In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
```

In [2]:

```
iris = pd.read_csv('IRIS.csv')
```

In [3]:

```
iris
```

Out[3]:

	sepal_length	sepal_width	petal_length	petal_width	species
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

150 rows × 5 columns

In [4]:

```
iris.shape
```

Out[4]:

```
(150, 5)
```

In [5]:

```
iris.describe()
```

Out[5]:

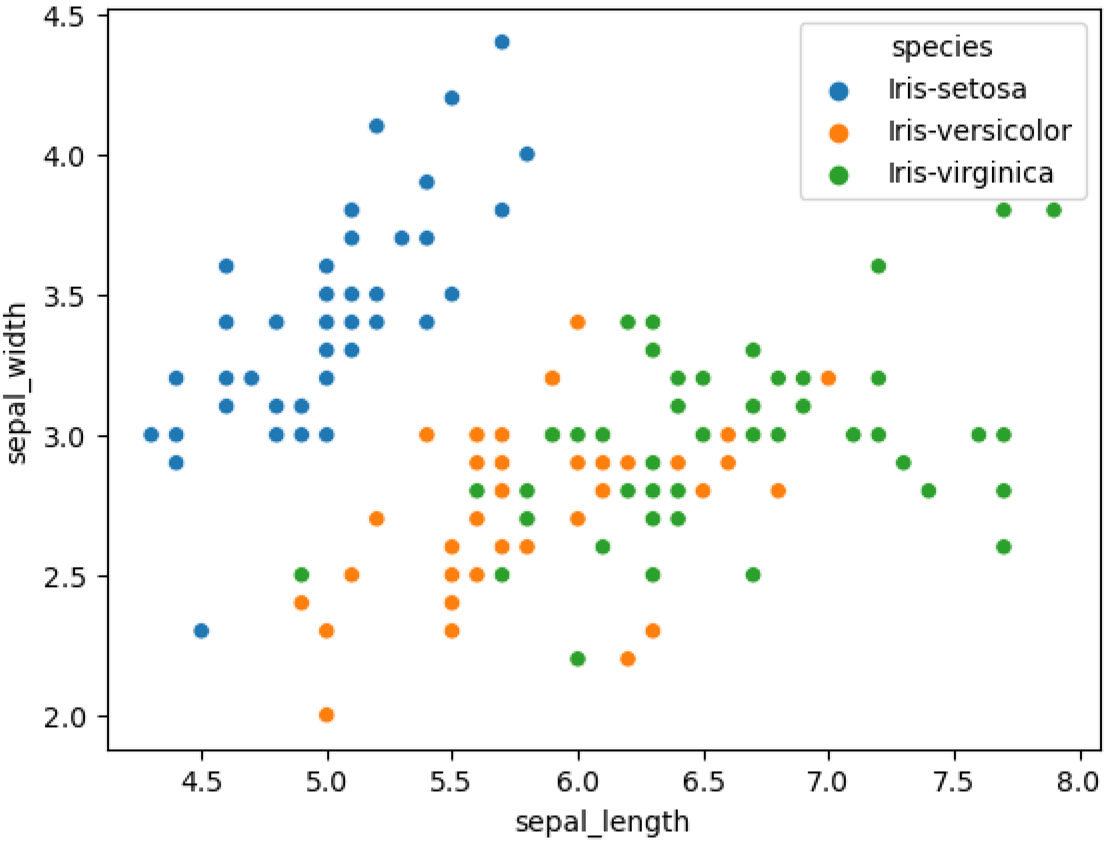
	sepal_length	sepal_width	petal_length	petal_width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.054000	3.758667	1.198667
std	0.828066	0.433594	1.764420	0.763161
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000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

In [6]:
```
iris.groupby('species').mean()
```

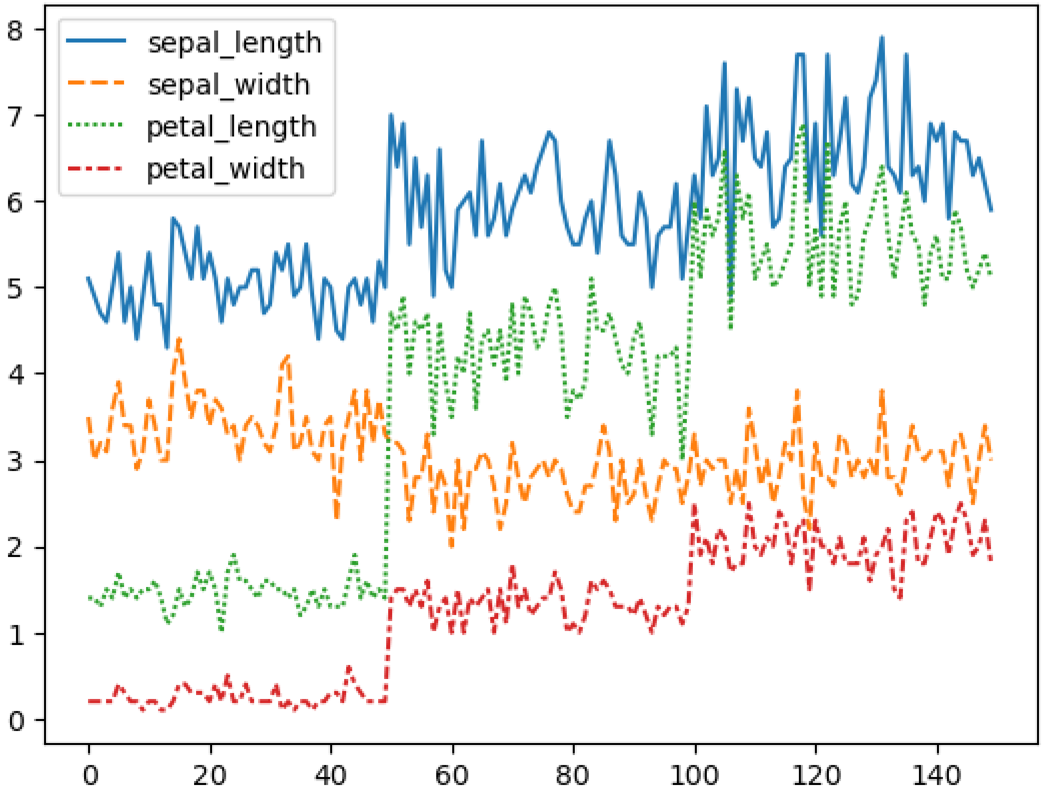
Out[6]:

species	sepal_length	sepal_width	petal_length	petal_width
Iris-setosa	5.006	3.418	1.464	0.244
Iris-versicolor	5.936	2.770	4.260	1.326
Iris-virginica	6.588	2.974	5.552	2.026

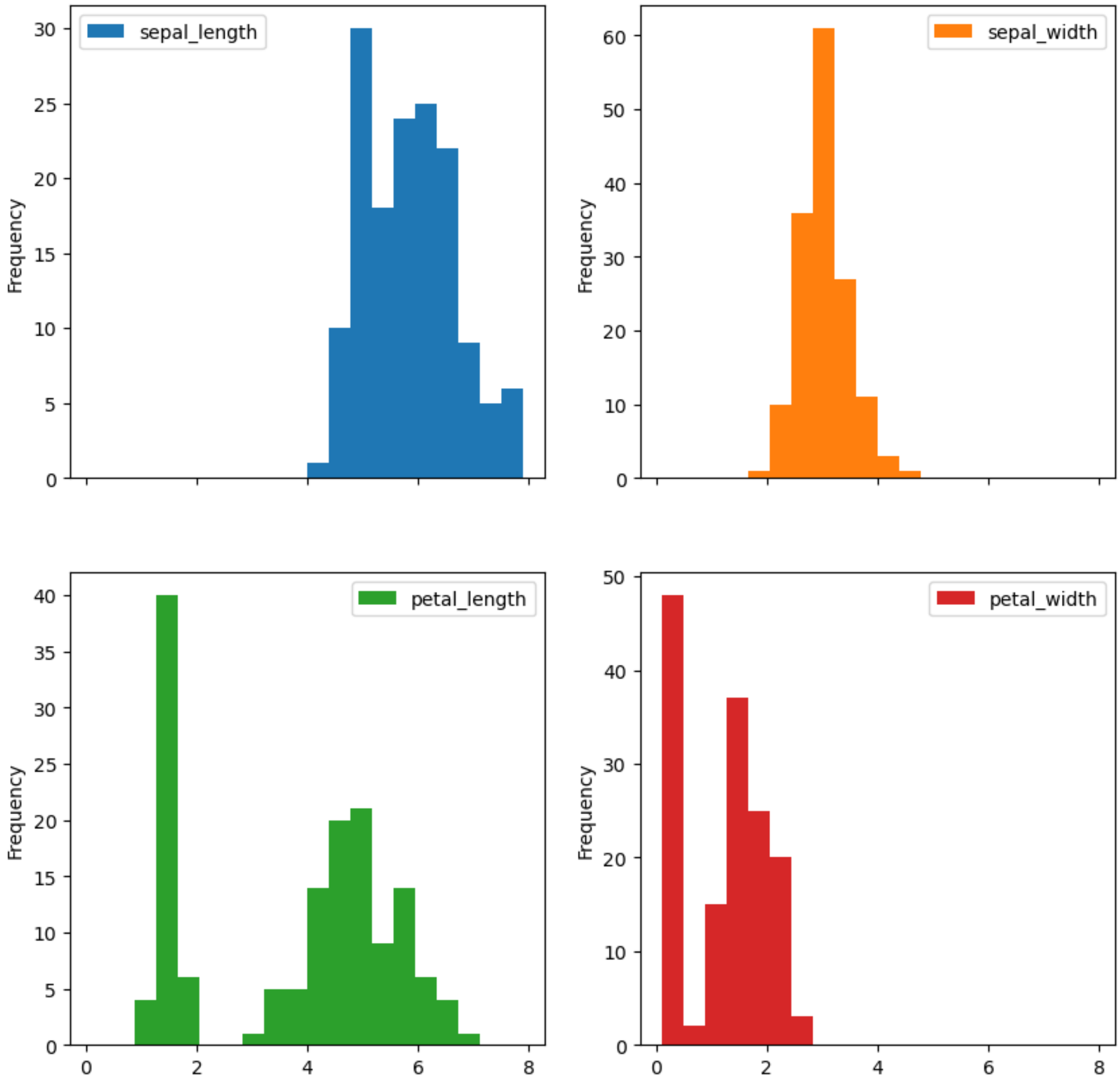
In [7]:
```
sns.scatterplot(x='sepal_length', y='sepal_width', hue='species', data=iris
plt.show()
```



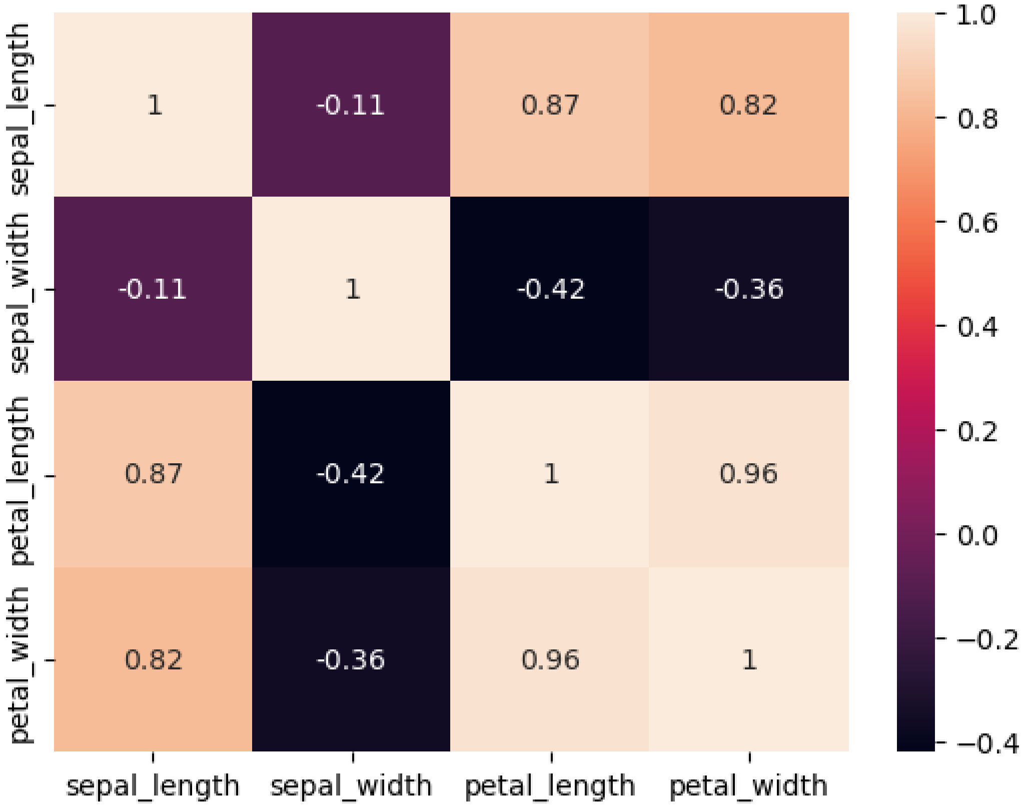
In [8]:
```
sns.lineplot(data=iris.drop(['species'], axis=1))
plt.show()
```



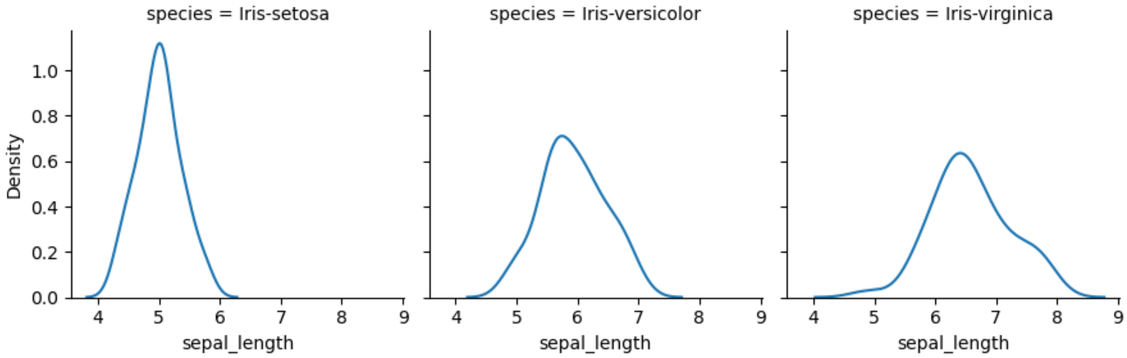
In [9]:
```
iris.plot.hist(subplots=True, layout=(2,2), figsize=(10, 10), bins=20)
plt.show()
```



In [10]:
```
sns.heatmap(iris.corr(), annot=True)
plt.show()
```

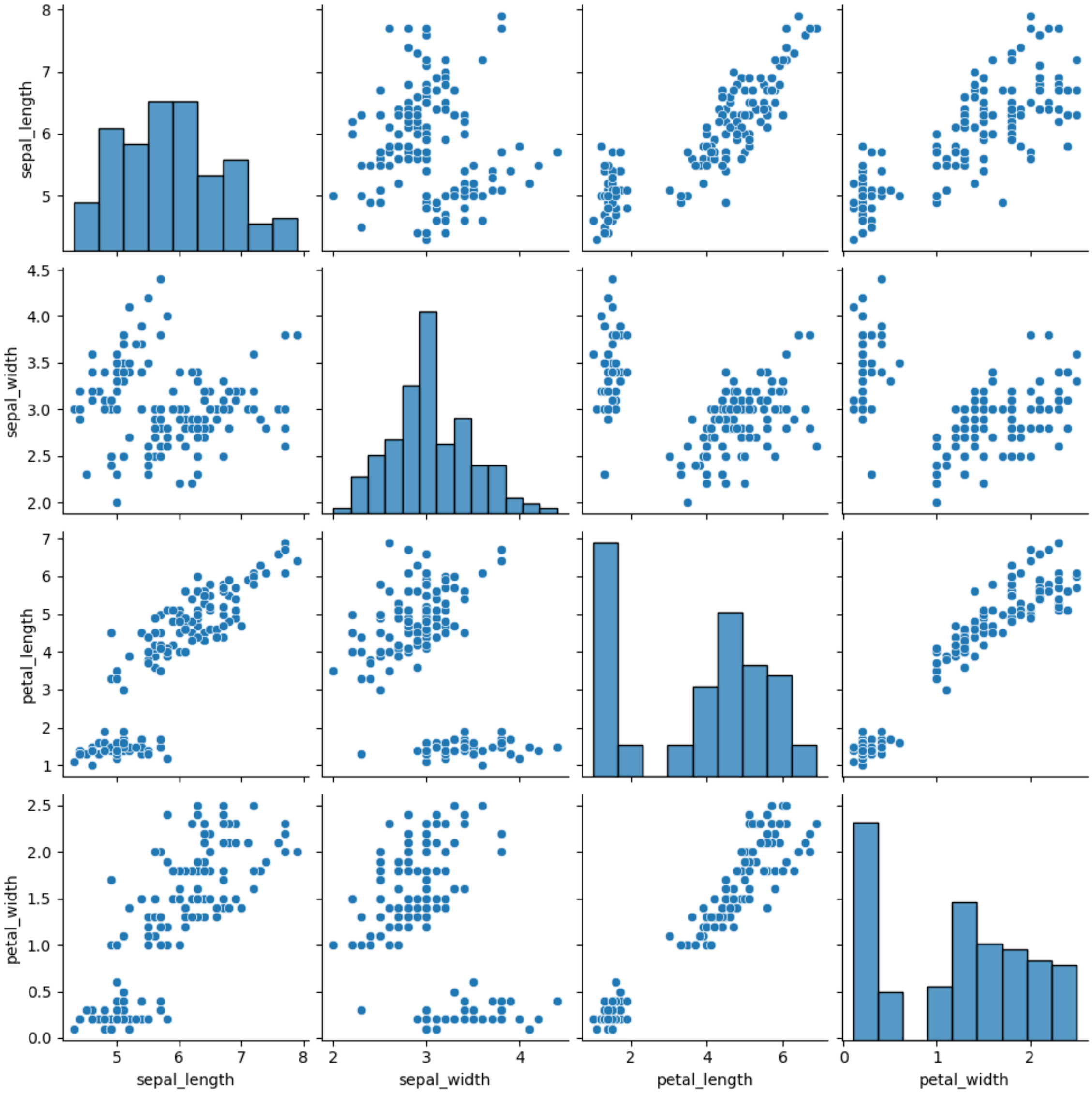


In [11]:
```
g = sns.FacetGrid(iris, col='species')
g = g.map(sns.kdeplot, 'sepal_length')
```



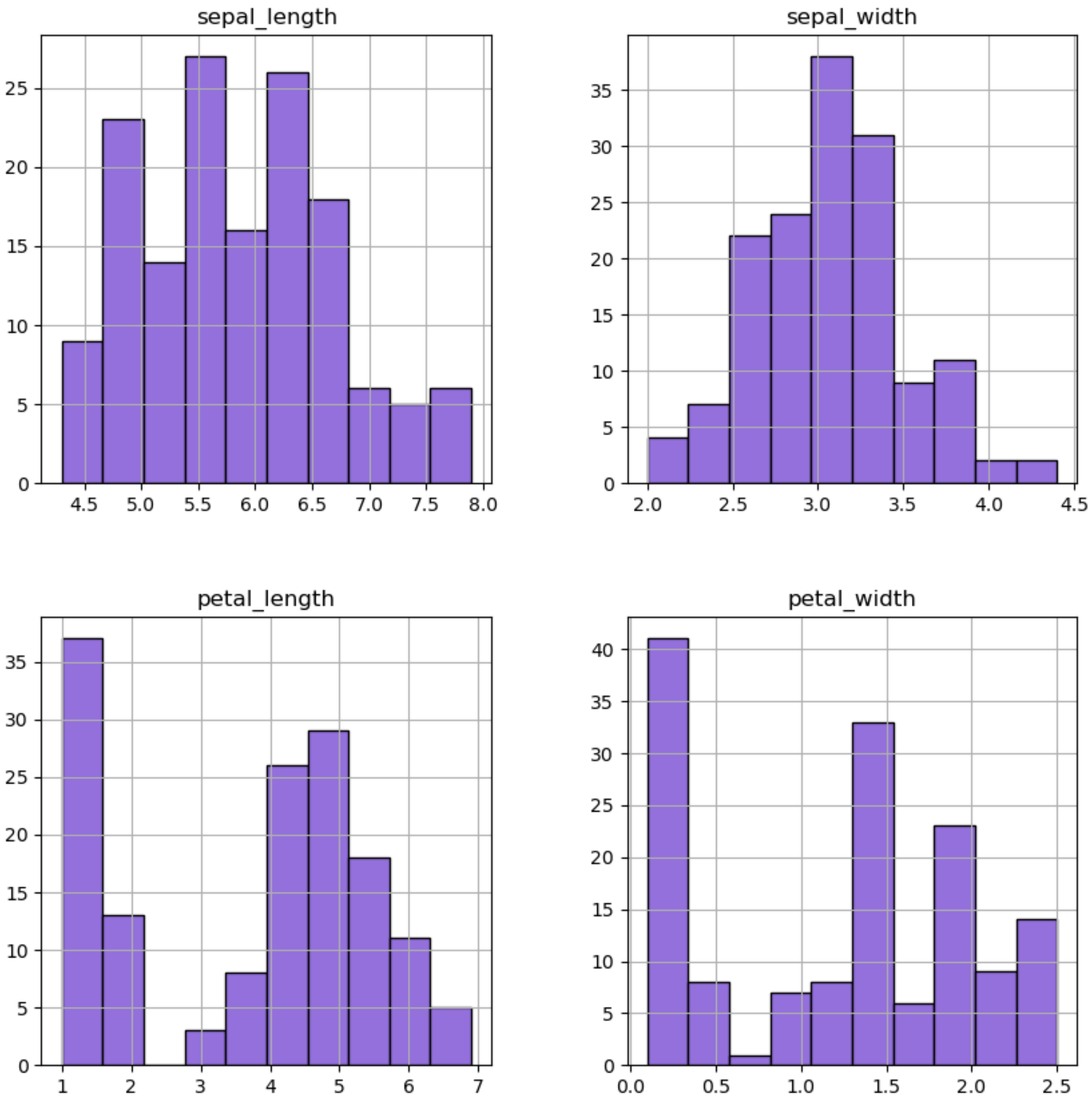
In [12]:
```
sns.pairplot(iris)
```

Out[12]:
```
<seaborn.axisgrid.PairGrid at 0x1cdc968cd90>
```



In [13]:

```
iris.hist(color= 'mediumpurple' ,edgecolor='black',figsize=(10,10))
plt.show()
```



In [14]:

```
iris.corr().style.background_gradient(cmap='coolwarm').set_precision(2)
```

Out[14]:

	sepal_length	sepal_width	petal_length	petal_width
sepal_length	1.00	-0.11	0.87	0.82
sepal_width	-0.11	1.00	-0.42	-0.36
petal_length	0.87	-0.42	1.00	0.96
petal_width	0.82	-0.36	0.96	1.00

In [15]:

```
from sklearn.model_selection import train_test_split
from sklearn import metrics
from sklearn.metrics import accuracy_score
```

In [16]:

```
x = iris.drop('species', axis=1)
y= iris.species

x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.4, ra
```

In [17]:

```
from sklearn.neighbors import KNeighborsClassifier
knn = KNeighborsClassifier(n_neighbors=5, p=2, metric='minkowski')
knn.fit(x_train, y_train)

knn.score(x_test, y_test)
```

Out[17]:

```
0.9666666666666667
```

In [18]:

```
from sklearn.linear_model import LogisticRegression
logreg = LogisticRegression()
logreg.fit(x, y)
y_pred = logreg.predict(x)
print(metrics.accuracy_score(y, y_pred))
```

```
0.9733333333333334
```

In [19]:

```
from sklearn.svm import SVC
svm = SVC(kernel='rbf', random_state=0, gamma=.10, C=1.0)
svm.fit(x_train, y_train)

svm.score(x_test, y_test)
```

Out[19]:

```
0.9833333333333333
```

In [20]:

```
from sklearn.tree import DecisionTreeClassifier
dtree = DecisionTreeClassifier()
dtree.fit(x_train, y_train)

dtree.score(x_test, y_test)
```

Out[20]:

```
0.9666666666666667
```

In [ ]: