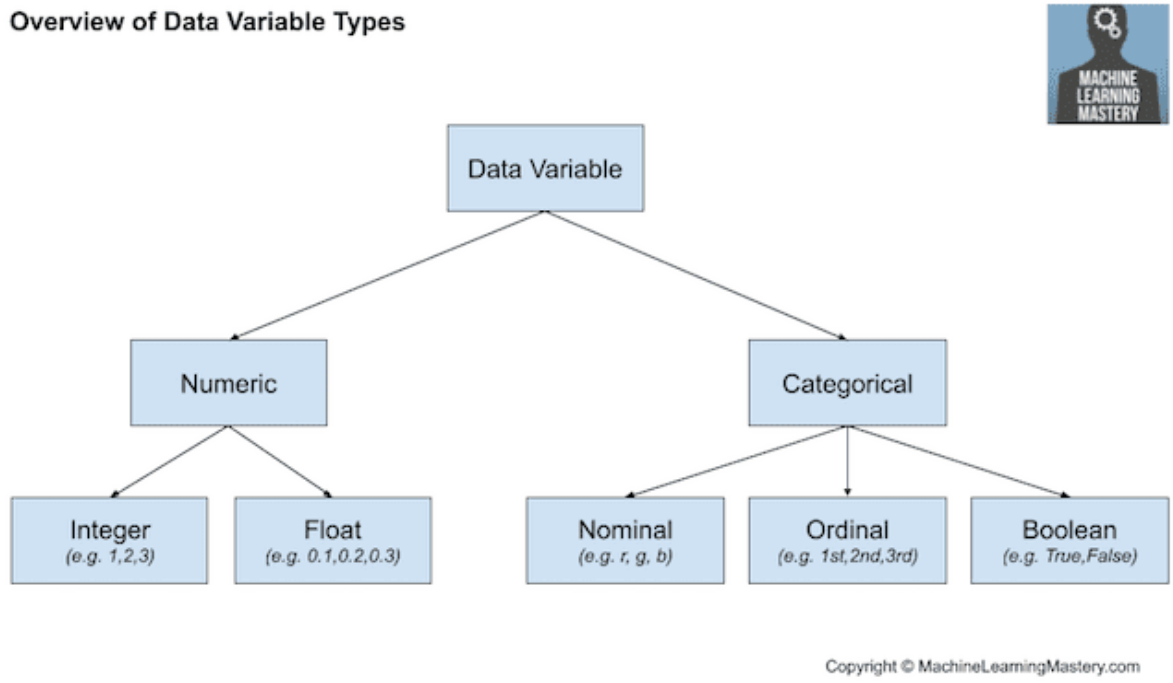
Veri Gorsellestirme Temel Bilgiler



In [ ]:

```
import matplotlib.pyplot as plt
import numpy as np
```

In [ ]:

```
%matplotlib inline
```

Data Olusturalım

In [ ]:

```
x = np.linspace(0, 10, 100) # 0-10 arası 100 sayı oluşturulur
```

In [ ]:

```
x
```

Out[ ]:

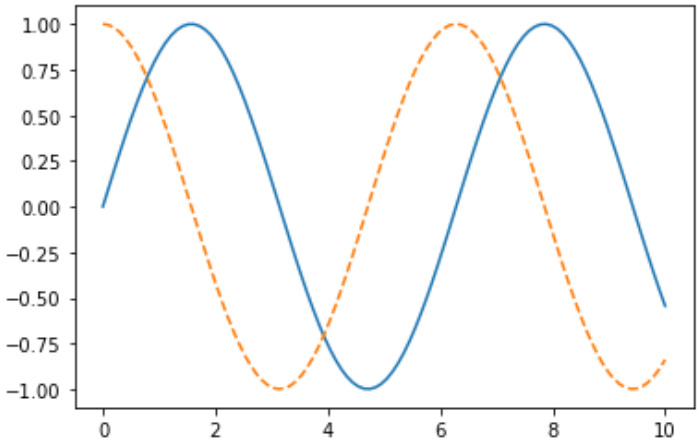
```
array([ 0.        ,  0.1010101 ,  0.2020202 ,  0.3030303 ,  0.4040404 ,
        0.50505051,  0.60606061,  0.70707071,  0.80808081,  0.90909091,
        1.01010101,  1.11111111,  1.21212121,  1.31313131,  1.41414141,
        1.51515152,  1.61616162,  1.71717172,  1.81818182,  1.91919192,
        2.02020202,  2.12121212,  2.22222222,  2.32323232,  2.42424242,
        2.52525253,  2.62626263,  2.72727273,  2.82828283,  2.92929293,
        3.03030303,  3.13131313,  3.23232323,  3.33333333,  3.43434343,
        3.53535354,  3.63636364,  3.73737374,  3.83838384,  3.93939394,
        4.04040404,  4.14141414,  4.24242424,  4.34343434,  4.44444444,
        4.54545455,  4.64646465,  4.74747475,  4.84848485,  4.94949495,
        5.05050505,  5.15151515,  5.25252525,  5.35353535,  5.45454545,
        5.55555556,  5.65656566,  5.75757576,  5.85858586,  5.95959596,
        6.06060606,  6.16161616,  6.26262626,  6.36363636,  6.46464646,
        6.56565657,  6.66666667,  6.76767677,  6.86868687,  6.96969697,
        7.07070707,  7.17171717,  7.27272727,  7.37373737,  7.47474747,
        7.57575758,  7.67676768,  7.77777778,  7.87878788,  7.97979798,
        8.08080808,  8.18181818,  8.28282828,  8.38383838,  8.48484848,
        8.58585859,  8.68686869,  8.78787879,  8.88888889,  8.98989899,
```

```
9.09090909,  9.19191919,  9.29292929,  9.39393939,  9.49494949,
9.5959596 ,  9.6969697 ,  9.7979798 ,  9.8989899 , 10.        ])
```

Ilk Grafik

In [ ]:

```
plt.plot(x, np.sin(x), '-')
plt.plot(x, np.cos(x), '--');
```



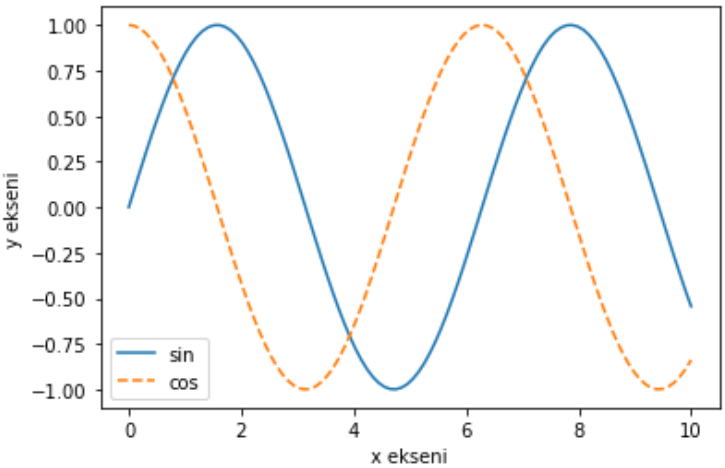
Eksenler ve Lejant

In [ ]:

```
plt.plot(x, np.sin(x), '-')
plt.plot(x, np.cos(x), '--');

plt.xlabel('x ekseni')
plt.ylabel('y ekseni')

plt.legend(('sin', 'cos'))
```

Out[ ]:

```
<matplotlib.legend.Legend at 0x7f26d6983450>
```



Subplotlar

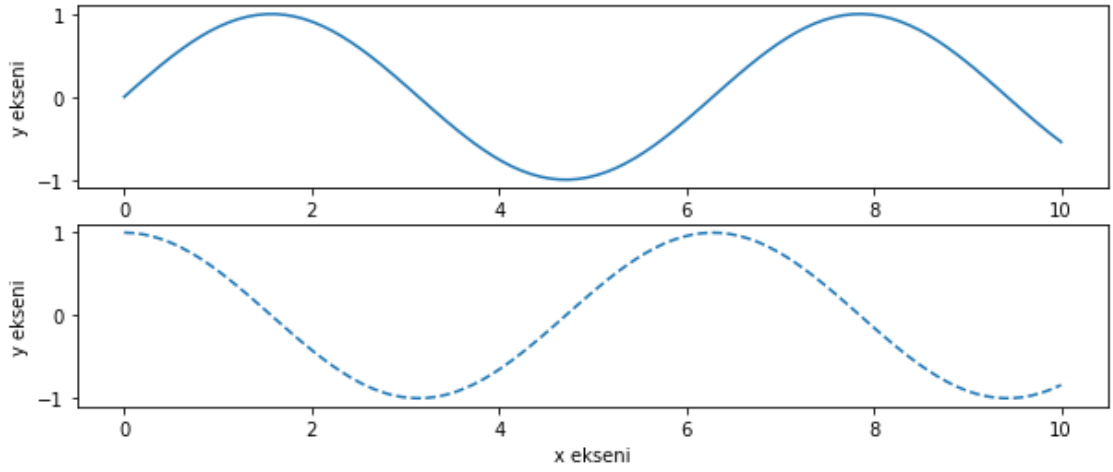
In [ ]:

```
plt.figure(figsize=(10, 4))

plt.subplot(2, 1, 1) # (rows, columns, panel number)
plt.xlabel('x ekseni')
plt.plot(x, np.sin(x), '-')
```

```
plt.ylabel('y ekseni')


plt.subplot(2, 1, 2)
plt.plot(x, np.cos(x), '--');
plt.xlabel('x ekseni')
plt.ylabel('y ekseni')
```

Out[ ]:

```
Text(0, 0.5, 'y ekseni')
```



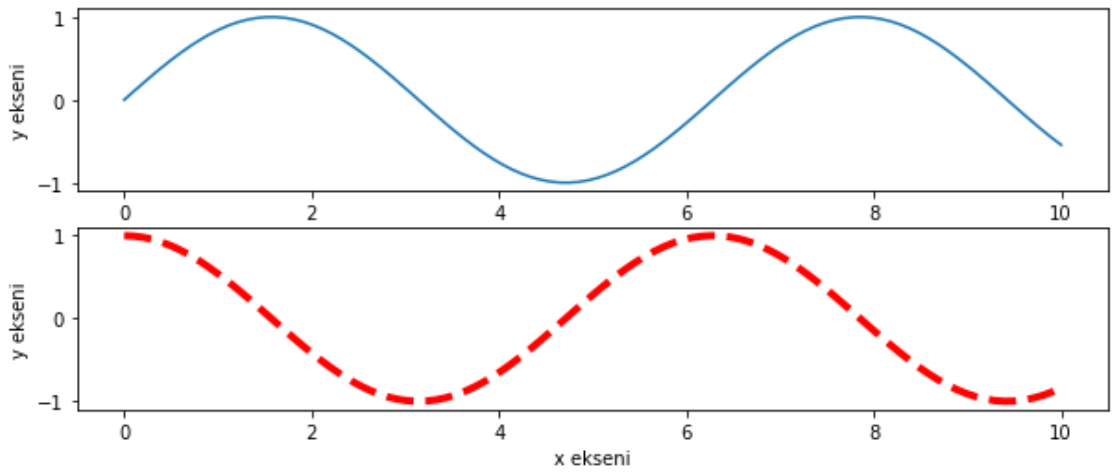
Tasarımsal Değişiklikler

In [ ]:

```
fig2 = plt.figure(figsize=(10, 4))   # create a plot figure

# create the first of two panels and set current axis
plt.subplot(2, 1, 1) # (rows, columns, panel number)
plt.xlabel('x ekseni')
plt.plot(x, np.sin(x))
plt.ylabel('y ekseni')


# create the second panel and set current axis
# linewidth: çizgi kalınlığı
# linestyle: çizgi tipi
plt.subplot(2, 1, 2)
plt.plot(x, np.cos(x), color='red', linestyle='dashed', linewidth=4);
plt.xlabel('x ekseni')
plt.ylabel('y ekseni')
```

Out[ ]:

```
Text(0, 0.5, 'y ekseni')
```



Gorsellerin Kaydedilmesi

In [ ]:

```
fig2.savefig('ilk_gorsel.png')
```

Line Plot

In [ ]:

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

In [ ]:

```
%matplotlib inline
```

To show the line plots, let's first import the famous iris data set.

In [ ]:

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

Out[ ]:

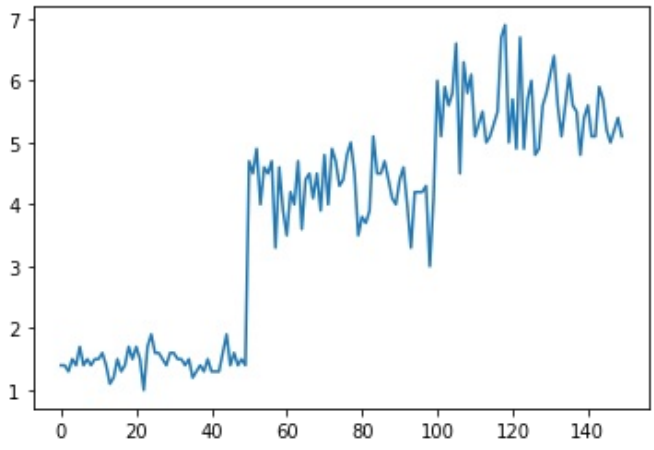
	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

In [ ]:

```
iris['petal_length'].plot()
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d295a750>
```



In [ ]:

```
iris.columns
```

Out[ ]:

```
Index(['sepal_length', 'sepal_width', 'petal_length', 'petal_width',
```

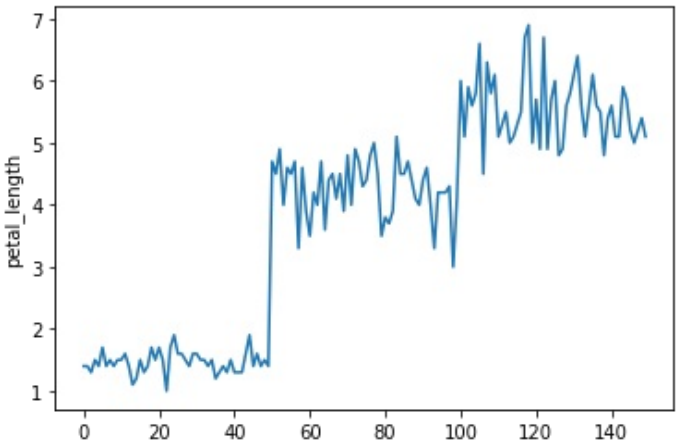
```
       'species'],
      dtype='object')
```

In [ ]:

```
sns.lineplot(data=iris, y='petal_length', x=iris.index)
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d9092cd0>
```

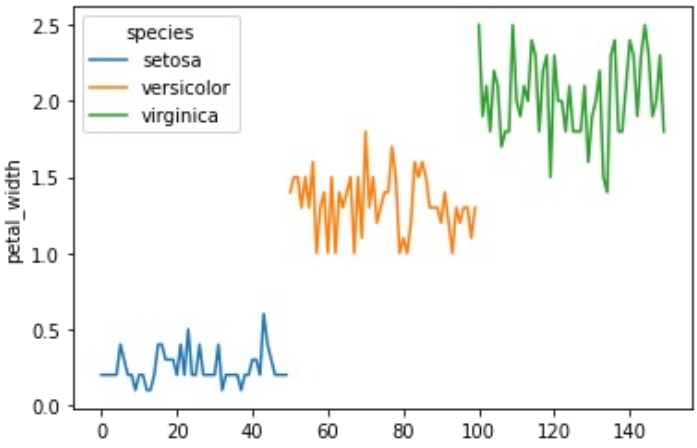


In [ ]:

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

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d28bb290>
```



Line Plotta hatalı gösterimler

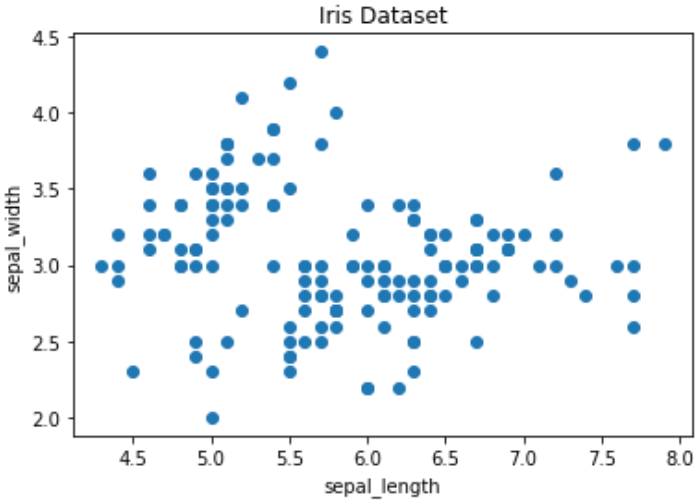
Scatter Plot

In [ ]:

```
fig, ax = plt.subplots() # olası notasyon bu şekildedir.

ax.scatter(iris['sepal_length'], iris['sepal_width'])

ax.set_title('Iris Dataset')
ax.set_xlabel('sepal_length')
ax.set_ylabel('sepal_width')
```

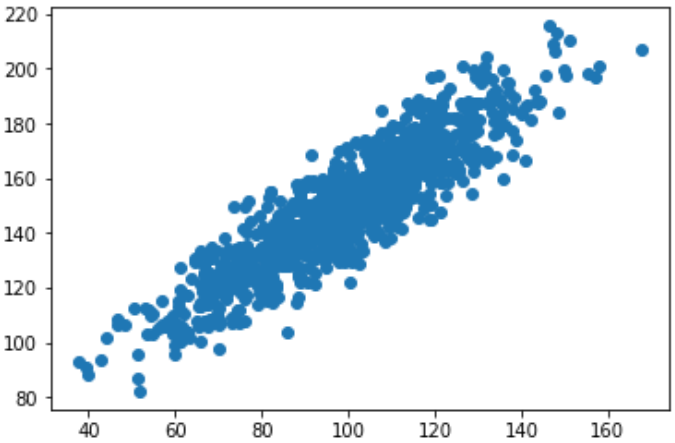
Out[ ]:

```
Text(0, 0.5, 'sepal_width')
```



In [ ]:

```
from numpy.random import randn
from matplotlib import pyplot

x = 20 * randn(1000) + 100
y = x + (10 * randn(1000) + 50)

pyplot.scatter(x, y)
pyplot.show()
```



Barplot

In [ ]:

```
iris.groupby(by='species').mean()['petal_length']
```

Out[ ]:

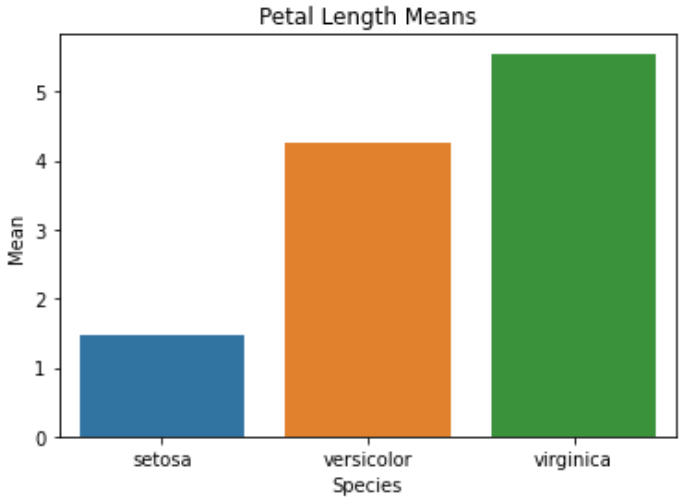
```
species
setosa         1.462
versicolor     4.260
virginica      5.552
Name: petal_length, dtype: float64
```

In [ ]:

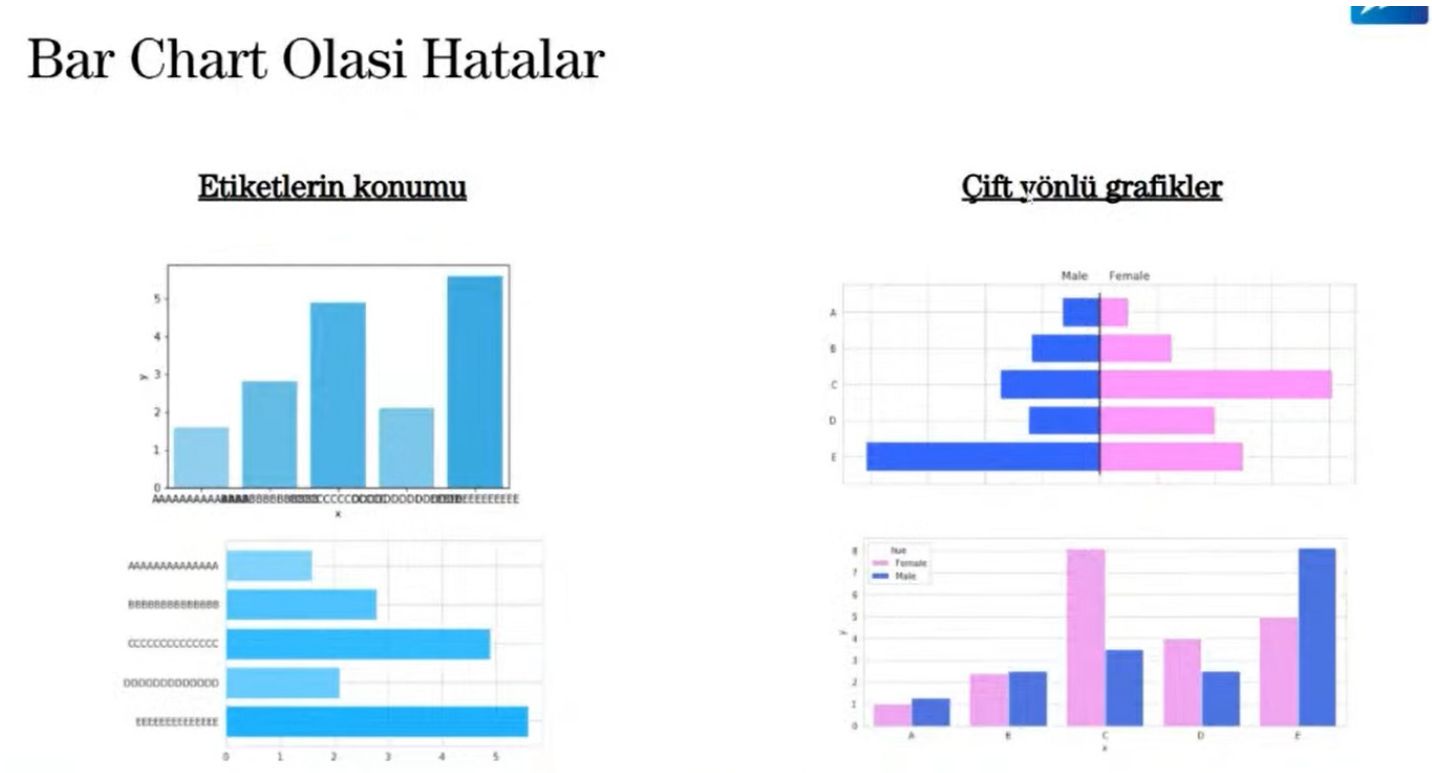
```
data = iris.groupby(by='species').mean()['petal_length']
ax = sns.barplot(x=data.index, y=data.values)


ax.set_title('Petal Length Means')
ax.set_xlabel('Species')
ax.set_ylabel('Mean')
```

Out[ ]:

```
Text(0, 0.5, 'Mean')
```

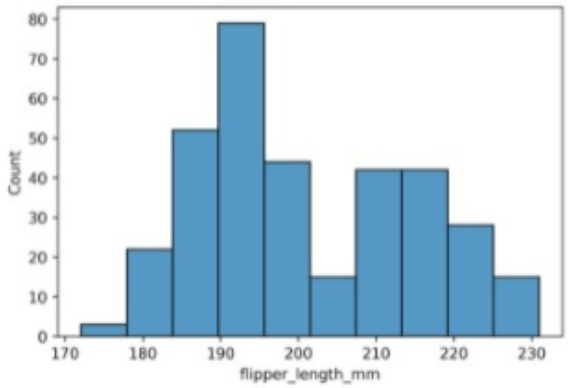


Sık yapılan Bar Plot Hataları



Histogram

Histogram



$$Bin\ width\ (h) = \frac{3.5 \times \sigma}{\sqrt[3]{n}}$$

σ = Standard deviation of the data source

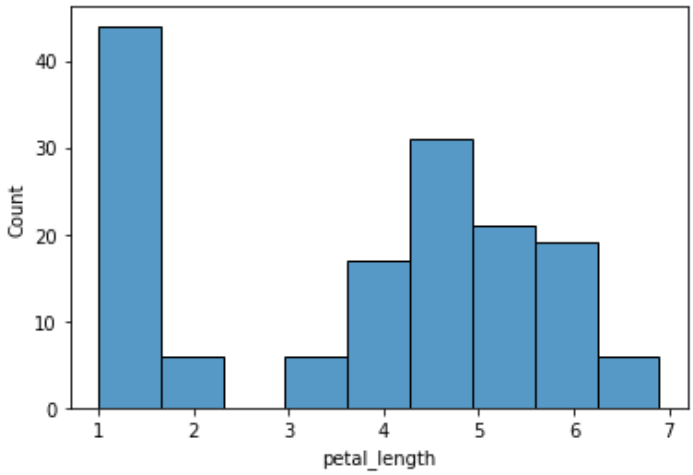
n = number of values in the data source

In [ ]:

```
sns.histplot(data=iris, x='petal_length')
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8d605d0>
```

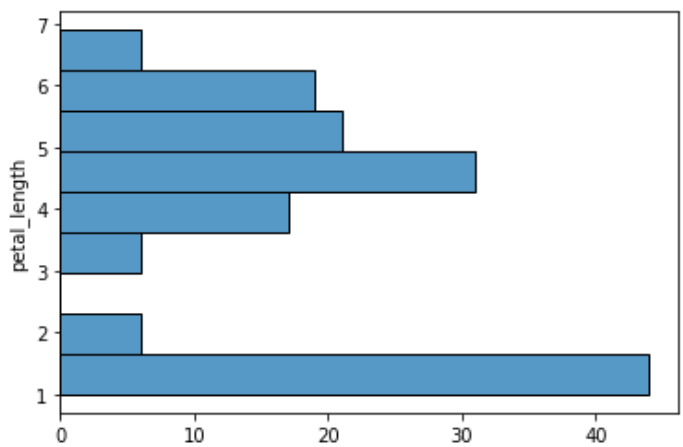


In [ ]:

```
sns.histplot(data=iris, y='petal_length')
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8e57610>
```



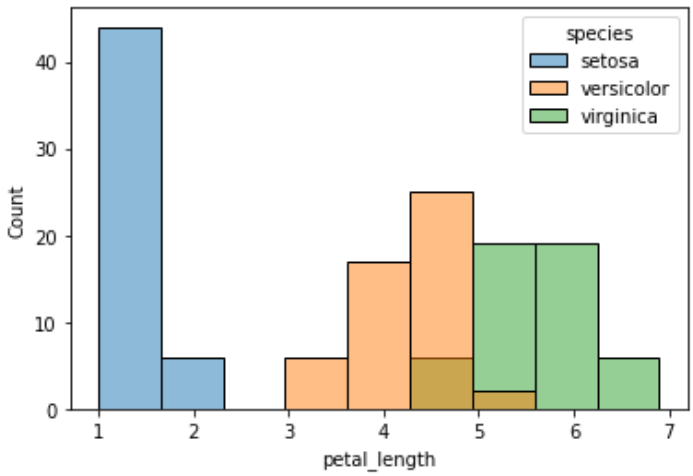
Count

In [ ]:

```
sns.histplot(data=iris, x='petal_length', hue='species')
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8d104d0>
```

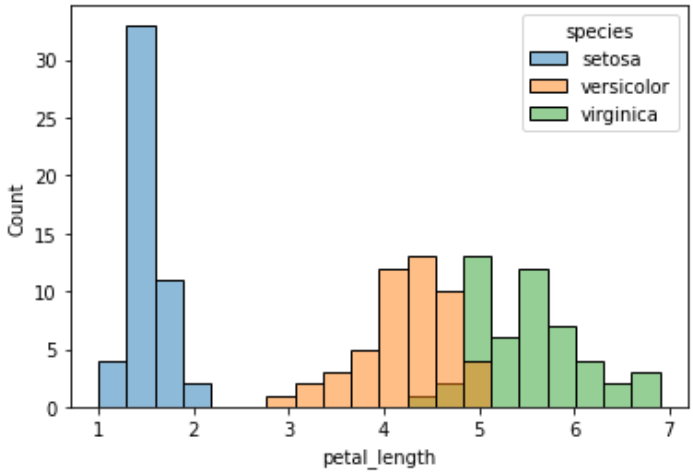


In [ ]:

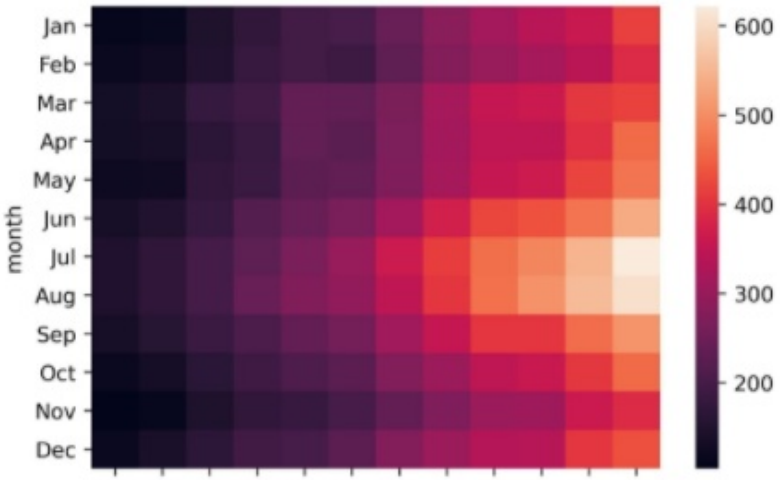
```
sns.histplot(data=iris, x='petal_length', hue='species', bins=20)
```

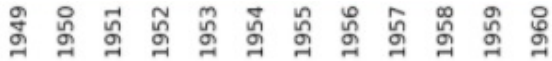
Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8bdf9d0>
```



Heatmap





In [ ]:

```
iris.corr()
```

Out[ ]:

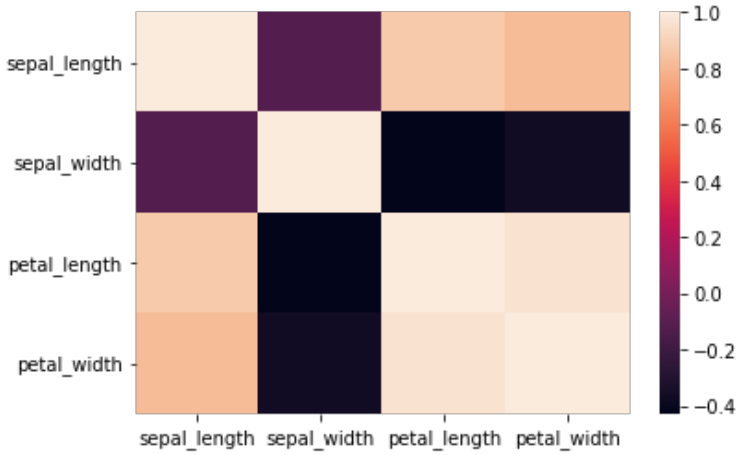
	sepal_length	sepal_width	petal_length	petal_width
sepal_length	1.000000	-0.117570	0.871754	0.817941
sepal_width	-0.117570	1.000000	-0.428440	-0.366126
petal_length	0.871754	-0.428440	1.000000	0.962865
petal_width	0.817941	-0.366126	0.962865	1.000000

In [ ]:

```
sns.heatmap(iris.corr())
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8bf7050>
```



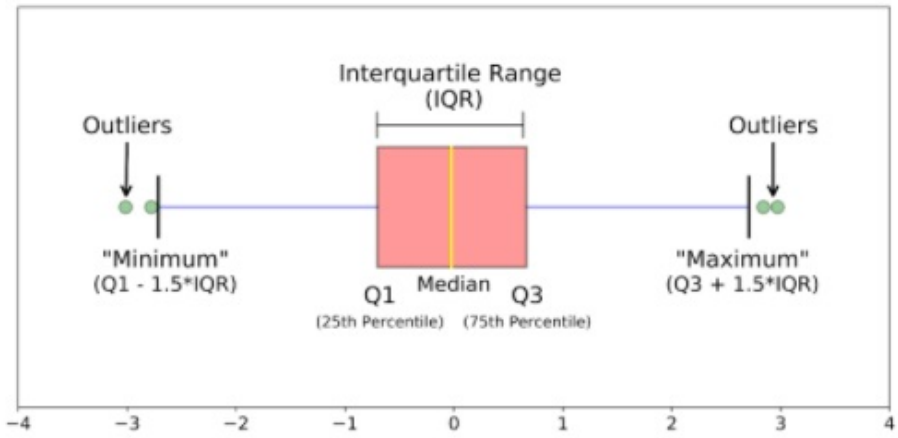
In [ ]:

```
sns.heatmap(iris.corr(), annot=True)
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d8a3aed0>
```

Box Plot



$$\mathrm{IQR} = Q_3 - Q_1$$

In [ ]:

```
sns.boxplot(y='sepal_length', x='species', data=iris)
```

Out[ ]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f26d6926550>
```