In [1]:

```
!pip install seaborn
```

```
Requirement already satisfied: seaborn in /Users/mohit/opt/anaconda3/l
ib/python3.8/site-packages (0.11.1)
Requirement already satisfied: scipy>=1.0 in /Users/mohit/opt/anaconda
3/lib/python3.8/site-packages (from seaborn) (1.6.2)
Requirement already satisfied: numpy>=1.15 in /Users/mohit/opt/anacond
a3/lib/python3.8/site-packages (from seaborn) (1.20.1)
Requirement already satisfied: matplotlib>=2.2 in /Users/mohit/opt/ana
conda3/lib/python3.8/site-packages (from seaborn) (3.3.4)
Requirement already satisfied: pandas>=0.23 in /Users/mohit/opt/anacon
da3/lib/python3.8/site-packages (from seaborn) (1.2.4)
Requirement already satisfied: python-dateutil>=2.1 in /Users/mohit/op
t/anaconda3/lib/python3.8/site-packages (from matplotlib>=2.2->seabor
n) (2.8.1)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.
3 in /Users/mohit/opt/anaconda3/lib/python3.8/site-packages (from matp
lotlib>=2.2->seaborn) (2.4.7)
Requirement already satisfied: kiwisolver>=1.0.1 in /Users/mohit/opt/a
naconda3/lib/python3.8/site-packages (from matplotlib>=2.2->seaborn)
(1.3.1)
Requirement already satisfied: cycler>=0.10 in /Users/mohit/opt/anacon
da3/lib/python3.8/site-packages (from matplotlib>=2.2->seaborn) (0.10.
0)
Requirement already satisfied: pillow>=6.2.0 in /Users/mohit/opt/anaco
nda3/lib/python3.8/site-packages (from matplotlib>=2.2->seaborn) (8.2.
0)
Requirement already satisfied: six in /Users/mohit/opt/anaconda3/lib/p
ython3.8/site-packages (from cycler>=0.10->matplotlib>=2.2->seaborn)
(1.15.0)
Requirement already satisfied: pytz>=2017.3 in /Users/mohit/opt/anacon
da3/lib/python3.8/site-packages (from pandas>=0.23->seaborn) (2021.1)
```

In [2]:

```
import seaborn as sns
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [4]:

```
iris = sns.load_dataset('iris')
iris.shape
```

Out[4]:

```
(150, 5)
```

In [5]:

```
iris.head()
```

Out[5]:

	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

In [6]:

```
iris['species'].unique()
```

Out[6]:

```
array(['setosa', 'versicolor', 'virginica'], dtype=object)
```

In [7]:

```
iris['petal_length']
```

Out[7]:

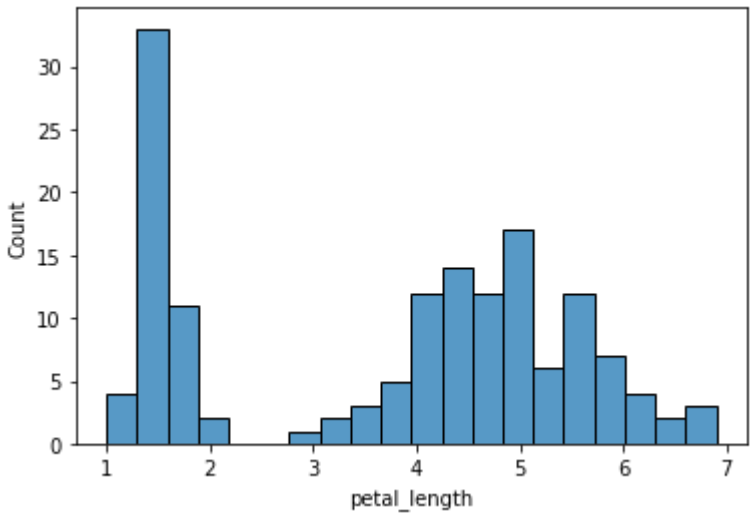
```
0       1.4
1       1.4
2       1.3
3       1.5
4       1.4
       ...
145     5.2
146     5.0
147     5.2
148     5.4
149     5.1
Name: petal_length, Length: 150, dtype: float64
```

Univariate Analysis

histogram

In [9]:

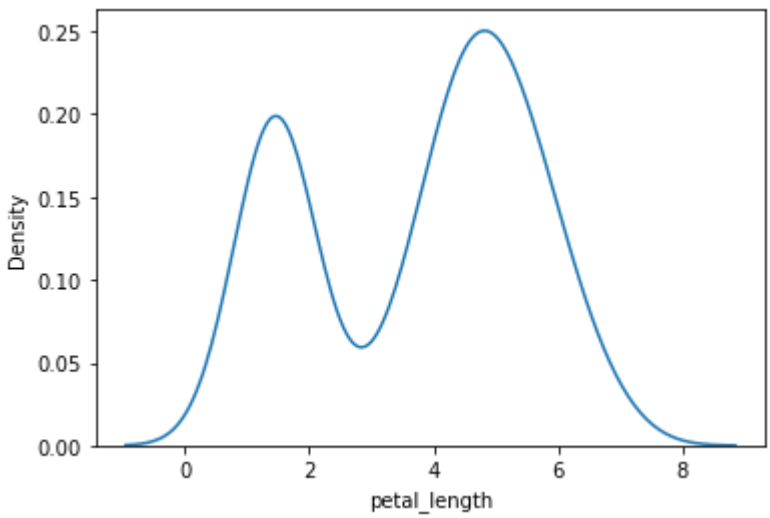
```
sns.histplot(data=iris, x='petal_length', bins=20)
plt.show()
```



Observations:

In [11]:

```
sns.kdeplot(data=iris, x='petal_length')
plt.show()
```

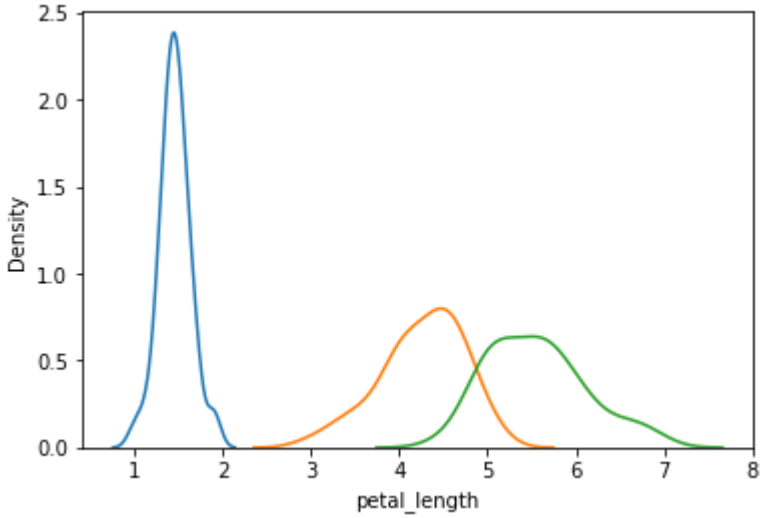


In [14]:

```
setosa = iris[iris['species'] == 'setosa']
versicolor = iris[iris['species'] == 'versicolor']
virginica = iris[iris['species'] == 'virginica']
```

In [20]:

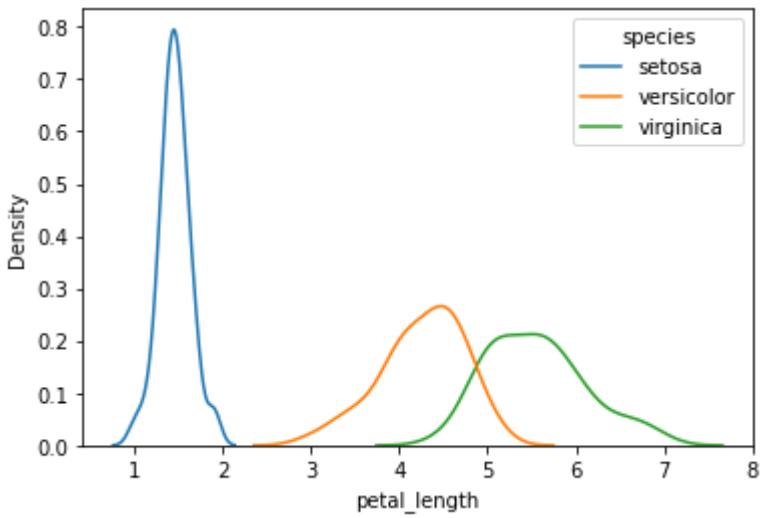
```
sns.kdeplot(data= setosa, x = 'petal_length')
sns.kdeplot(data= versicolor, x = 'petal_length')
sns.kdeplot(data= virginica, x = 'petal_length')
# plt.legend()
plt.show()
```



HUE -> categorical column

In [33]:

```
sns.kdeplot(data= iris, x = 'petal_length', hue='species')
plt.show()
```



In [ ]:

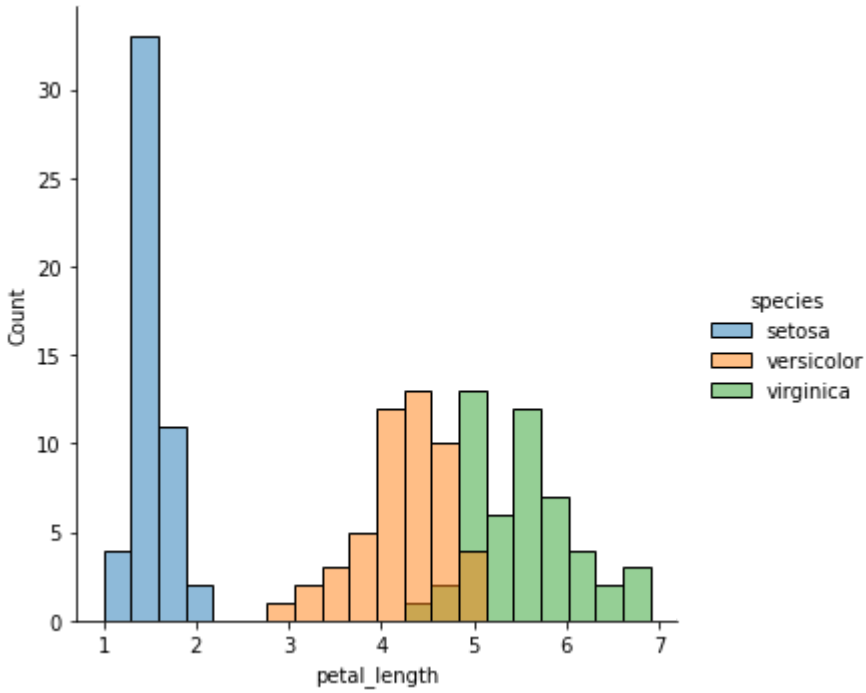
```

```

In [39]:

```
sns.displot(data= iris, x='petal_length', bins=20, hue='species')
# plt.show()
```

Out[39]:

```
<seaborn.axisgrid.FacetGrid at 0x7f8ac00f34f0>
```

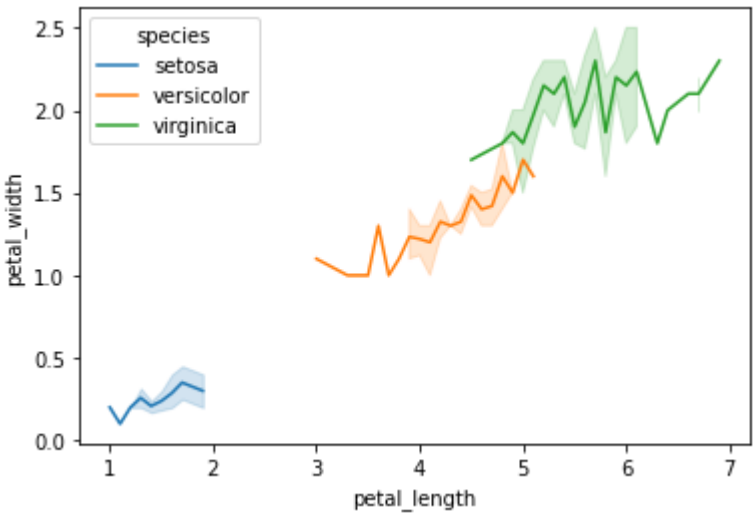


Bi-variate Analysis

ScatterPlot

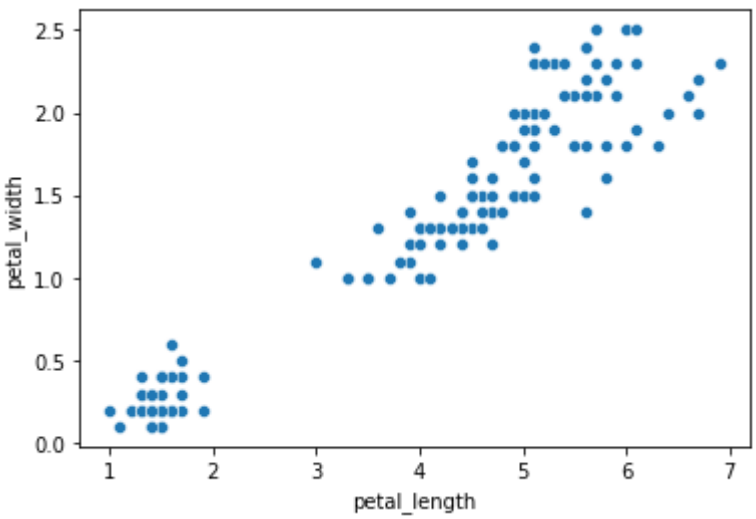
In [91]:

```
sns.lineplot(data= iris, x='petal_length', y='petal_width', hue='species')
plt.show()
```



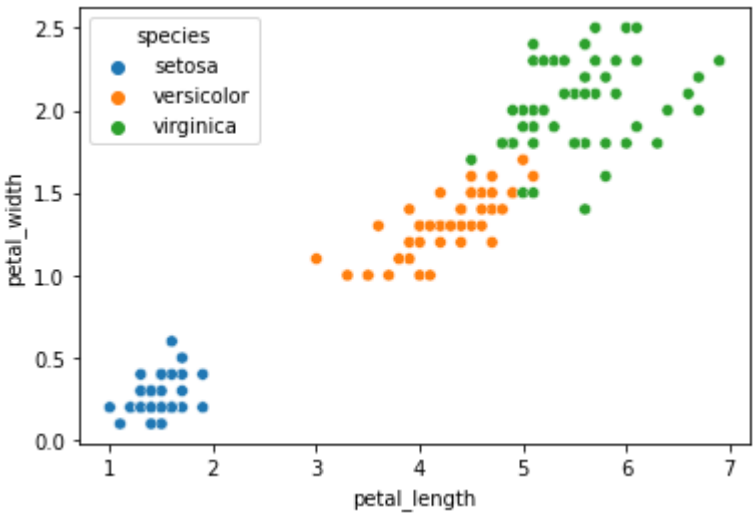
In [40]:

```
sns.scatterplot(data= iris, x='petal_length', y='petal_width')
plt.show()
```



In [43]:

```
sns.scatterplot(data= iris, x='petal_length', y='petal_width', hue='species')
plt.show()
```



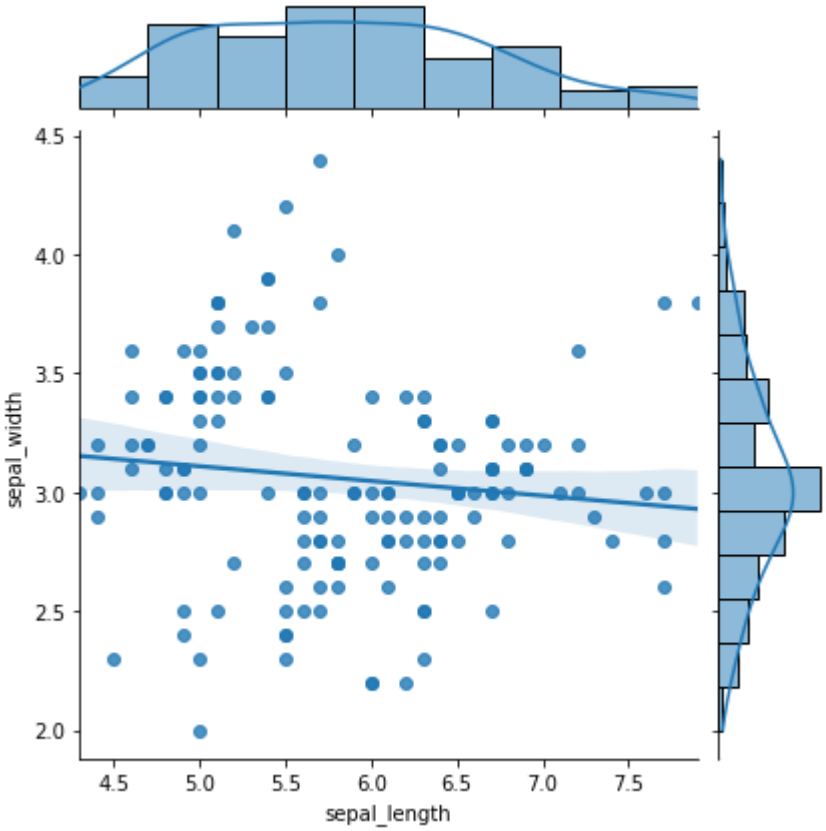
In [ ]:

```

```

JointPlot

In [47]:

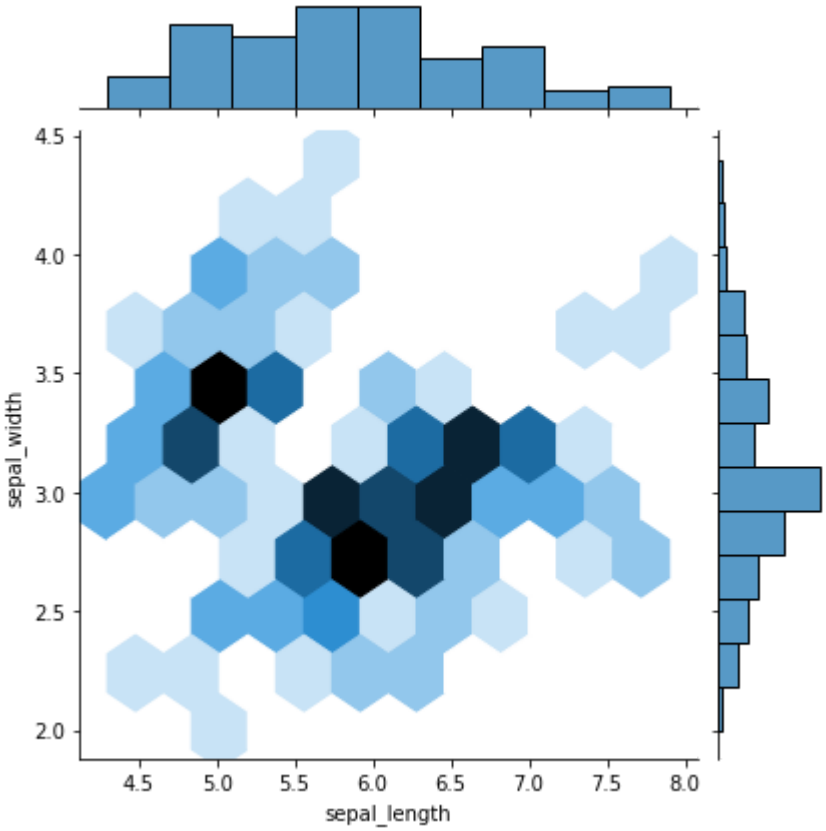
```
sns.jointplot(data = iris, x='sepal_length', y='sepal_width', kind='reg')
plt.show().
```



Hexplot

In [51]:

```
sns.jointplot(data = iris, x='sepal_length', y='sepal_width', kind='hex',)
plt.show()
```

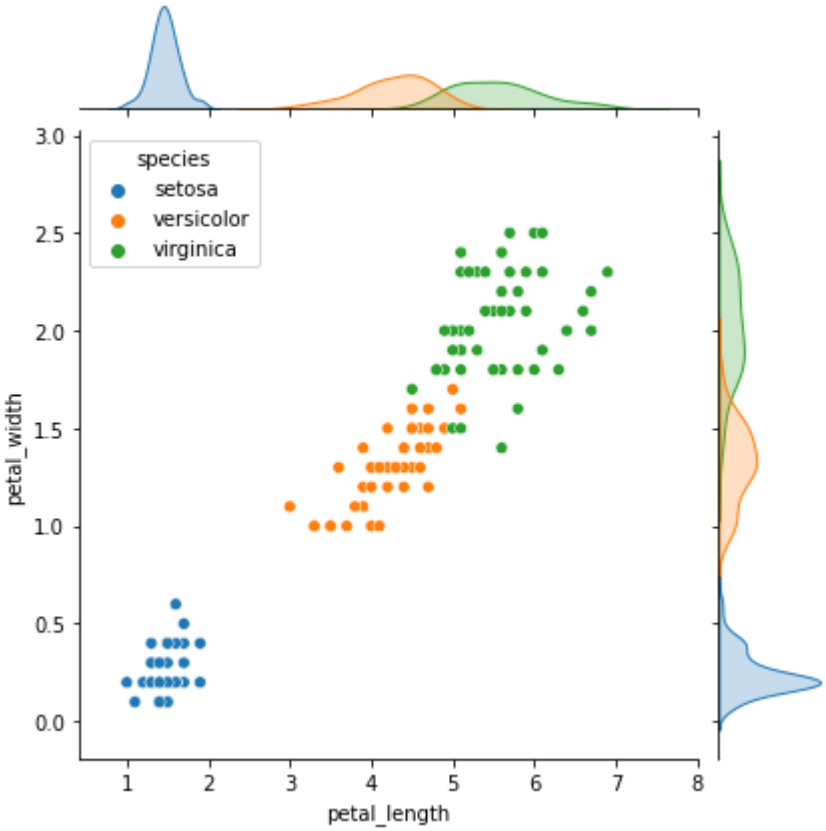


In [52]:

```
# plt.hexbin
```

In [54]:

```
sns.jointplot(data = iris, x='petal_length', y='petal_width', kind='scatter', hue='s
plt.show()
```



In [ ]:

```

```

Multi-variate

Pairplot

In [ ]:

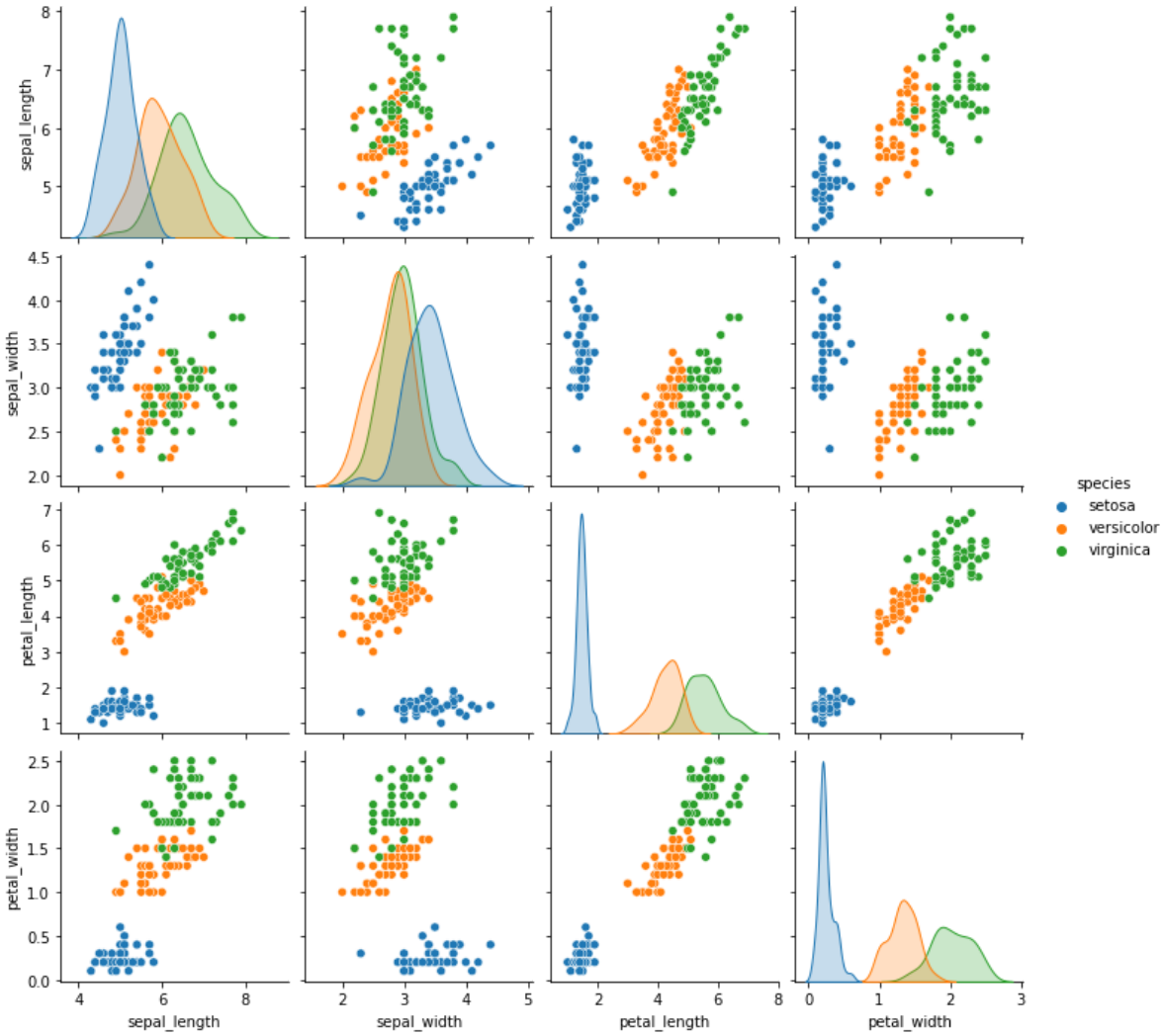
```
```

In [56]:

```
sns.pairplot(data=iris, hue='species')
```

Out[56]:

```
<seaborn.axisgrid.PairGrid at 0x7f8b03c1bc10>
```



In [ ]:

```
```

CountPlot - Univariate Analysis

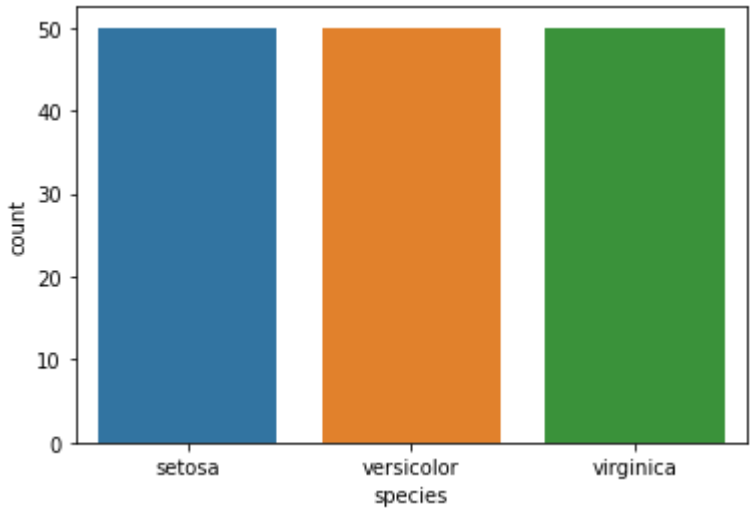
For categorical

In [57]:

```
sns.countplot(data= iris, x='species')
```

Out[57]:

```
<AxesSubplot:xlabel='species', ylabel='count'>
```



In [ ]:

```

```

Box Plot

For continous

In [58]:

```
iris.head()
```

Out[58]:

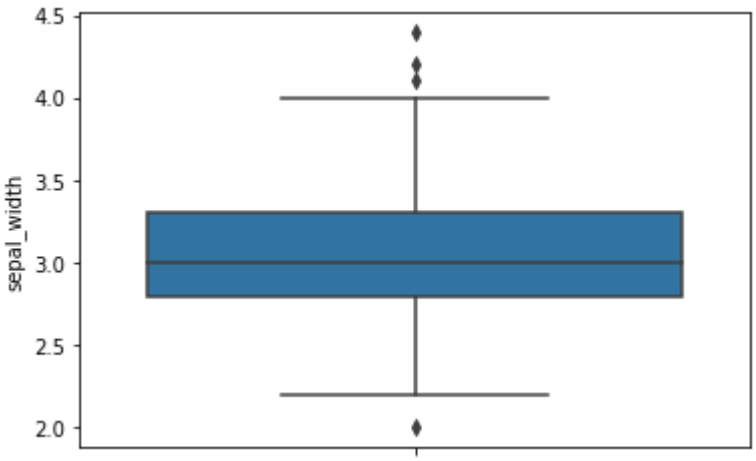
	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

In [62]:

```
sns.boxplot(data=iris, y='sepal_width')
```

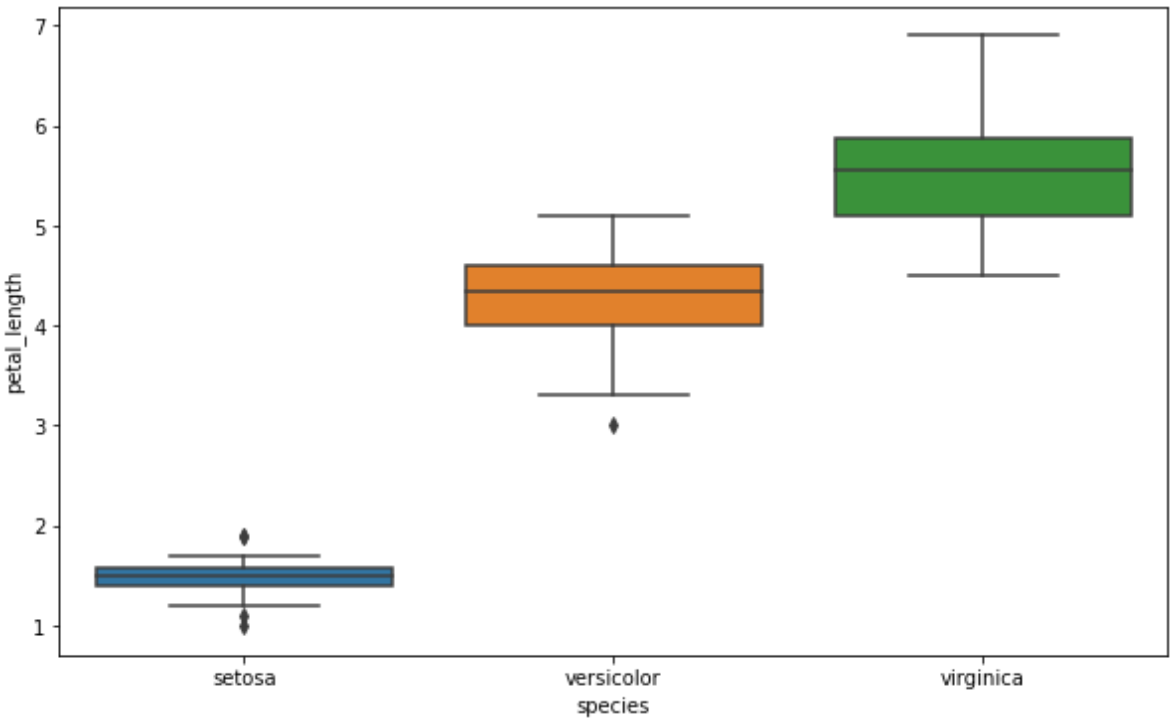
Out[62]:

```
<AxesSubplot:ylabel='sepal_width'>
```



In [70]:

```
plt.figure(figsize=(10,6))
sns.boxplot(data=iris, y='petal_length', x='species')
plt.show()
```



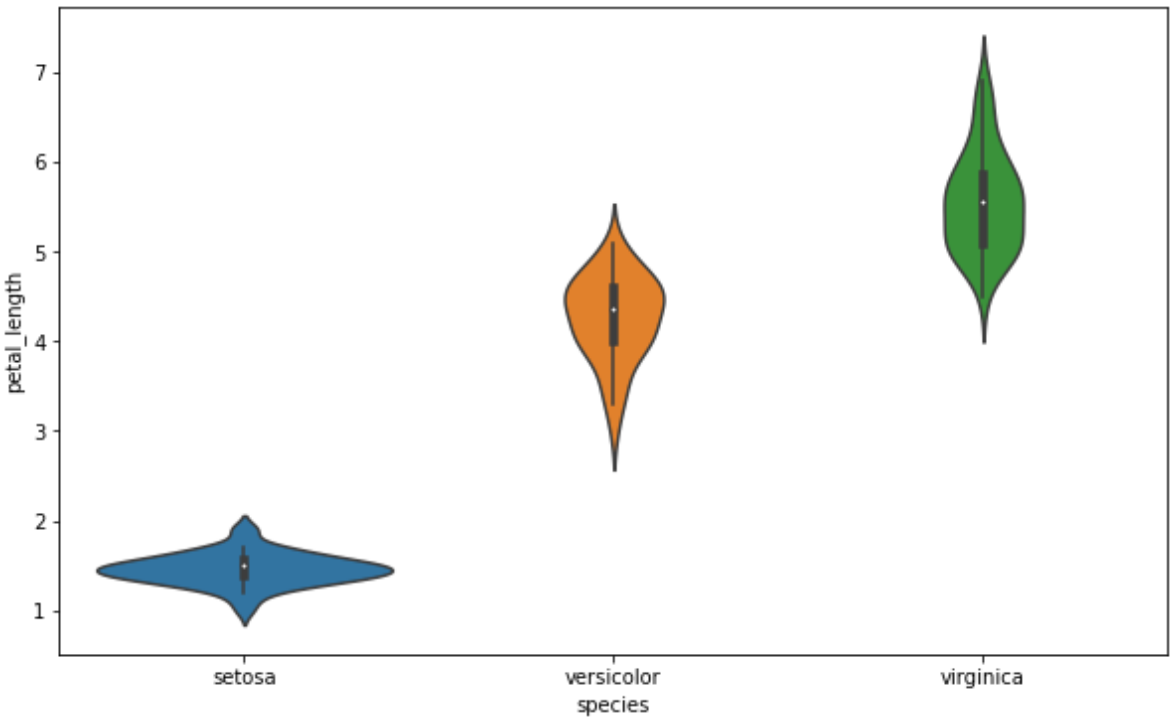
In [ ]:

```

```

Voilin Plot

In [75]:

```
plt.figure(figsize=(10,6))
sns.violinplot(data=iris, y='petal_length', x='species')
# plt.grid()
plt.show()
```



In [ ]:

```

```

In [ ]:

```

```

Matrix Plot

Correlation

In [77]:

```
iris.corr()
```

Out[77]:

	sepal_length	sepal_width	petal_length	petal_width
sepal_length	1.000000	-0.117570	0.871754	0.817941
sepal_width	-0.117570	1.000000	-0.428440	-0.366126
petal_length	0.871754	-0.428440	1.000000	0.962865
petal_width	0.817941	-0.366126	0.962865	1.000000

heatmap

In [86]:

```
sns.heatmap(iris.corr(), cmap="Greens", annot=True)
plt.show()
```

In [83]:

```
print(plt.colormaps())
```

```
['Accent', 'Accent_r', 'Blues', 'Blues_r', 'BrBG', 'BrBG_r', 'BuGn',
'BuGn_r', 'BuPu', 'BuPu_r', 'CMRmap', 'CMRmap_r', 'Dark2', 'Dark2_r',
'GnBu', 'GnBu_r', 'Greens', 'Greens_r', 'Greys', 'Greys_r', 'OrRd', 'O
rRd_r', 'Oranges', 'Oranges_r', 'PRGn', 'PRGn_r', 'Paired', 'Paired_
r', 'Pastel1', 'Pastel1_r', 'Pastel2', 'Pastel2_r', 'PiYG', 'PiYG_r',
'PuBu', 'PuBuGn', 'PuBuGn_r', 'PuBu_r', 'PuOr', 'PuOr_r', 'PuRd', 'PuR
d_r', 'Purples', 'Purples_r', 'RdBu', 'RdBu_r', 'RdGy', 'RdGy_r', 'RdP
u', 'RdPu_r', 'RdYlBu', 'RdYlBu_r', 'RdYlGn', 'RdYlGn_r', 'Reds', 'Red
s_r', 'Set1', 'Set1_r', 'Set2', 'Set2_r', 'Set3', 'Set3_r', 'Spectra
l', 'Spectral_r', 'Wistia', 'Wistia_r', 'YlGn', 'YlGnBu', 'YlGnBu_r',
'YlGn_r', 'YlOrBr', 'YlOrBr_r', 'YlOrRd', 'YlOrRd_r', 'afmhot', 'afmho
t_r', 'autumn', 'autumn_r', 'binary', 'binary_r', 'bone', 'bone_r', 'b
rg', 'brg_r', 'bwr', 'bwr_r', 'cividis', 'cividis_r', 'cool', 'cool_
r', 'coolwarm', 'coolwarm_r', 'copper', 'copper_r', 'crest', 'crest_
r', 'cubehelix', 'cubehelix_r', 'flag', 'flag_r', 'flare', 'flare_r',
'gist_earth', 'gist_earth_r', 'gist_gray', 'gist_gray_r', 'gist_heat',
'gist_heat_r', 'gist_ncar', 'gist_ncar_r', 'gist_rainbow', 'gist_rainb
ow_r', 'gist_stern', 'gist_stern_r', 'gist_yarg', 'gist_yarg_r', 'gnup
lot', 'gnuplot2', 'gnuplot2_r', 'gnuplot_r', 'gray', 'gray_r', 'hot',
'hot_r', 'hsv', 'hsv_r', 'icefire', 'icefire_r', 'inferno', 'inferno_
r', 'jet', 'jet_r', 'magma', 'magma_r', 'mako', 'mako_r', 'nipy_spectr
al', 'nipy_spectral_r', 'ocean', 'ocean_r', 'pink', 'pink_r', 'plasm
a', 'plasma_r', 'prism', 'prism_r', 'rainbow', 'rainbow_r', 'rocket',
'rocket_r', 'seismic', 'seismic_r', 'spring', 'spring_r', 'summer', 's
ummer_r', 'tab10', 'tab10_r', 'tab20', 'tab20_r', 'tab20b', 'tab20b_
r', 'tab20c', 'tab20c_r', 'terrain', 'terrain_r', 'turbo', 'turbo_r',
'twilight', 'twilight_r', 'twilight_shifted', 'twilight_shifted_r', 'v
iridis', 'viridis_r', 'vlag', 'vlag_r', 'winter', 'winter_r']
```

In [ ]:

```

```

In [ ]:

```
```

Visualise Tips dataset

In [ ]:

```
```

In [92]:

```
tips = sns.load_dataset("tips")
```

In [93]:

```
tips.shape
```

Out[93]:

```
(244, 7)
```

In [94]:

```
tips.head()
```

Out[94]:

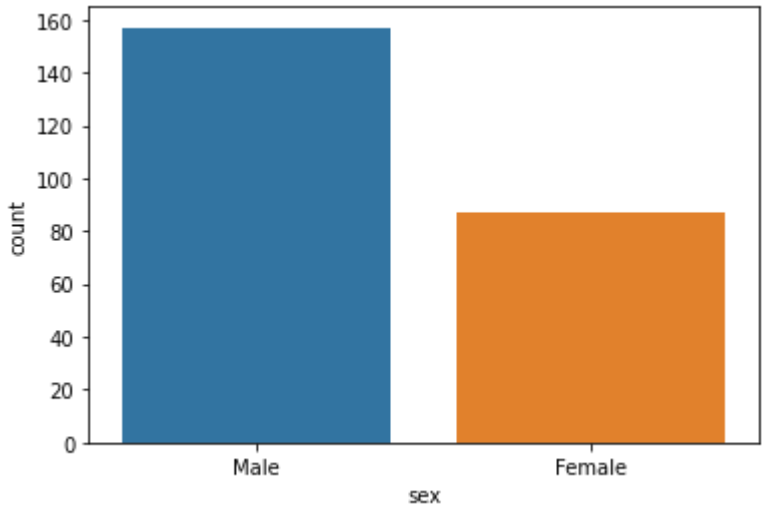
	total_bill	tip	sex	smoker	day	time	size
0	16.99	1.01	Female	No	Sun	Dinner	2
1	10.34	1.66	Male	No	Sun	Dinner	3
2	21.01	3.50	Male	No	Sun	Dinner	3
3	23.68	3.31	Male	No	Sun	Dinner	2
4	24.59	3.61	Female	No	Sun	Dinner	4

In [96]:

```
sns.countplot(data=tips, x='sex')
```

Out[96]:

```
<AxesSubplot:xlabel='sex', ylabel='count'>
```



In [ ]:

```

```

Challenge - titanic

In [97]:

```
titanic = sns.load_dataset("titanic")
```

In [98]:

```
titanic.shape
```

Out[98]:

```
(891, 15)
```

In [100]:

```
titanic.head()
```

Out[100]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True

In [ ]:

```
```

In [ ]:

```
```

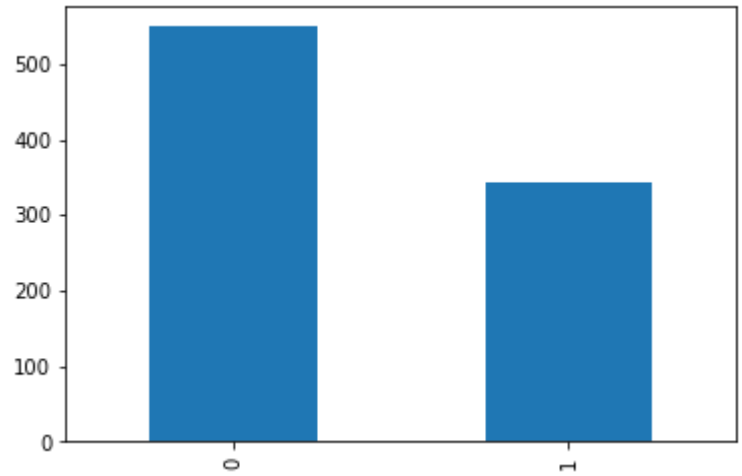
Pandas in-built viz

In [108]:

```
titanic['survived'].value_counts().plot.bar()
```

Out[108]:

```
<AxesSubplot:>
```

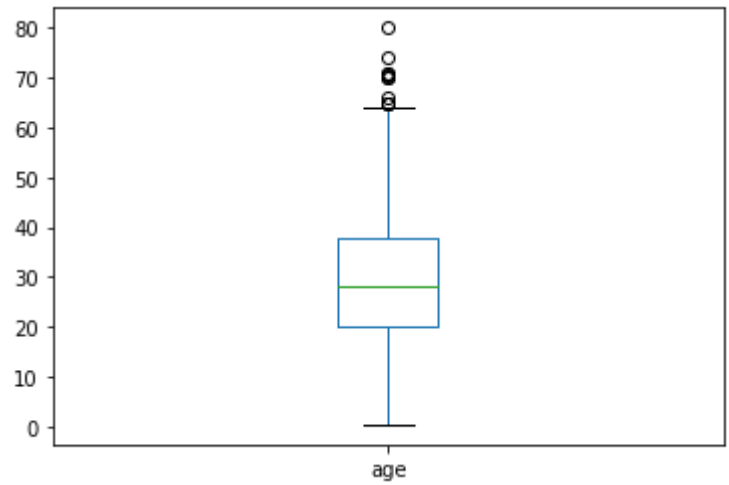


In [111]:

```
titanic['age'].plot.box()
```

Out[111]:

```
<AxesSubplot:>
```



In [ ]: