使用matplotlib对Iris 数据集进行可视化分析

June 10, 2024

[ ]:
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
sns.set(style="darkgrid", color_codes=True)
```

[ ]:
```
iris = pd.read_csv("Iris.csv")
iris.head()
```

[ ]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

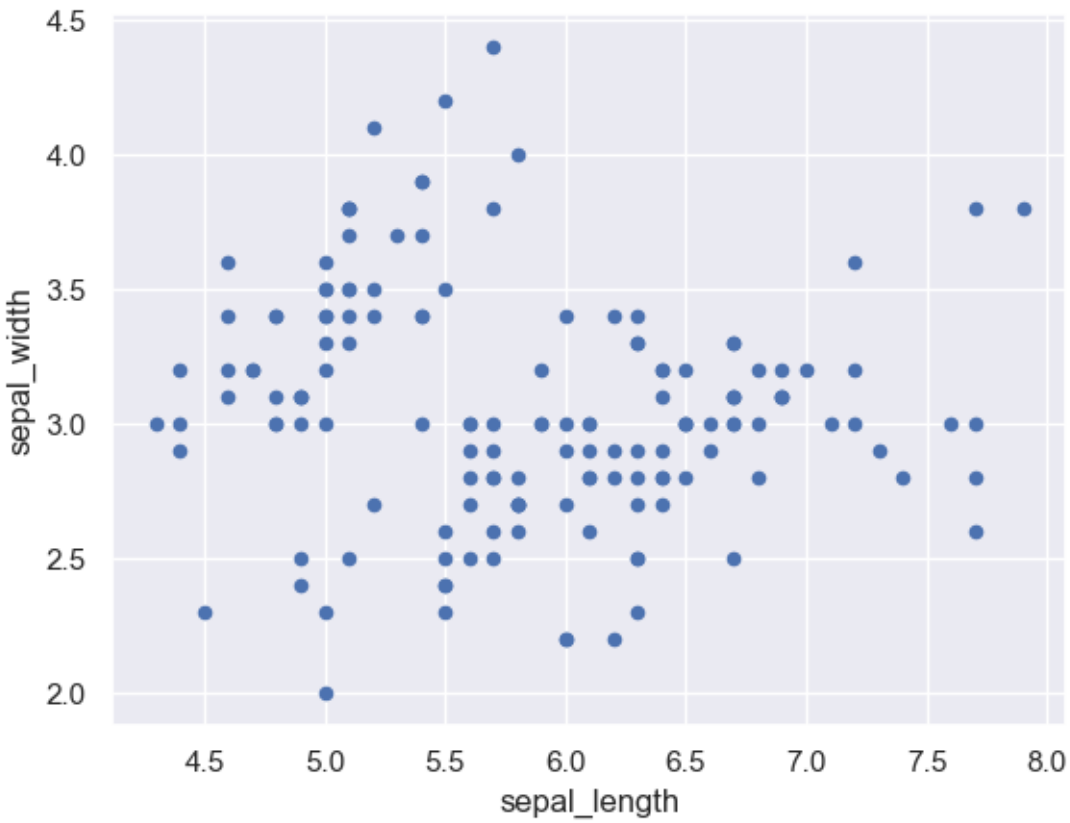
[ ]:
```
iris["species"].value_counts()
```

[ ]:
```
setosa        50
versicolor    50
virginica     50
Name: species, dtype: int64
```

[ ]:
```
iris.plot(kind='scatter', x="sepal_length", y="sepal_width")
```

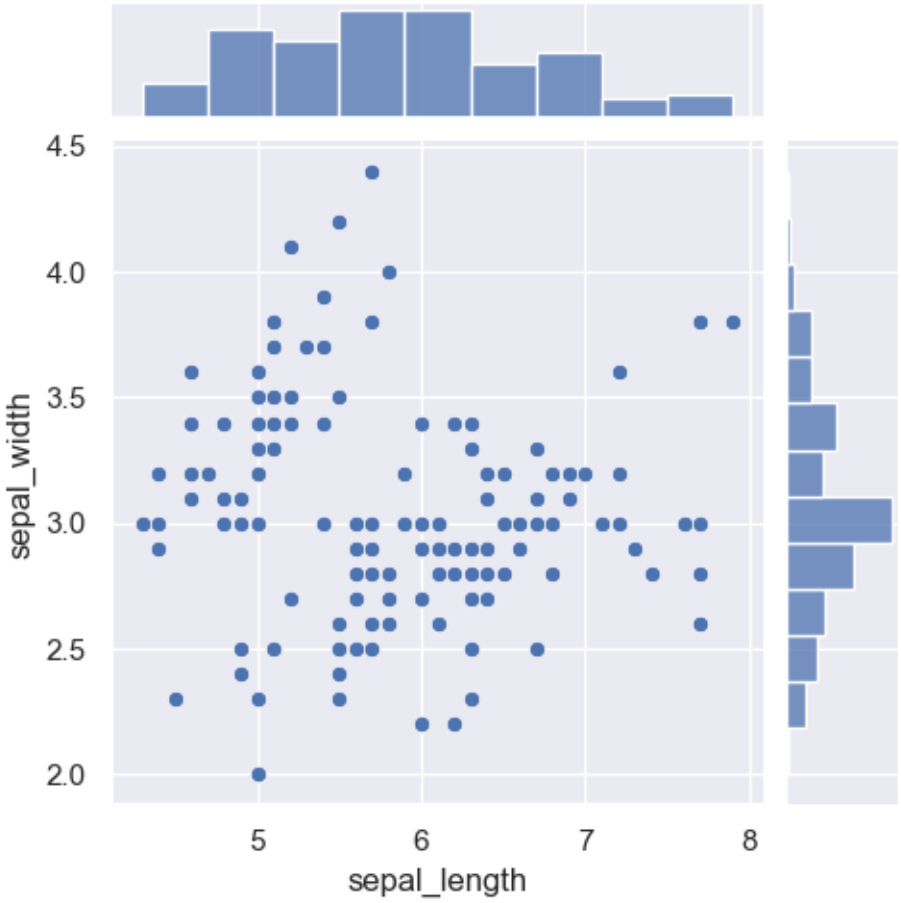
```
*c* argument looks like a single numeric RGB or RGBA sequence, which should be
avoided as value-mapping will have precedence in case its length matches with
*x* & *y*.  Please use the *color* keyword-argument or provide a 2D array with a
single row if you intend to specify the same RGB or RGBA value for all points.
```

[ ]:
```
<AxesSubplot:xlabel='sepal_length', ylabel='sepal_width'>
```



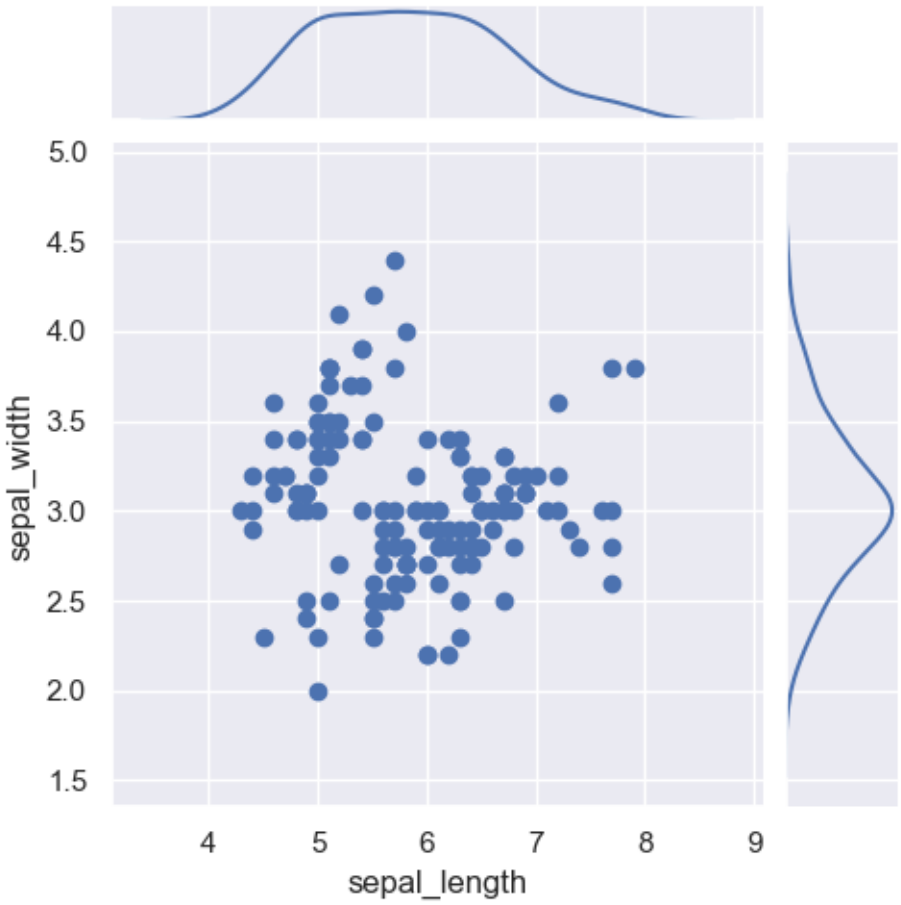
[ ]:
```
sns.jointplot(x="sepal_length", y="sepal_width", data=iris, kind="scatter",␣
↪size=5)
plt.show()
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:2182:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```



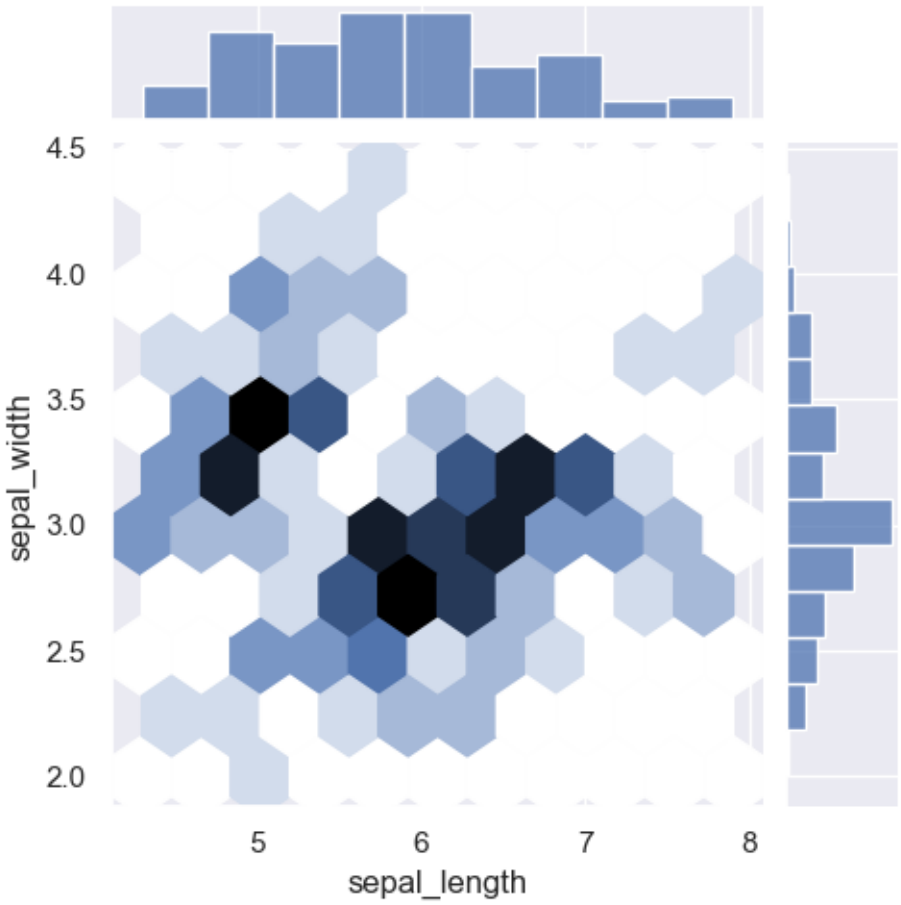
[ ]:
```
g = sns.JointGrid(x="sepal_length", y="sepal_width", data=iris, size=5)
g = g.plot(plt.scatter, sns.kdeplot)
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:1667:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```



[ ]:
```
sns.jointplot(x="sepal_length", y="sepal_width", data=iris, kind="hex", size=5)
plt.show()
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:2182:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```



[ ]:
```
g = sns.jointplot(x="sepal_length", y="sepal_width", data=iris, kind="kde",␣
↪size=5)
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:2182:
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```
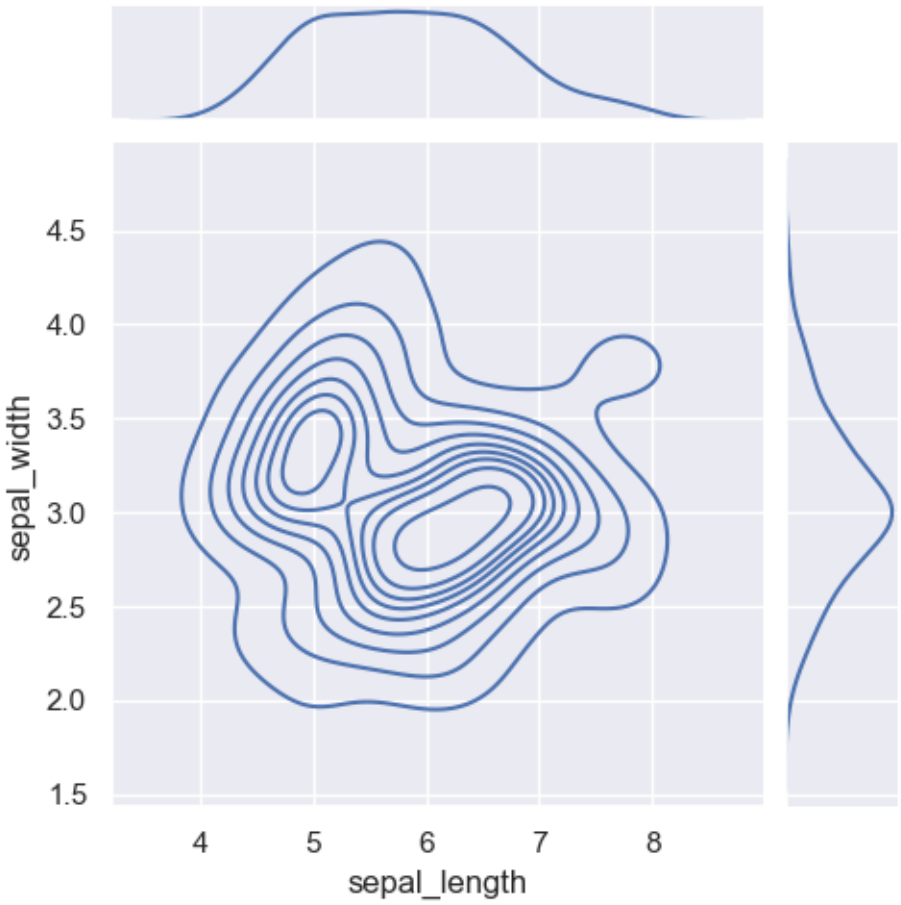
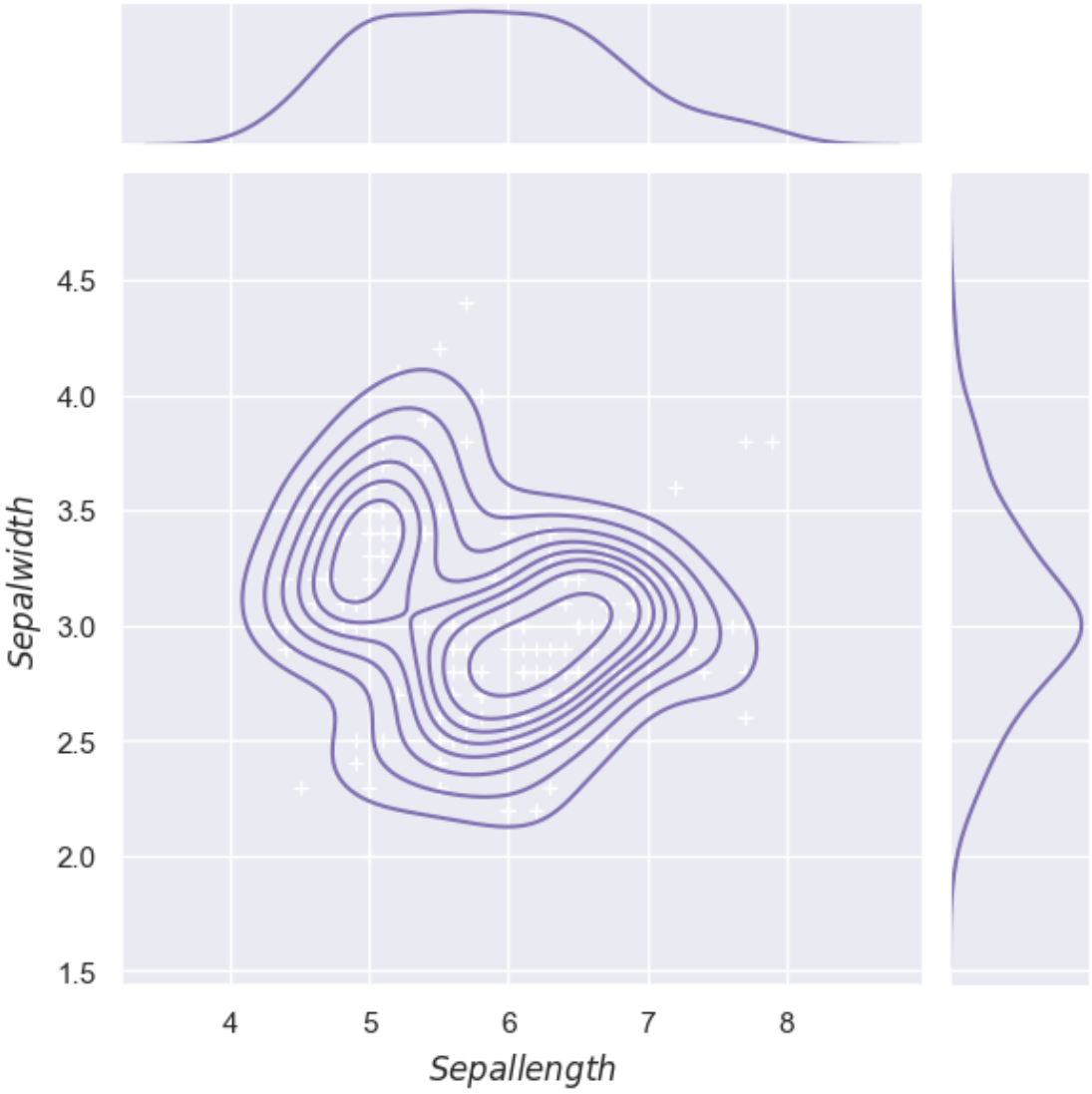
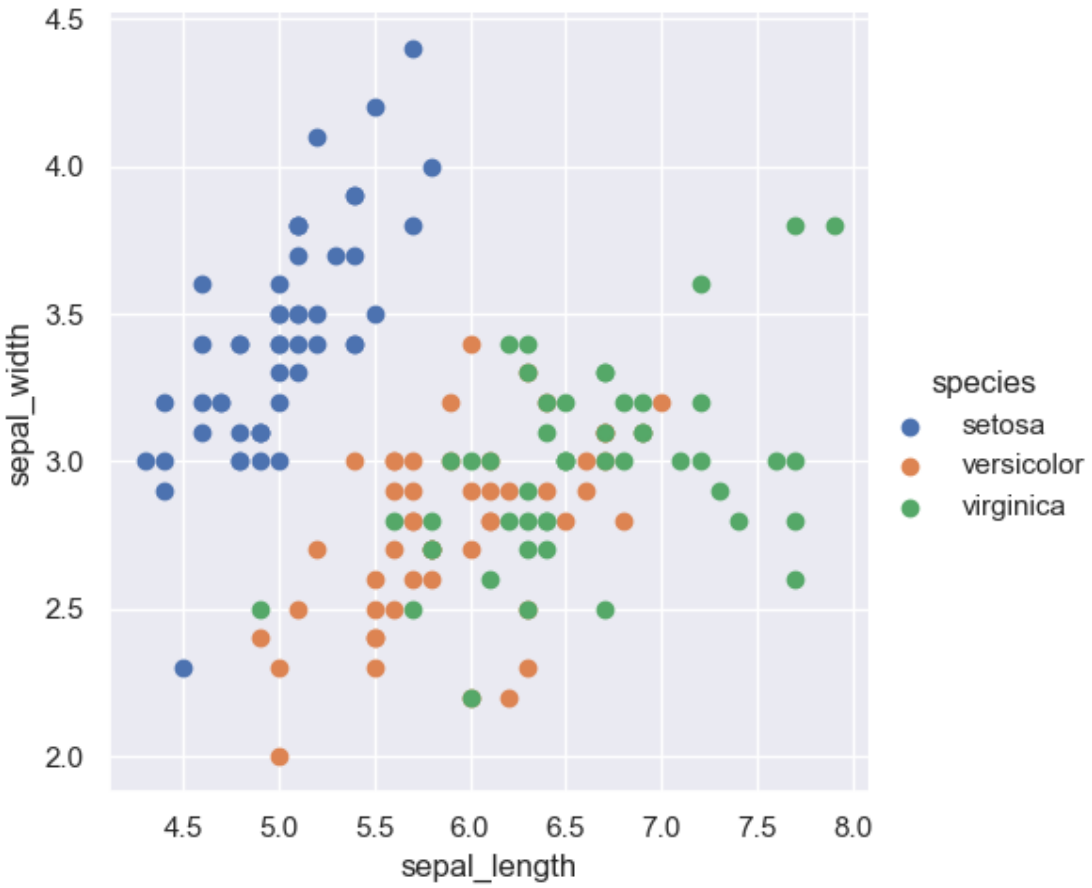



[ ]:
```
g = sns.jointplot(x="sepal_length", y="sepal_width", data=iris, kind="kde",␣
↪color="m")
g.plot_joint(plt.scatter, c="w", s=30, linewidth=1, marker="+")
g.ax_joint.collections[0].set_alpha(0)
g.set_axis_labels("$Sepal length$", "$Sepal width$");
```

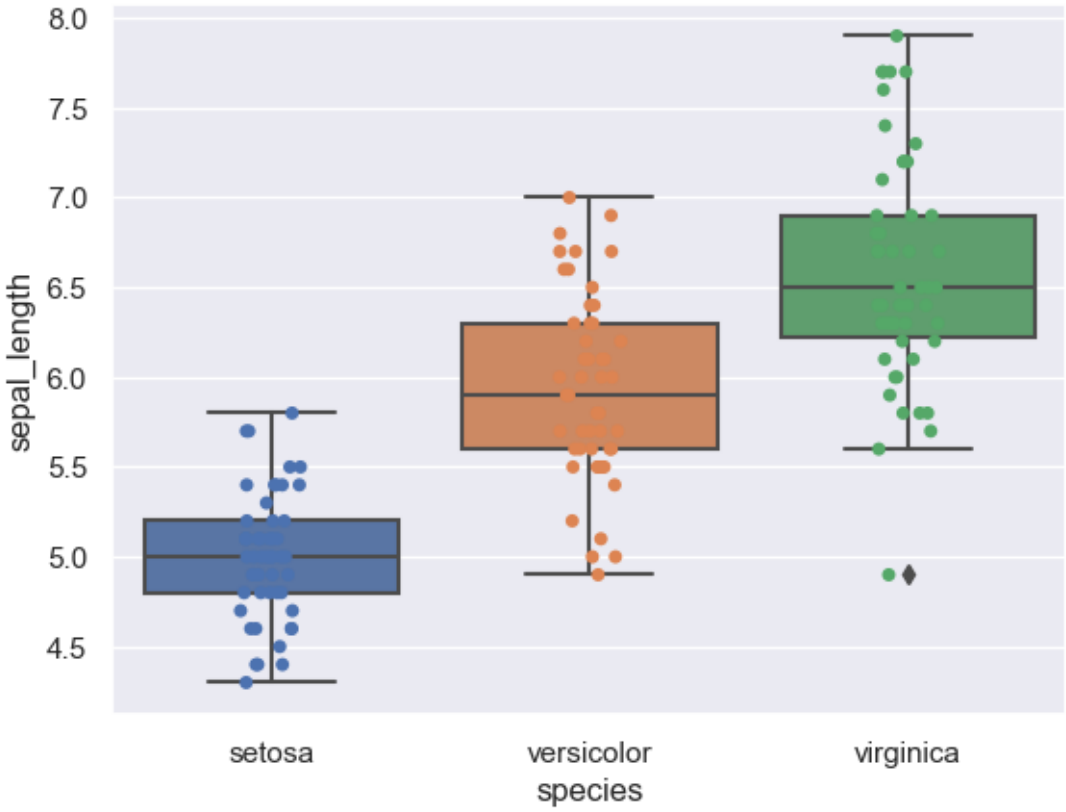


[ ]:
```
g = sns.FacetGrid(iris, hue="species", size=5) \
   .map(plt.scatter, "sepal_length", "sepal_width") \
   .add_legend()
```

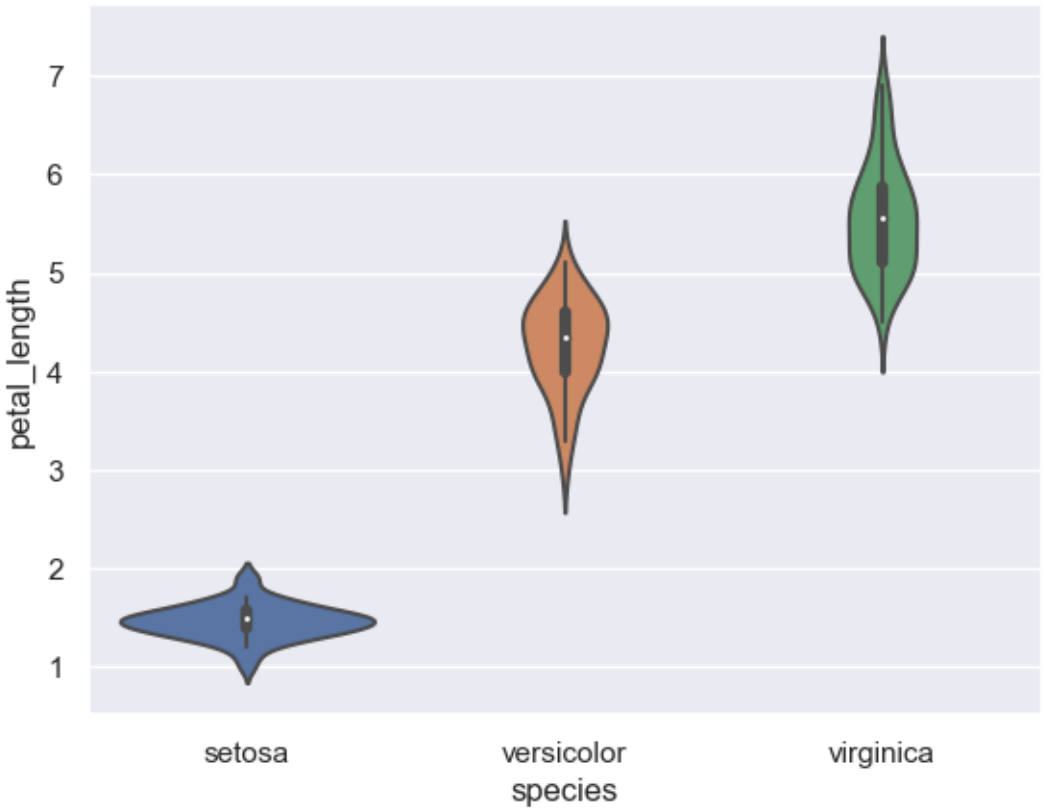
```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:337:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```



[ ]:
```
sns.boxplot(x="species", y="sepal_length", data=iris)
g = sns.stripplot(x="species", y="sepal_length", data=iris, jitter=True,␣
↪edgecolor="gray")
```



[ ]:
```
g =sns.violinplot(x="species", y="petal_length", data=iris, size=6)
```



[ ]:
```
g = sns.FacetGrid(iris, hue="species", size=6) \
   .map(sns.kdeplot, "petal_length") \
   .add_legend()
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:337:
UserWarning: The `size` parameter has been renamed to `height`; please update
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```
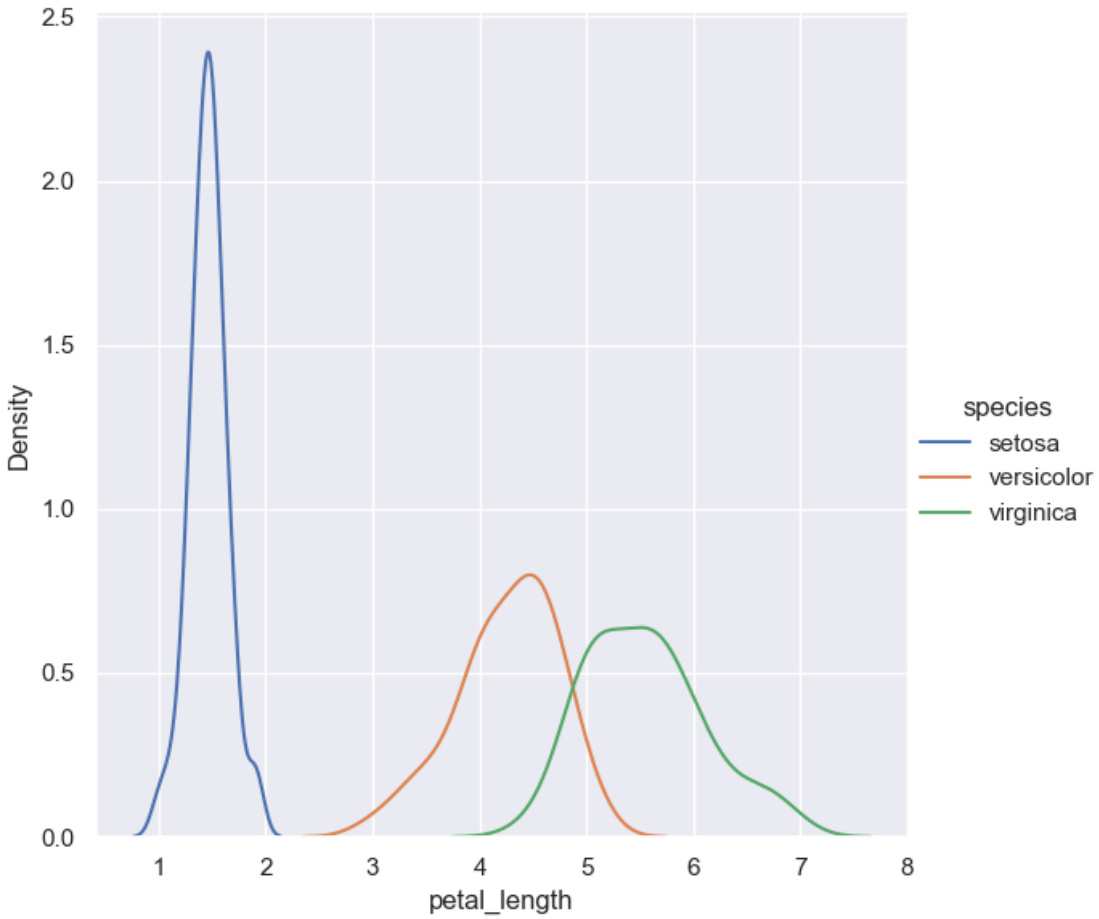
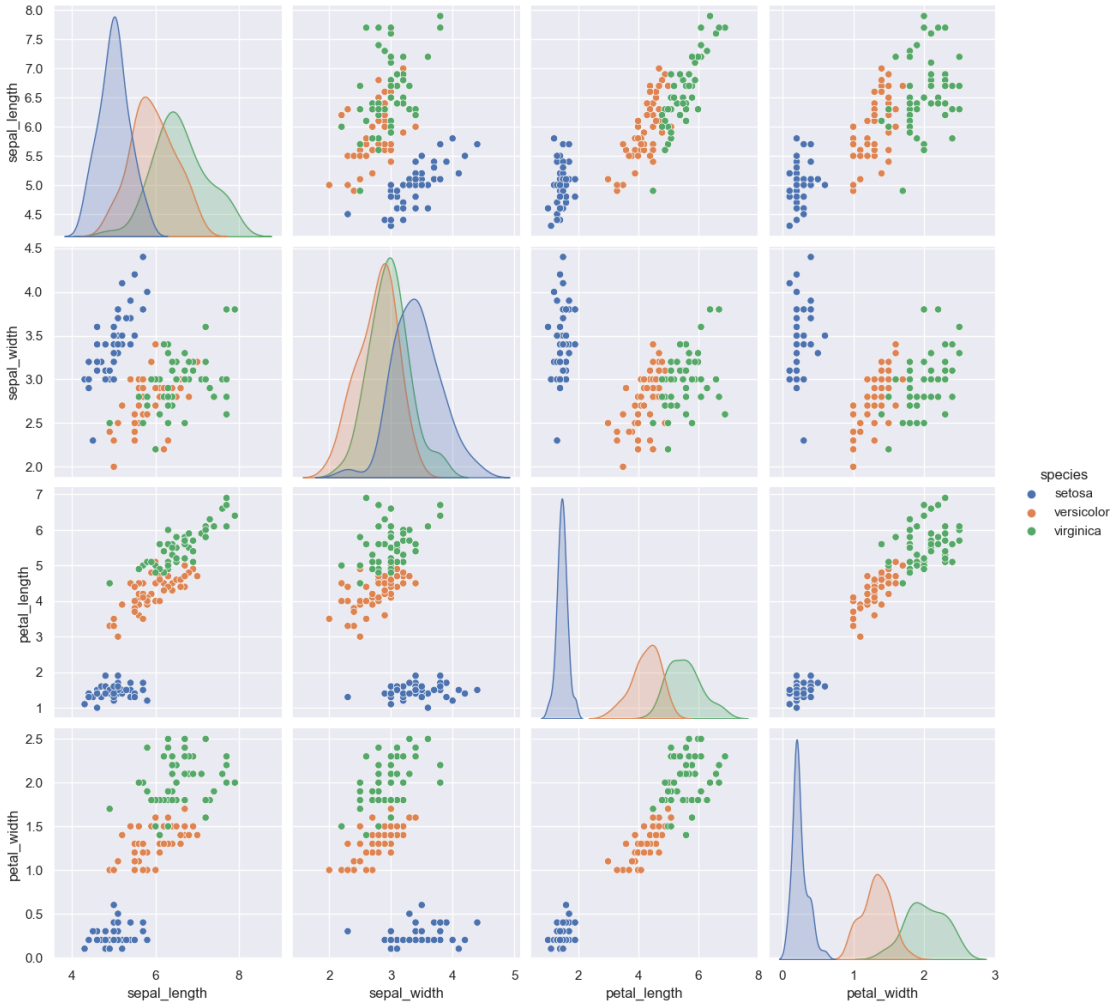



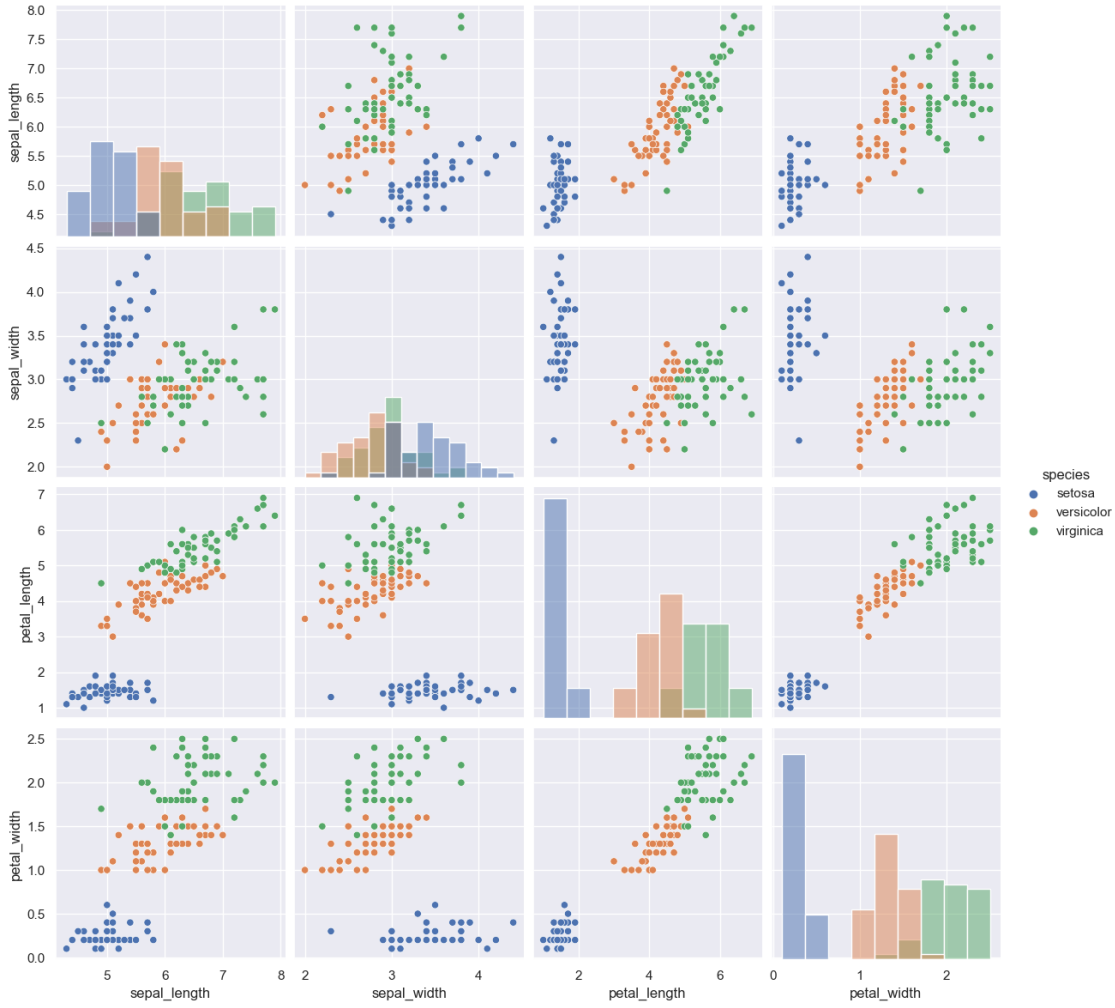
[ ]:
```
g = sns.pairplot(iris, hue="species", size=3)
```

```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:2076:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```

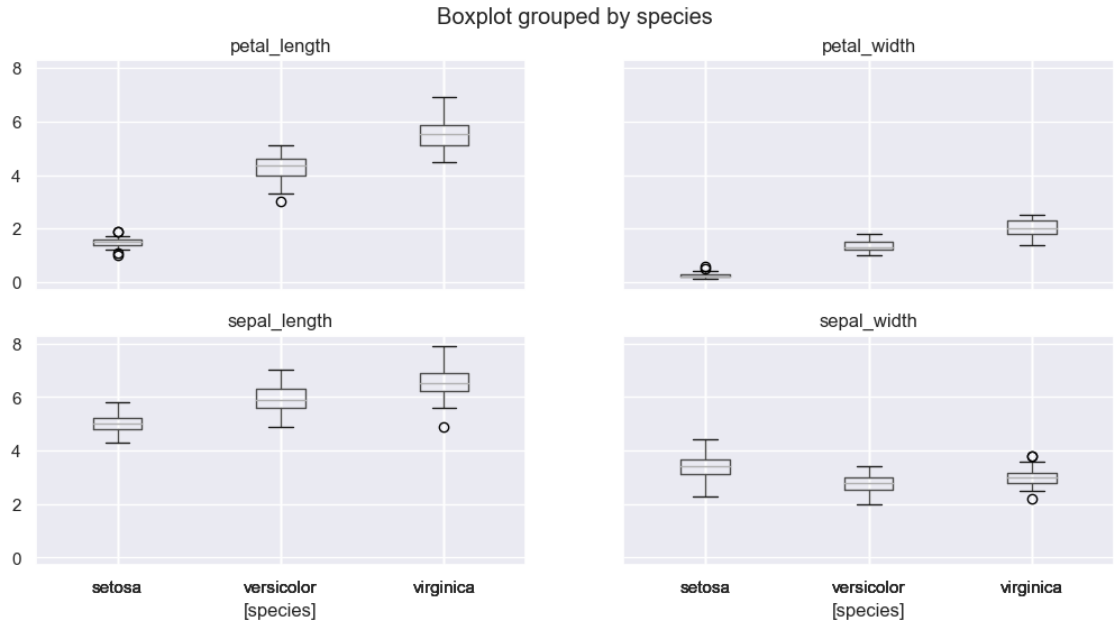


[ ]:
```
g = sns.pairplot(iris, hue="species", size=3, diag_kind="hist")
```

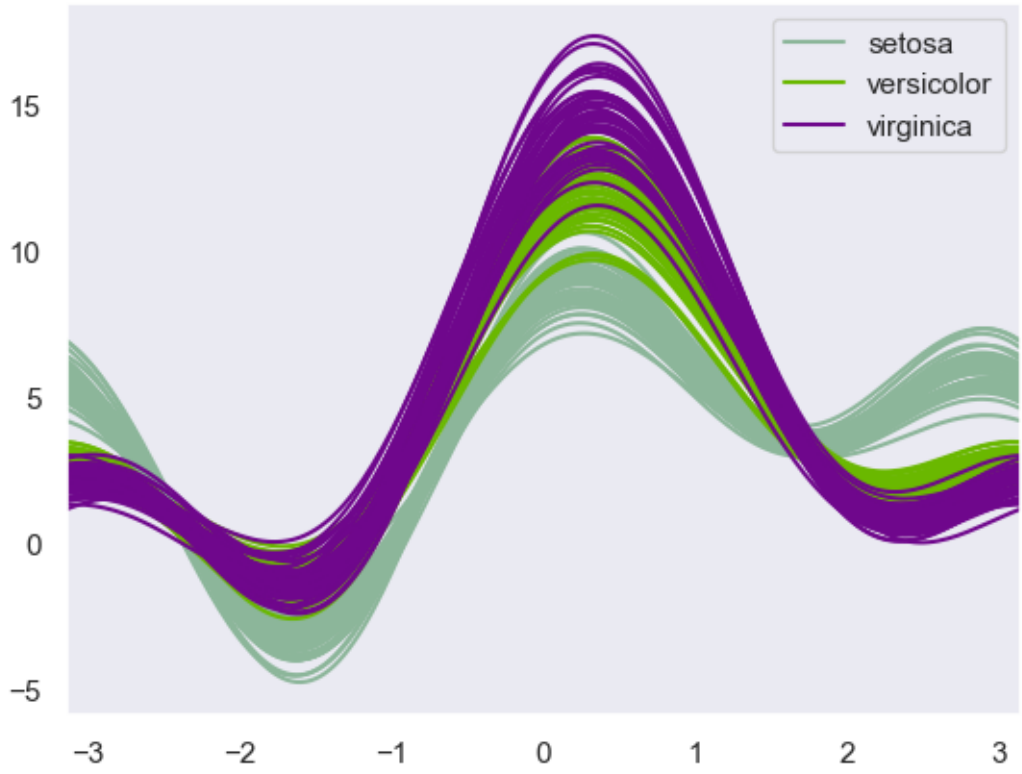
```
d:\development\anaconda\envs\pytorch\lib\site-packages\seaborn\axisgrid.py:2076:
UserWarning: The `size` parameter has been renamed to `height`; please update
your code.
  warnings.warn(msg, UserWarning)
```



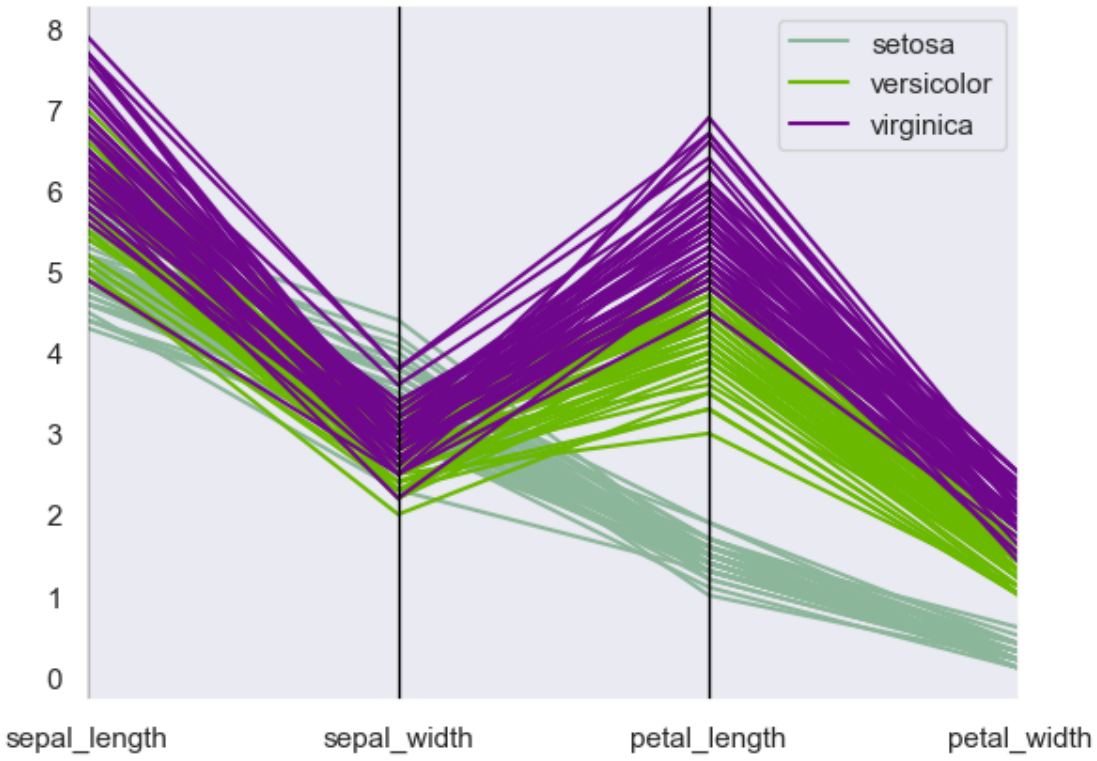

```
[ ]: g = iris.boxplot(by="species", figsize=(12, 6))
```



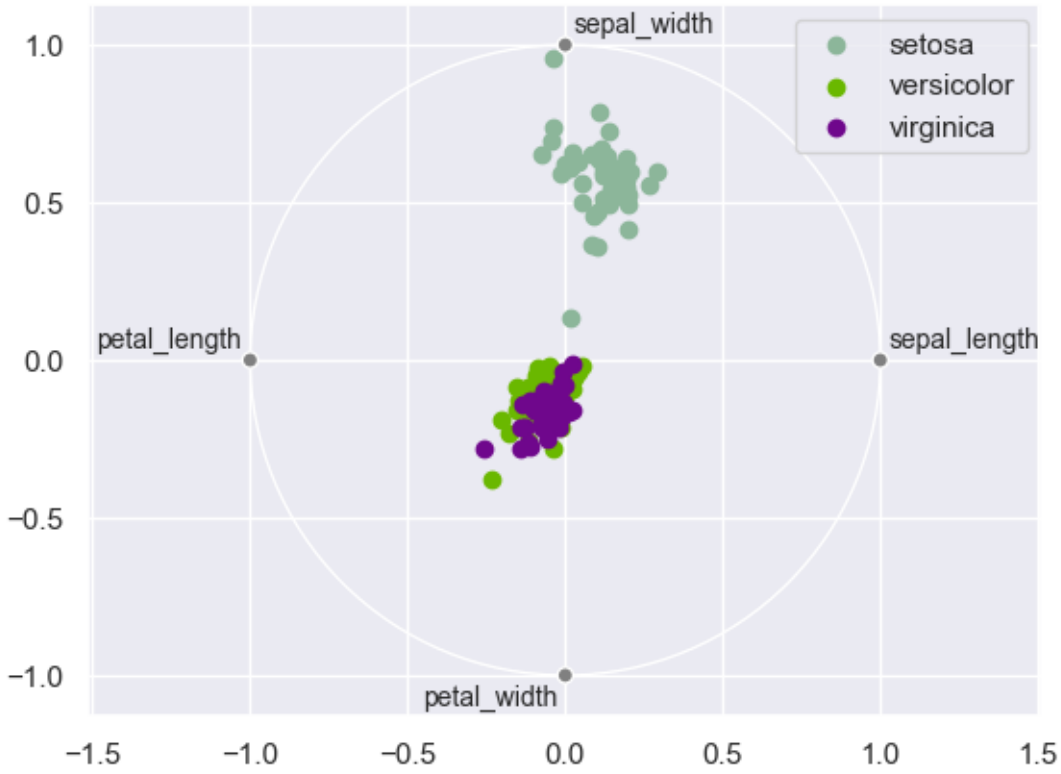
[ ]:
```
from pandas.plotting import andrews_curves
p = andrews_curves(iris, "species")
```



[ ]:
```
from pandas.plotting import parallel_coordinates
p = parallel_coordinates(iris, "species")
```



[ ]:
```
from pandas.plotting import radviz
p = radviz(iris, "species")
```


sepal_width
petal_length
sepal_length
petal_width
setosa
versicolor
virginica
1.0
0.5
0.0
−0.5
−1.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5