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

In [2]:
```
Iris = pd.read_csv("C:/Users/prajw/Desktop/Indexs/DSBDA print/Assignment 10 (Data Visualization III)/Iris.csv")
Iris
```

Out[2]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [3]:
```
Iris.shape
```

Out[3]:
```
(150, 6)
```

In [4]:
```
Iris.describe()
```

Out[4]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

In [5]:
```
Iris.dtypes
```

Out[5]:
```
Id                int64
SepalLengthCm    float64
SepalWidthCm     float64
PetalLengthCm    float64
PetalWidthCm     float64
Species           object
dtype: object
```

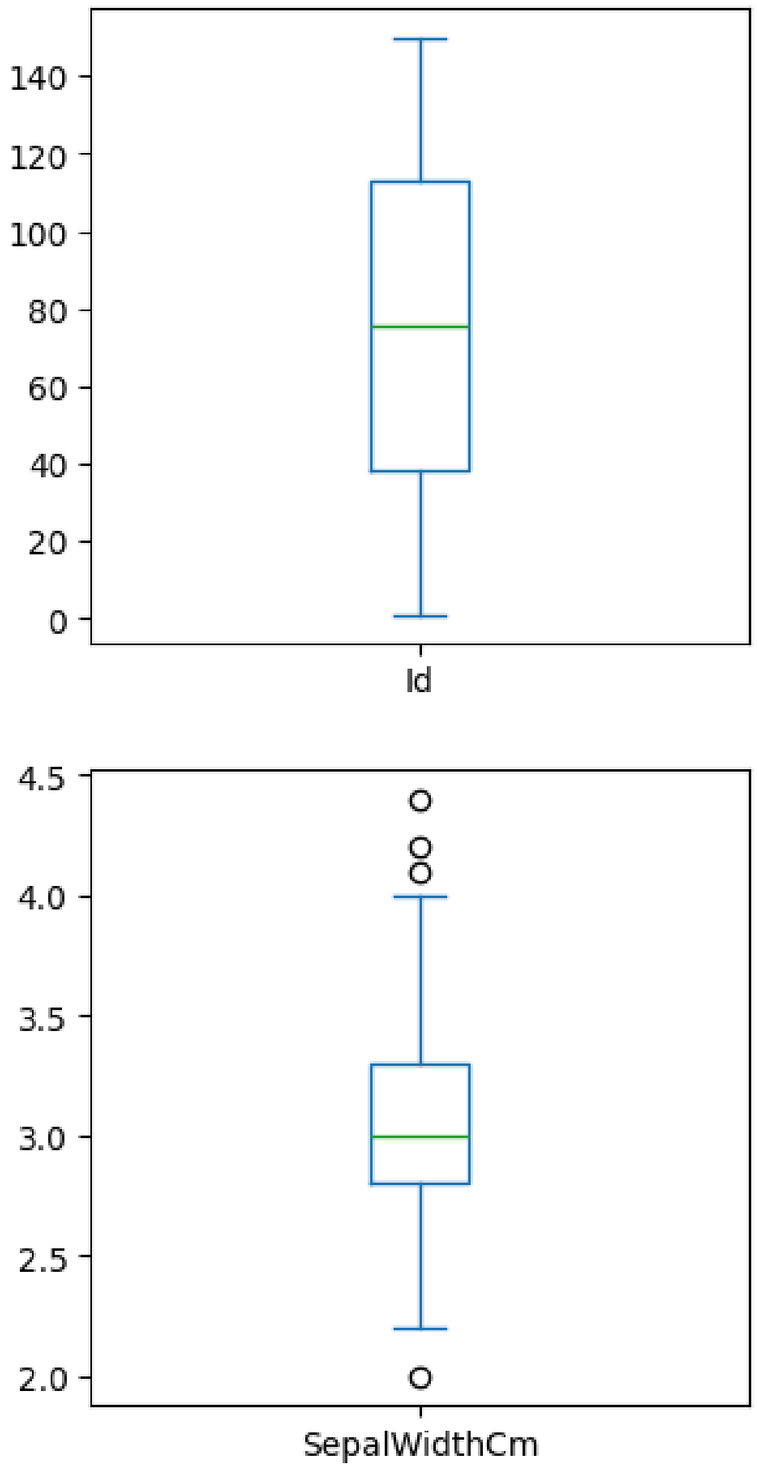
In [6]:
```
Iris.isnull().sum()
```

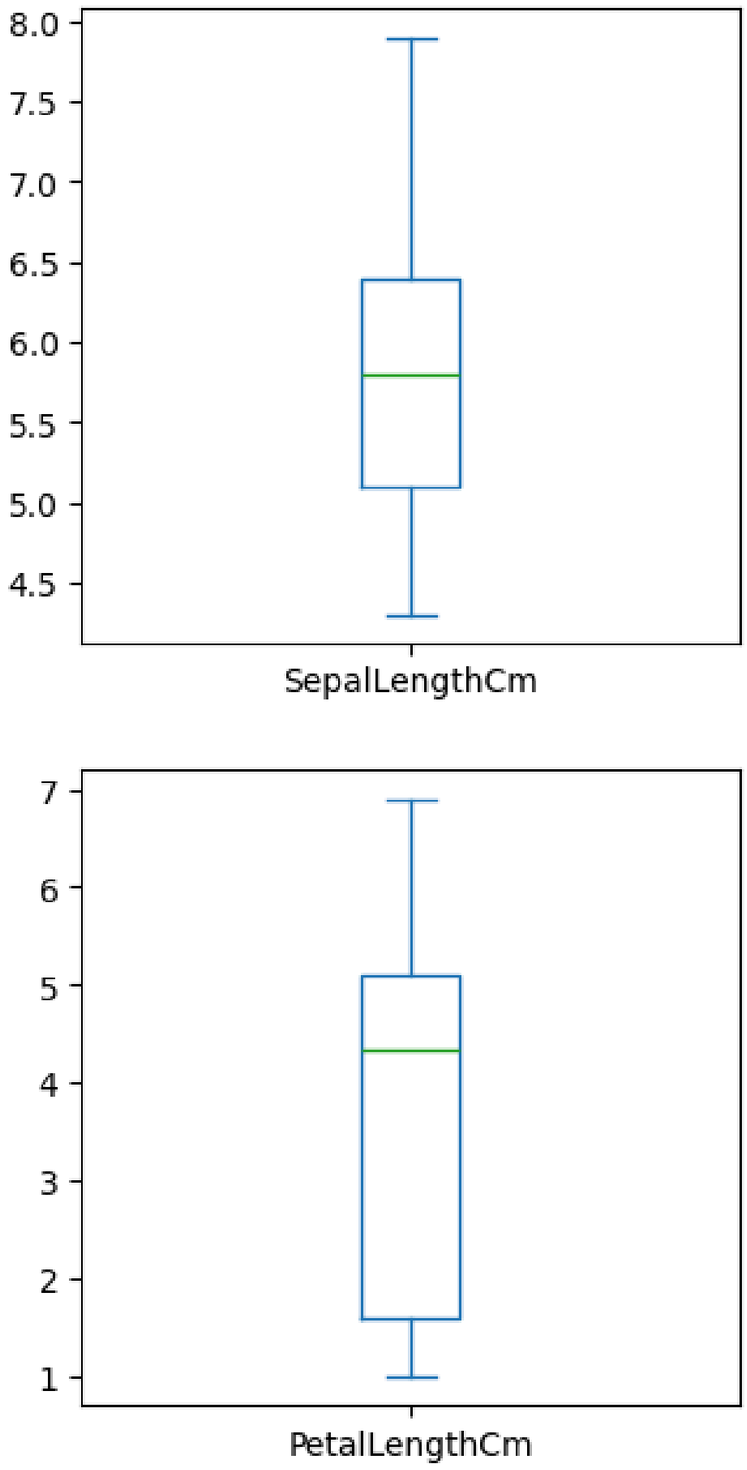
Out[6]:
```
Id               0
SepalLengthCm    0
SepalWidthCm     0
PetalLengthCm    0
PetalWidthCm     0
Species          0
dtype: int64
```

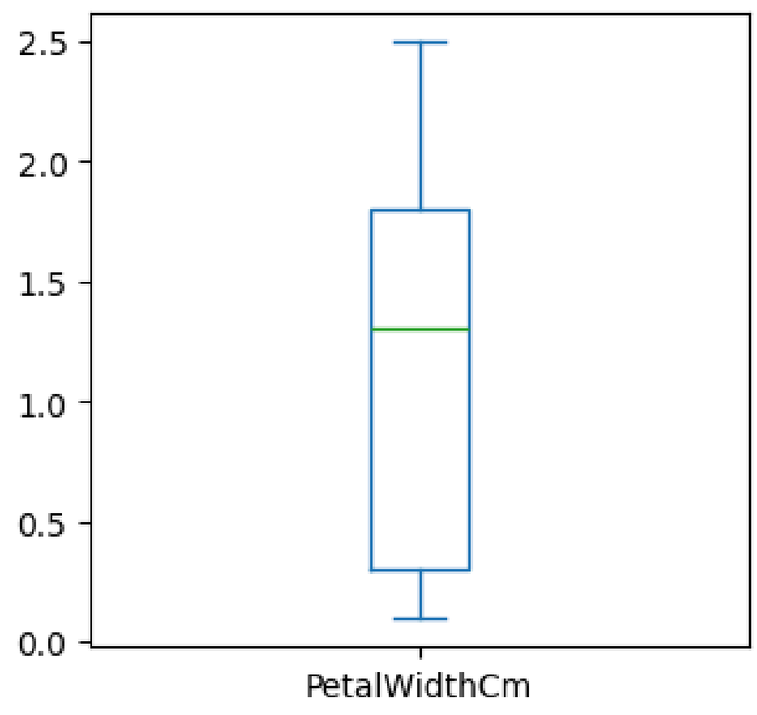
In [7]:
```
print(Iris.groupby('Species').size())
```

```
Species
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
dtype: int64
```

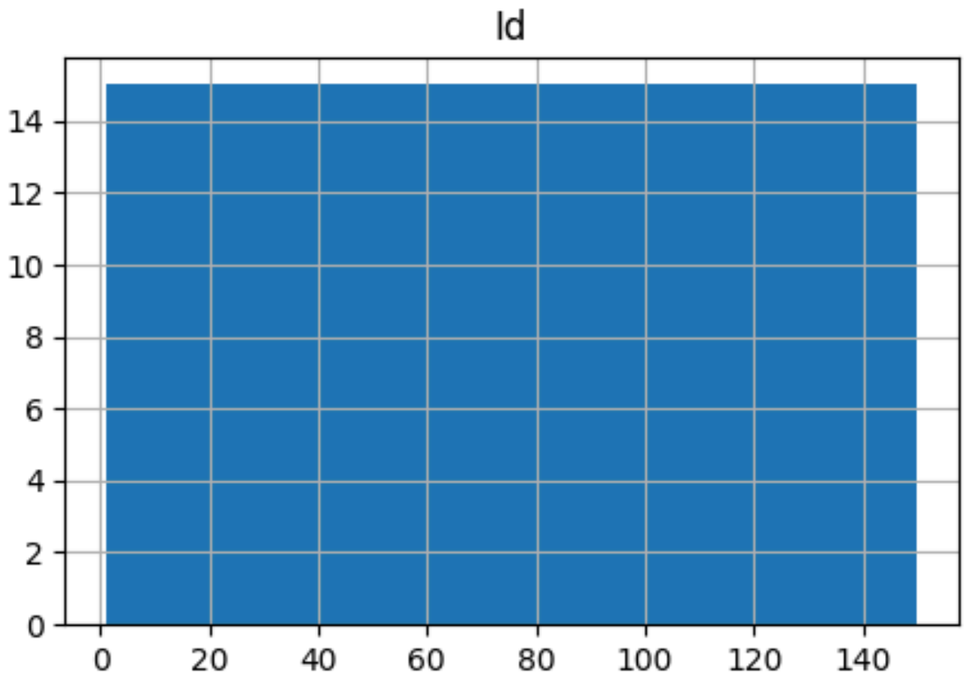
In [8]:
```
Iris.plot(kind='box', subplots=True, layout=(3,2), figsize=(8,12));
```

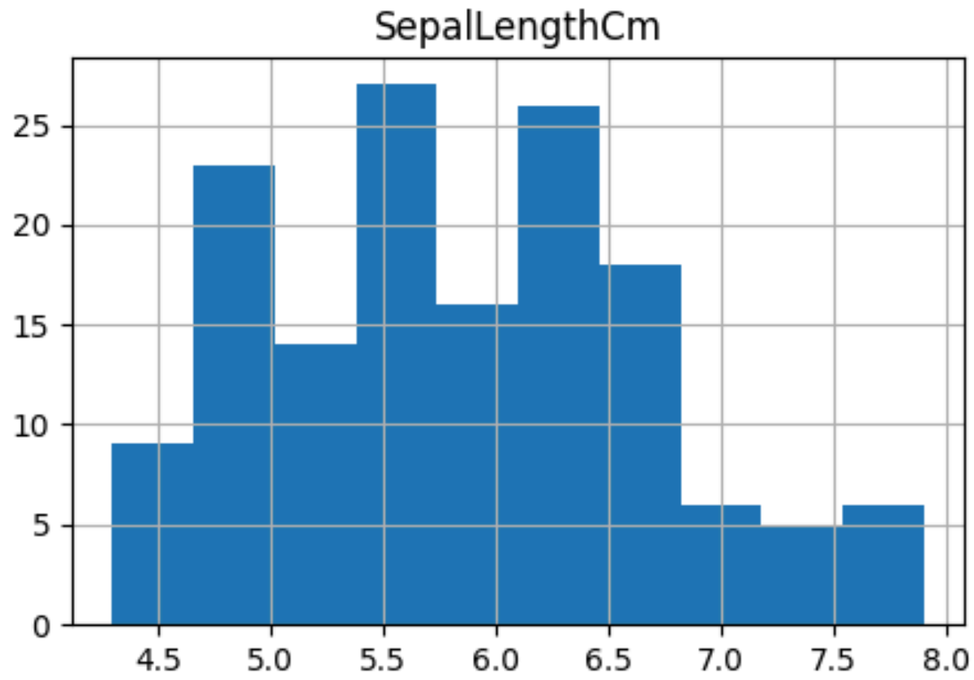


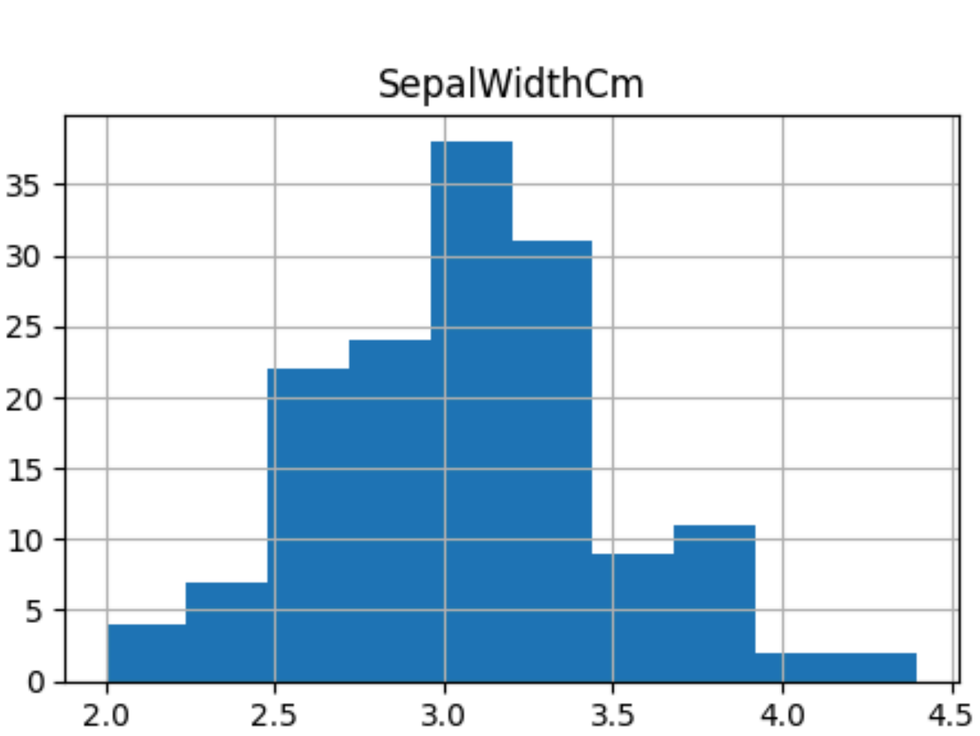


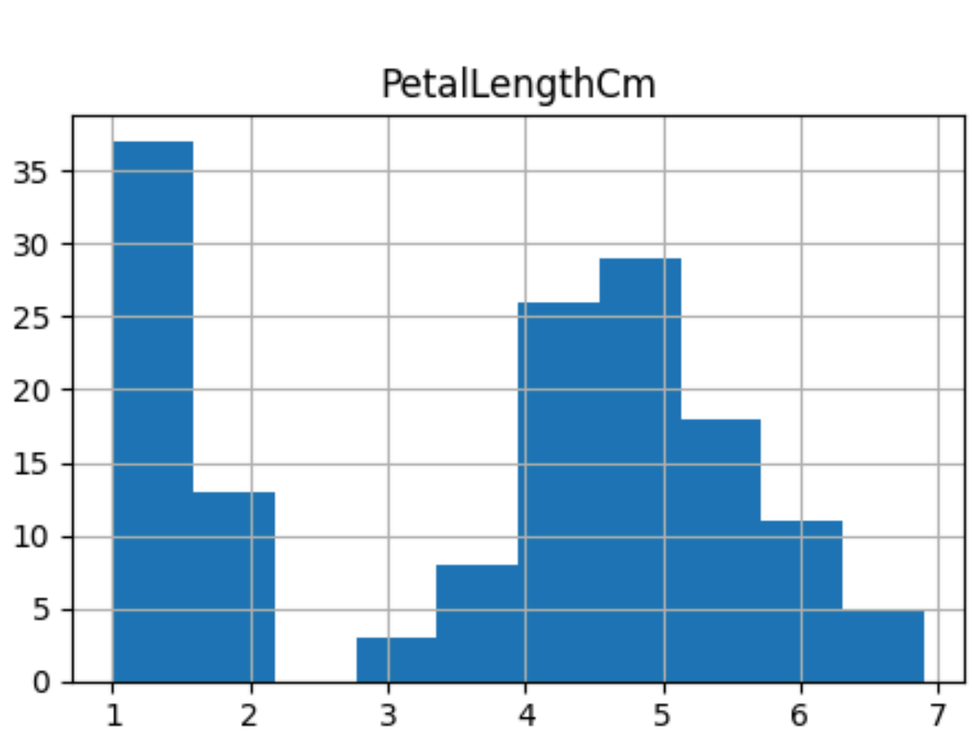


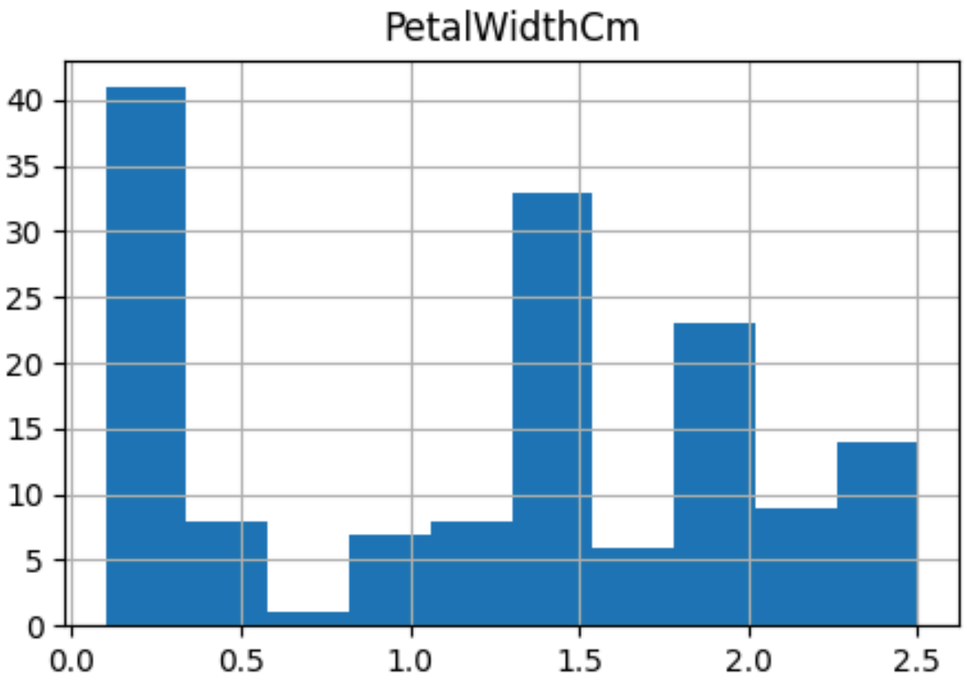
In [9]:
```
Iris.hist(figsize=(12,12))
plt.show()
```











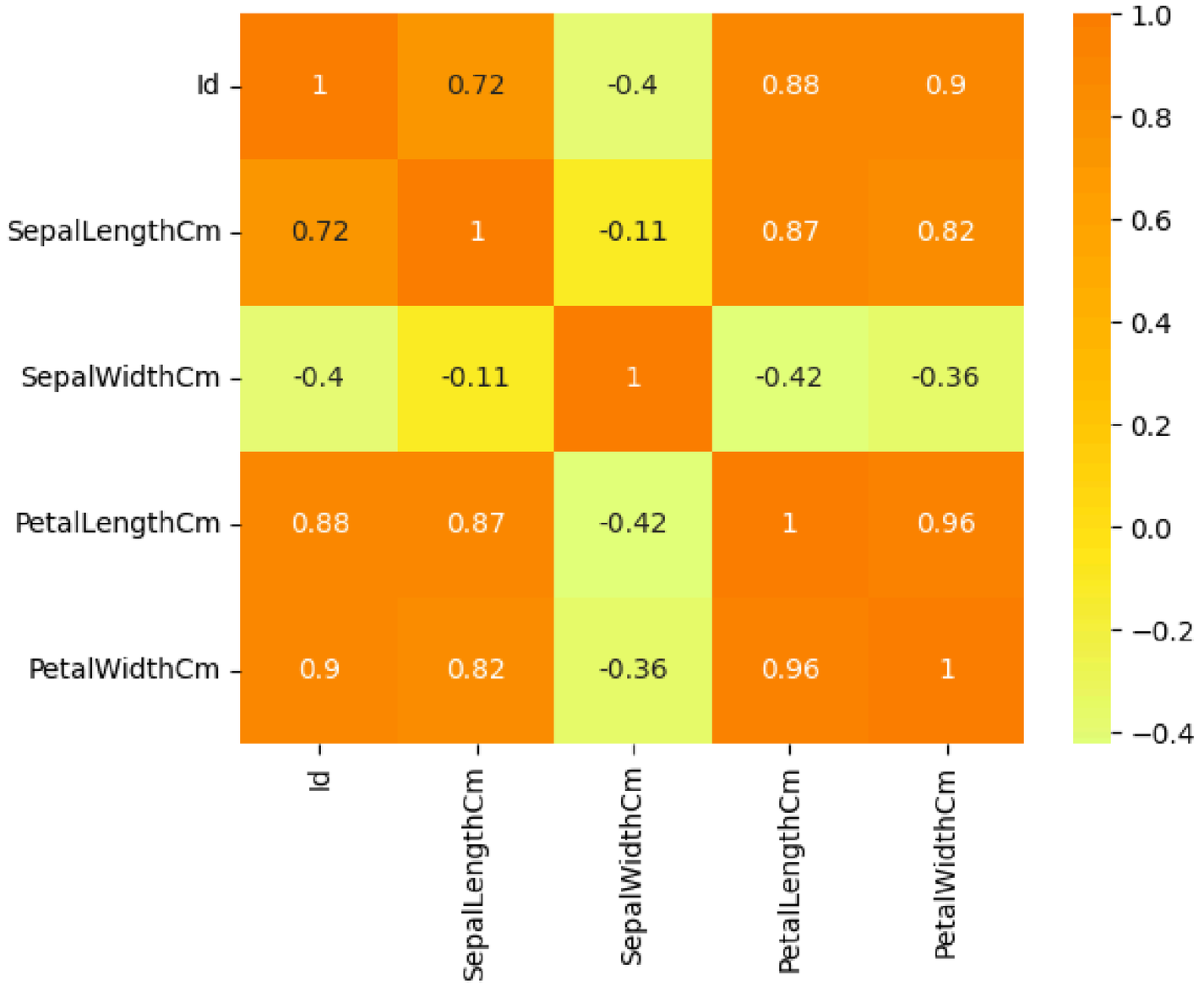
In [10]:
```
Iris.corr(numeric_only="True")
```

Out[10]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Id	1.000000	0.716676	-0.397729	0.882747	0.899759
SepalLengthCm	0.716676	1.000000	-0.109369	0.871754	0.817954
SepalWidthCm	-0.397729	-0.109369	1.000000	-0.420516	-0.356544
PetalLengthCm	0.882747	0.871754	-0.420516	1.000000	0.962757
PetalWidthCm	0.899759	0.817954	-0.356544	0.962757	1.000000

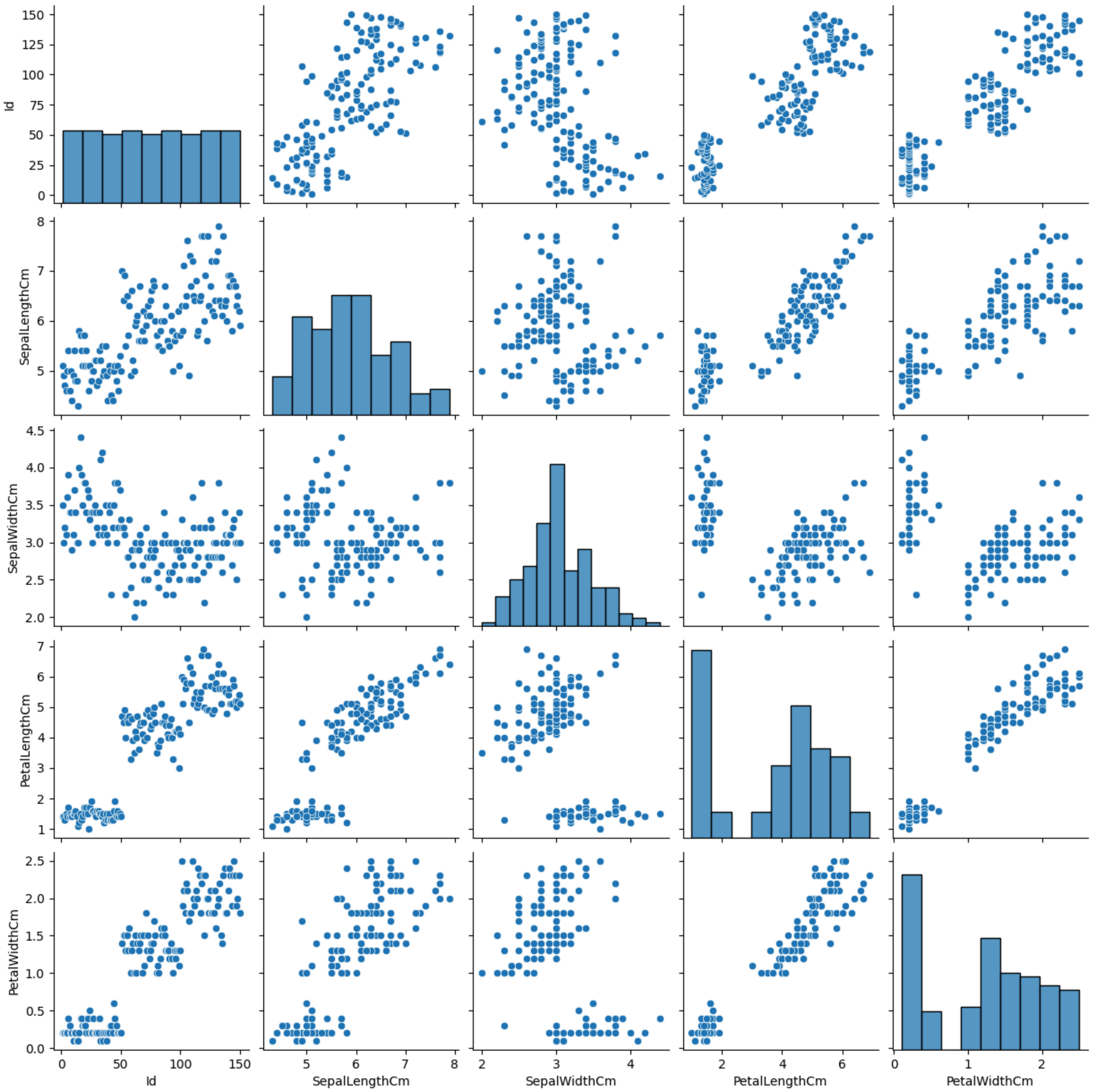
In [11]:
```
sns.heatmap(Iris.corr(numeric_only="True"), annot=True, cmap='Wistia')
```

Out[11]: <Axes: >



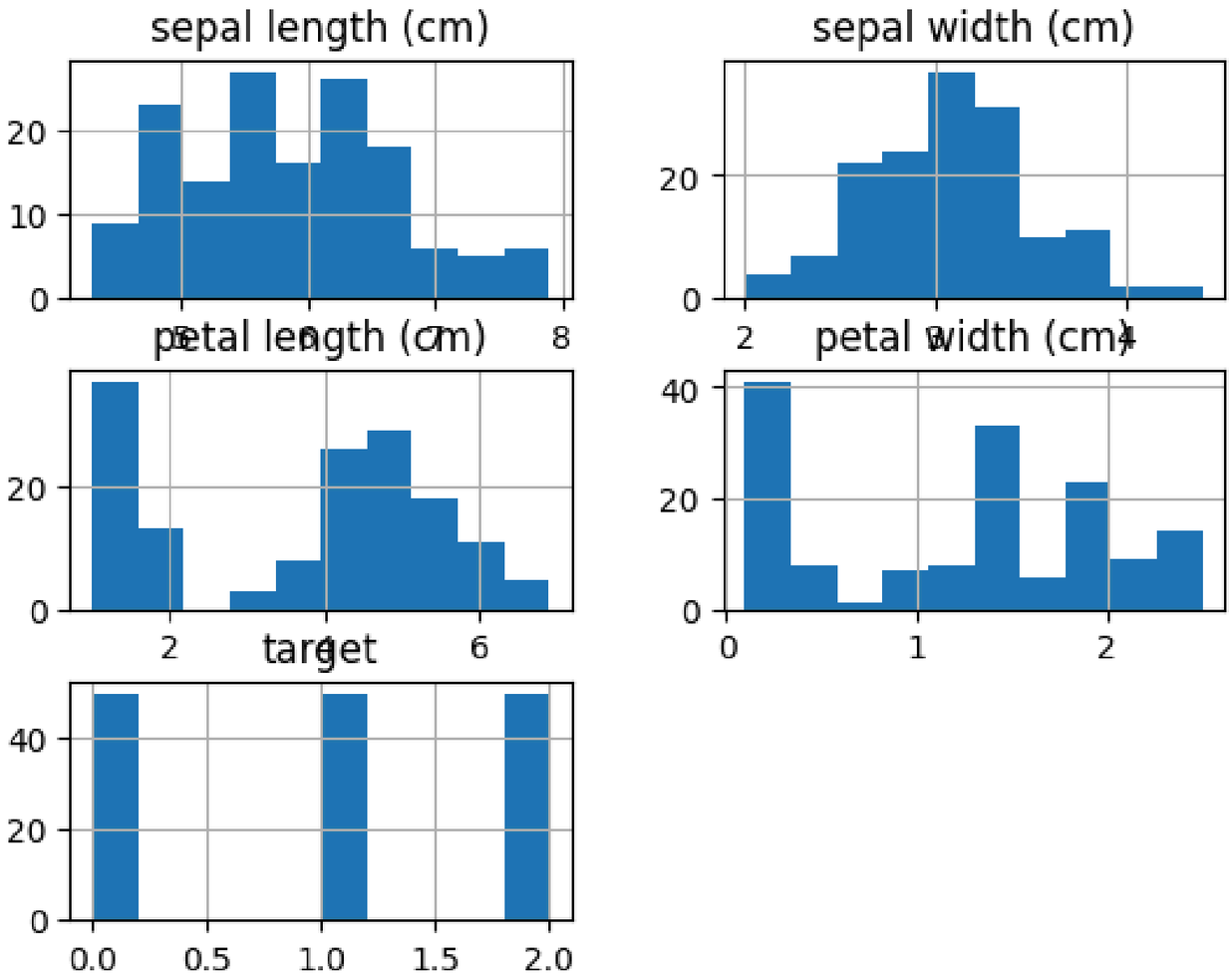
In [12]:
```
sns.pairplot(Iris)
```

Out[12]:
```
<seaborn.axisgrid.PairGrid at 0x2bf02191970>
```

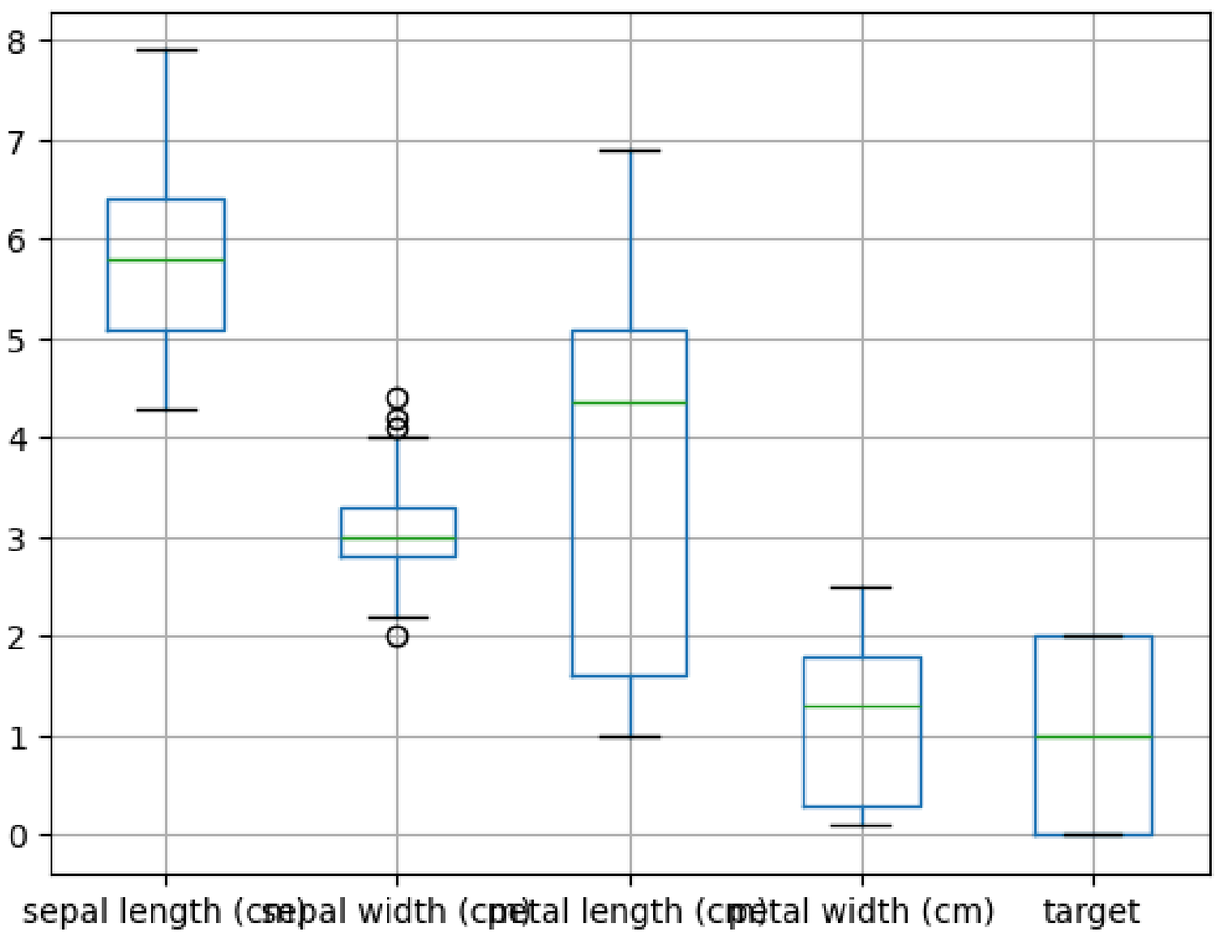


In [13]:
```
from sklearn.datasets import load_iris
import pandas as pd

iris = load_iris()
iris_df = pd.DataFrame(iris.data, columns=iris.feature_names)
iris_df['target'] = iris.target
```

In [14]:
```
import matplotlib.pyplot as plt

iris_df.hist()
plt.show()
```



In [15]:
```
iris_df.boxplot()
plt.show()
```

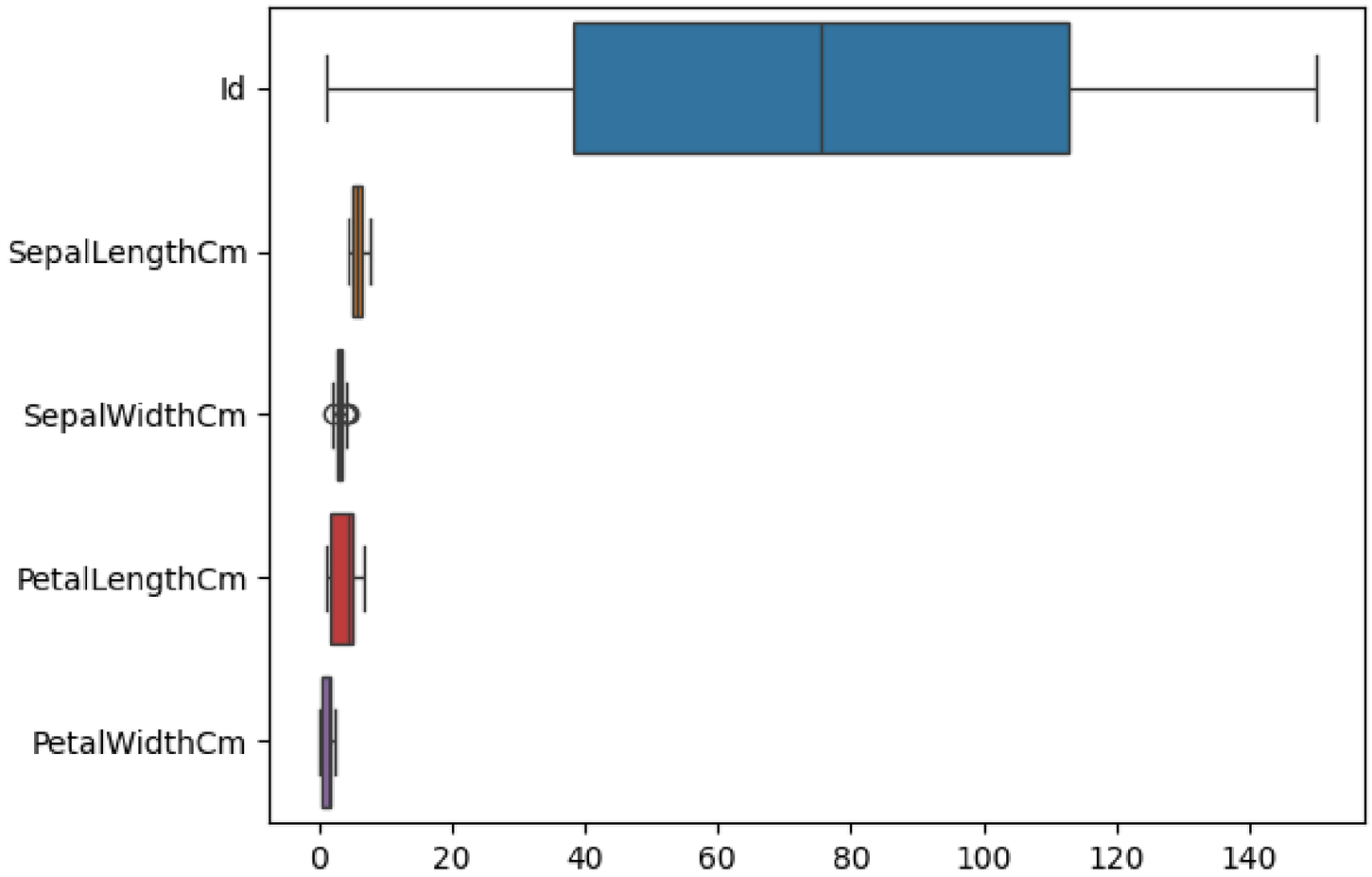


In [16]:
```
iris_df.describe()
```

Out[16]:

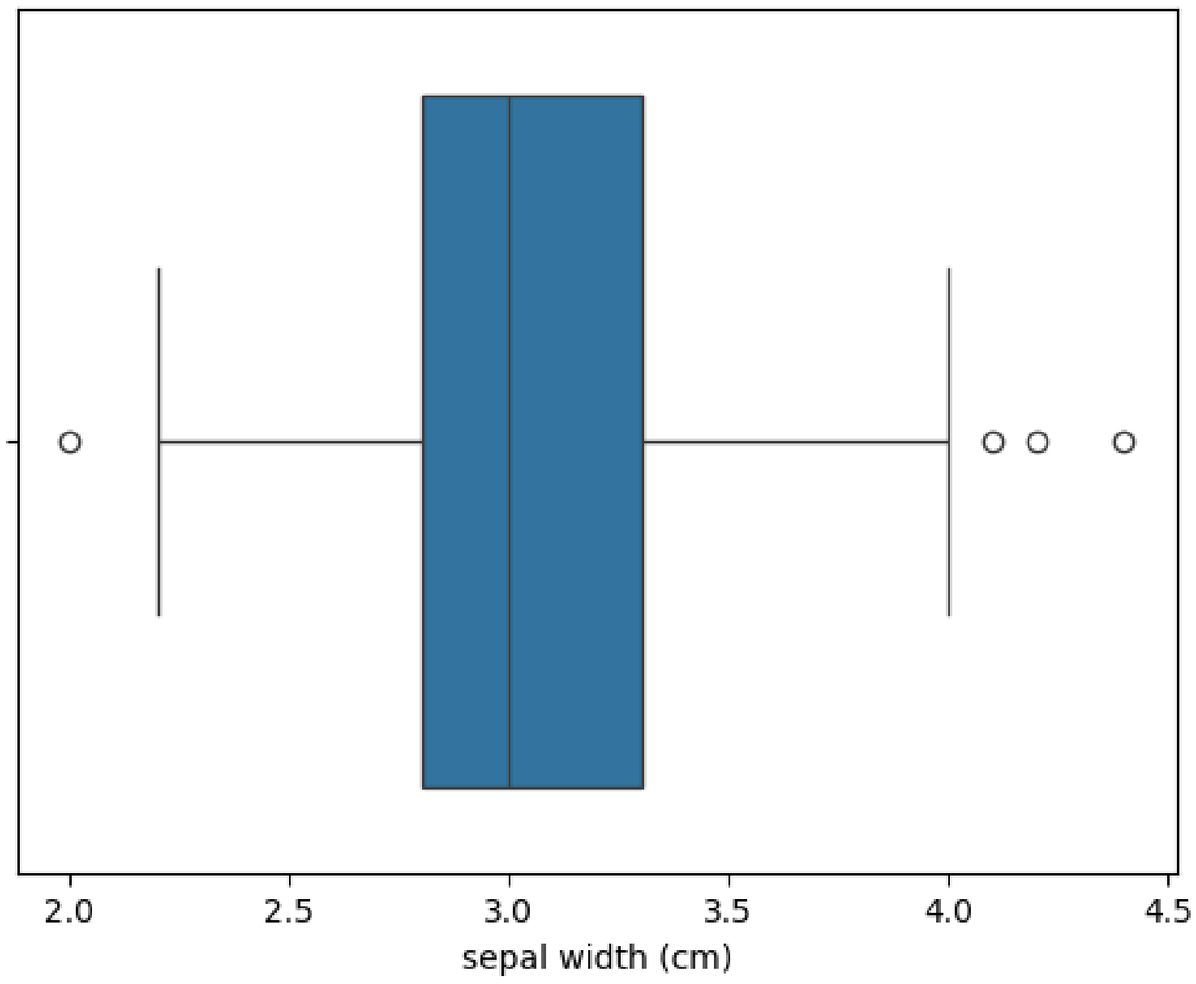
	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333	1.000000
std	0.828066	0.435866	1.765298	0.762238	0.819232
min	4.300000	2.000000	1.000000	0.100000	0.000000
25%	5.100000	2.800000	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 [17]:
```
sns.boxplot(data=Iris, orient="h")
plt.show()
```



In [18]:
```
sns.boxplot(x = 'sepal width (cm)', data = iris_df)
```

Out[18]: <Axes: xlabel='sepal width (cm)'>



In [19]:
```
Q1 = Iris.SepalWidthCm.quantile(0.25)
Q3 = Iris.SepalWidthCm.quantile(0.75)
IQR = Q3-Q1
print(IQR)
```

```
0.5
```

In [20]:
```
data = Iris[Iris.SepalWidthCm < (Q1 - 1.5 * IQR) / (Iris.SepalWidthCm > (Q3 + 1.5 * IQR))]
```

In [21]:
```
data
```

Out[21]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

147 rows × 6 columns

In [ ]: