In [2]:
```
from sklearn.datasets import load_iris
iris = load_iris()
```

In [3]:
```
iris
```

Out[3]:
```
{'data': array([[5.1, 3.5, 1.4, 0.2],
       [4.9, 3. , 1.4, 0.2],
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```

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       [6.9, 3.2, 5.7, 2.3],
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```

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0,
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        0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
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        2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2]),
 'frame': None,
 'target_names': array(['setosa', 'versicolor', 'virginica'], dtype='<U10'),
 'DESCR': '.. _iris_dataset:\n\nIris plants dataset\n--------------------\n\n**Dat
a Set Characteristics:**\n\n    :Number of Instances: 150 (50 in each of three cla
sses)\n    :Number of Attributes: 4 numeric, predictive attributes and the class\n
:Attribute Information:\n        - sepal length in cm\n        - sepal width in cm
\n        - petal length in cm\n        - petal width in cm\n        - class:\n
- Iris-Setosa\n                - Iris-Versicolour\n                - Iris-Virginic
a\n                \n    :Summary Statistics:\n\n    ============== ==== ==== ====
=== ===== ====================\n                      Min  Max   Mean    SD   Class
Correlation\n    ============== ==== ==== ======= ===== ====================\n
sepal length:   4.3  7.9   5.84   0.83    0.7826\n    sepal width:    2.0  4.4
3.05   0.43   -0.4194\n    petal length:   1.0  6.9   3.76   1.76    0.9490  (hig
h!)\n    petal width:    0.1  2.5   1.20   0.76    0.9565  (high!)\n    ==========
==== ==== ==== ======= ===== ====================\n\n    :Missing Attribute Value
s: None\n    :Class Distribution: 33.3% for each of 3 classes.\n    :Creator: R.A.
Fisher\n    :Donor: Michael Marshall (MARSHALL%PLU@io.arc.nasa.gov)\n    :Date: Ju
ly, 1988\n\nThe famous Iris database, first used by Sir R.A. Fisher. The dataset i
s taken\nfrom Fisher\'s paper. Note that it\'s the same as in R, but not as in the
UCI\nMachine Learning Repository, which has two wrong data points.\n\nThis is perh
aps the best known database to be found in the\npattern recognition literature.  F
isher\'s paper is a classic in the field and\nis referenced frequently to this da
y.  (See Duda & Hart, for example.)  The\ndata set contains 3 classes of 50 instan
ces each, where each class refers to a\ntype of iris plant.  One class is linearly
separable from the other 2; the\nlatter are NOT linearly separable from each othe
r.\n\n.. topic:: References\n\n   - Fisher, R.A. "The use of multiple measurements
in taxonomic problems"\n     Annual Eugenics, 7, Part II, 179-188 (1936); also in
"Contributions to\n     Mathematical Statistics" (John Wiley, NY, 1950).\n   - Dud
a, R.O., & Hart, P.E. (1973) Pattern Classification and Scene Analysis.\n     (Q32
7.D83) John Wiley & Sons.  ISBN 0-471-22361-1.  See page 218.\n   - Dasarathy, B.
V. (1980) "Nosing Around the Neighborhood: A New System\n     Structure and Classi
fication Rule for Recognition in Partially Exposed\n     Environments".  IEEE Tran
sactions on Pattern Analysis and Machine\n     Intelligence, Vol. PAMI-2, No. 1, 6
7-71.\n   - Gates, G.W. (1972) "The Reduced Nearest Neighbor Rule".  IEEE Transact
```

```
ions\n     on Information Theory, May 1972, 431-433.\n   - See also: 1988 MLC Proc
eedings, 54-64.  Cheeseman et al"s AUTOCLASS II\n     conceptual clustering system
finds 3 classes in the data.\n   - Many, many more ...',
 'feature_names': ['sepal length (cm)',
  'sepal width (cm)',
  'petal length (cm)',
  'petal width (cm)'],
 'filename': 'iris.csv',
 'data_module': 'sklearn.datasets.data'}
```

In [5]:

```
type(iris)
```

Out[5]:

```
sklearn.utils.Bunch
```

In [4]:

```
iris.keys()
```

Out[4]:

```
dict_keys(['data', 'target', 'frame', 'target_names', 'DESCR', 'feature_names', 'f
ilename', 'data_module'])
```

In [5]:

```
print(iris["target_names"])
# or
print(iris.target_names)
```

```
['setosa' 'versicolor' 'virginica']
['setosa' 'versicolor' 'virginica']
```

In [6]:

```
n_samples,n_features=iris.data.shape
print("no. of samples:",n_samples)
print("no. of feartures:",n_features)
print(iris.data[0])
```

```
no. of samples: 150
no. of feartures: 4
[5.1 3.5 1.4 0.2]
```

In [7]:

```
iris.data[[0,2,3,4]]
```

Out[7]:

```
array([[5.1, 3.5, 1.4, 0.2],
       [4.7, 3.2, 1.3, 0.2],
       [4.6, 3.1, 1.5, 0.2],
       [5. , 3.6, 1.4, 0.2]])
```

In [8]:

```
print(iris.data.shape)
print(iris.target.shape)
print(iris.target)
```

```
(150, 4)
(150,)
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2
 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
 2 2]
```

In [9]:

```
import numpy as np
np.bincount(iris.target)
```

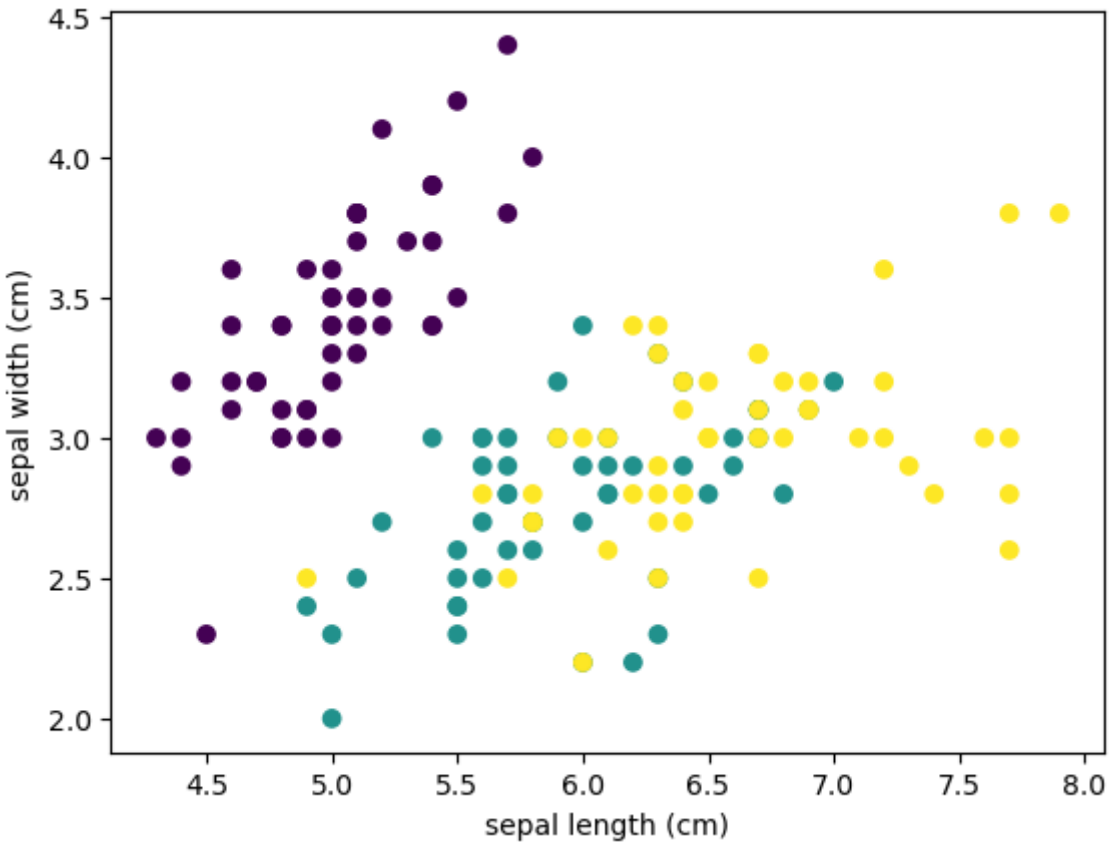
Out[9]:

```
array([50, 50, 50], dtype=int64)
```

In [10]:

```
import matplotlib.pyplot as plt
features= iris.data.T
plt.scatter(features[0],features[1],c=iris.target)
plt.xlabel(iris.feature_names[0])
plt.ylabel(iris.feature_names[1])
```

Out[10]: Text(0, 0.5, 'sepal width (cm)')



In [ ]: