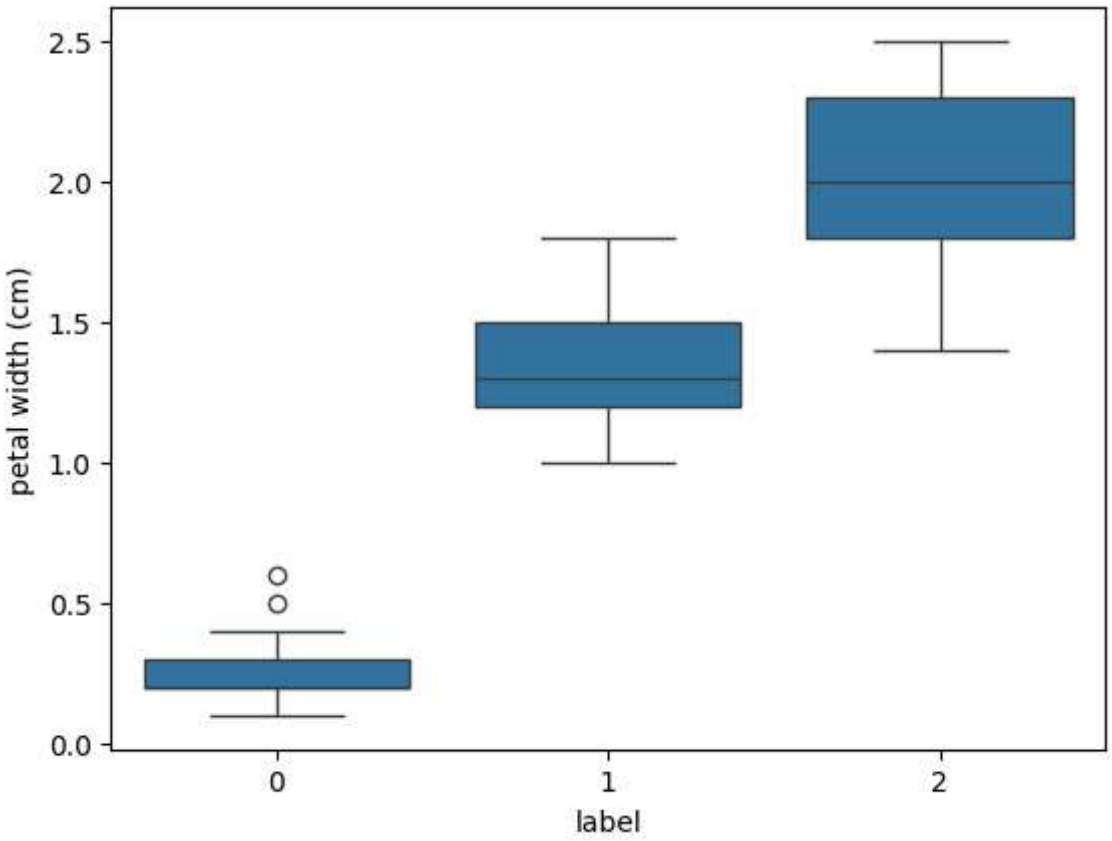
In [15]:
```
sns.boxplot(x=df['label'] ,y=df["sepal width (cm)"])
plt.show()
```



In [16]:
```
sns.boxplot(x=df["label"] ,y=df["petal length (cm)"])
plt.show()
```



In [17]:
```
sns.boxplot(x=df['label'] ,y=df["petal width (cm)"])
plt.show()
```



In [ ]:
```
'''
Name: Rohan Chimaji Dhadke
Class: TE-A2
Roll No: 13136
'''
```