In [23]:
```
import pandas as pd
import numpy as np
import os
import matplotlib.pyplot as plt
import seaborn as sns
```

In [ ]:
```

```

In [2]:
```
df=pd.read_csv('iris.csv')
df.head()
```

Out[2]:

	sepal.length	sepal.width	petal.length	petal.width	variety
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 [3]:
```
df.describe()
```

Out[3]:

	sepal.length	sepal.width	petal.length	petal.width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333
std	0.828066	0.435866	1.765298	0.762238
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 [9]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   sepal.length  150 non-null    float64
 1   sepal.width   150 non-null    float64
 2   petal.length  150 non-null    float64
 3   petal.width   150 non-null    float64
 4   variety       150 non-null    object 
```

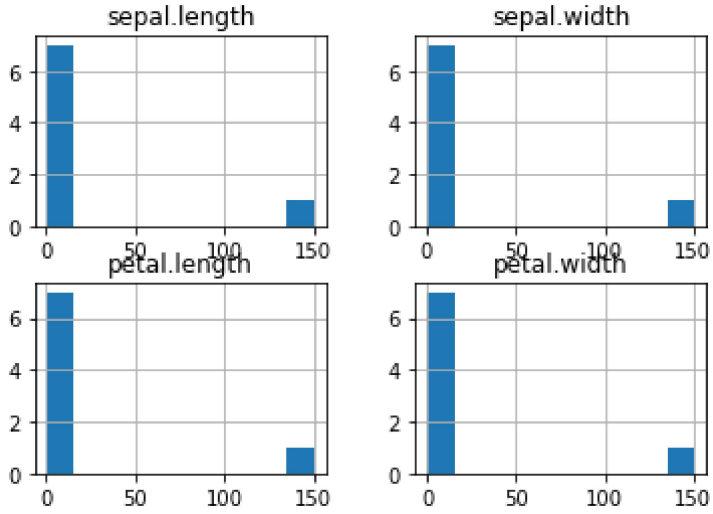
```
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

In [ ]:

In [ ]:

In [5]:
```
df.describe().hist()
```

Out[5]:
```
array([[<AxesSubplot:title={'center':'sepal.length'}>,
        <AxesSubplot:title={'center':'sepal.width'}>],
       [<AxesSubplot:title={'center':'petal.length'}>,
        <AxesSubplot:title={'center':'petal.width'}>]], dtype=object)
```



In [7]:
```
df["variety"].value_counts()
```

Out[7]:
```
Setosa        50
Virginica     50
Versicolor    50
Name: variety, dtype: int64
```

In [8]:
```
df
```

Out[8]:

	sepal.length	sepal.width	petal.length	petal.width	variety
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
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	Virginica
146	6.3	2.5	5.0	1.9	Virginica

	sepal.length	sepal.width	petal.length	petal.width	variety
147	6.5	3.0	5.2	2.0	Virginica
148	6.2	3.4	5.4	2.3	Virginica
149	5.9	3.0	5.1	1.8	Virginica

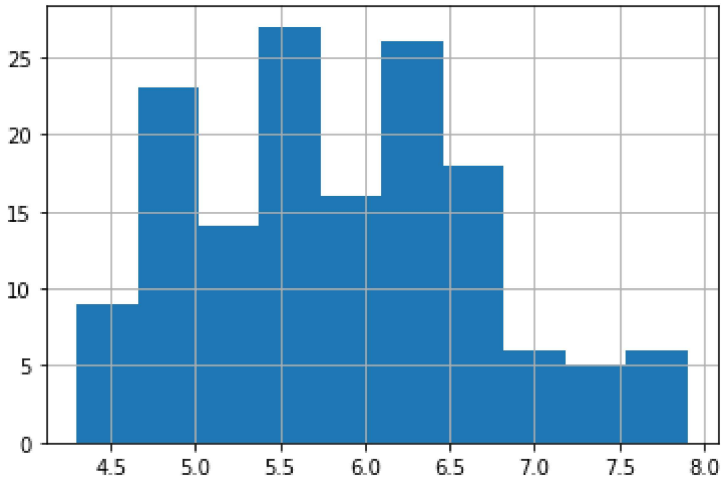
150 rows × 5 columns

In [10]:
```
df.isnull().sum()
```

Out[10]:
```
sepal.length    0
sepal.width     0
petal.length    0
petal.width     0
variety         0
dtype: int64
```

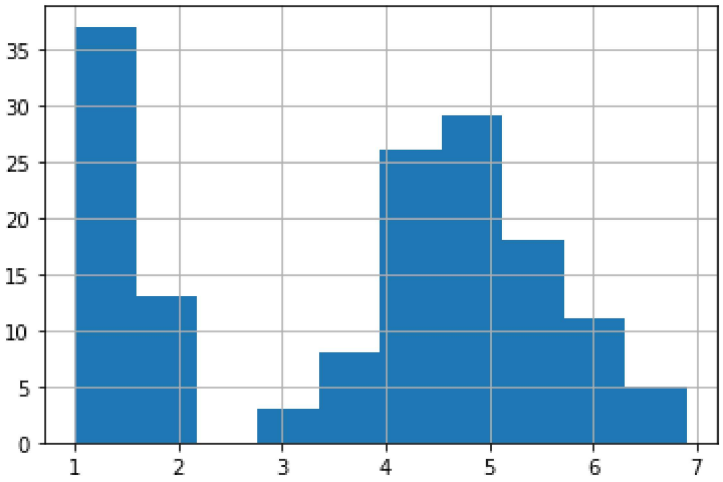
In [11]:
```
df['sepal.length'].hist()
```

Out[11]: <AxesSubplot:>



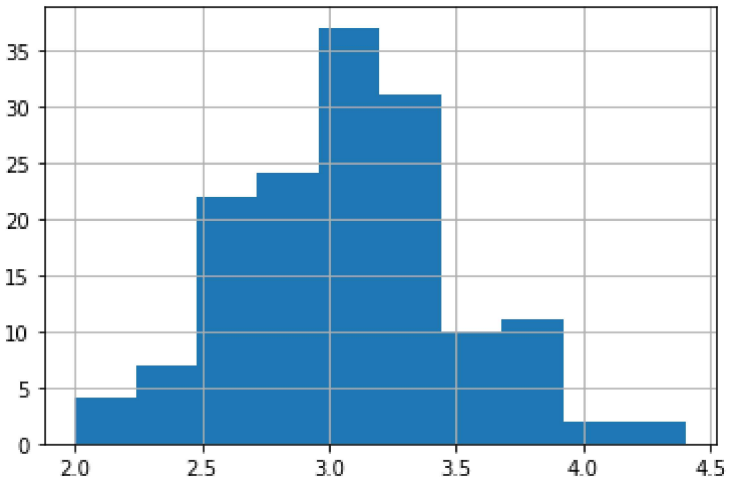
In [12]:
```
df['petal.length'].hist()
```

Out[12]: <AxesSubplot:>



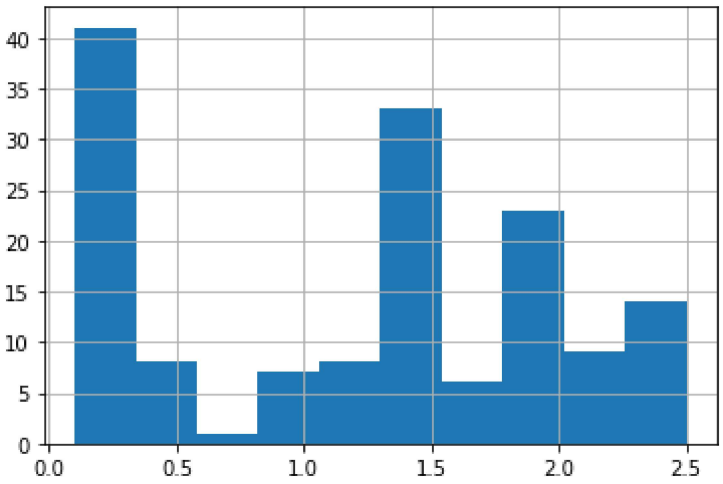
In [13]:
```
df['sepal.width'].hist()
```

Out[13]: <AxesSubplot:>



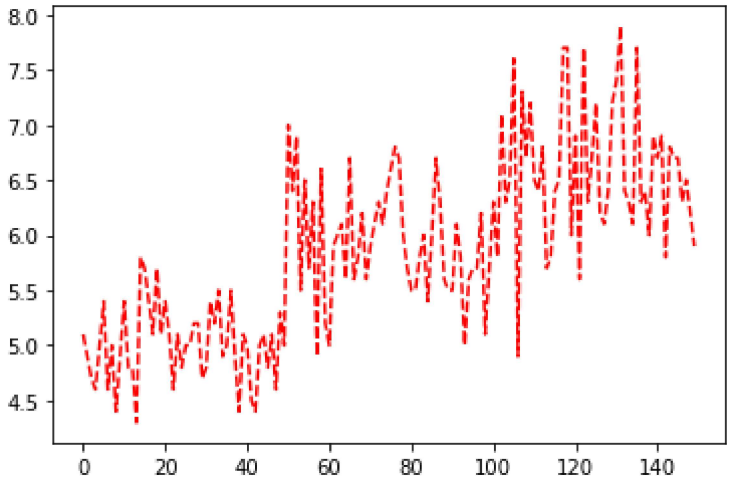
In [14]:
```
df['petal.width'].hist()
```

Out[14]: <AxesSubplot:>



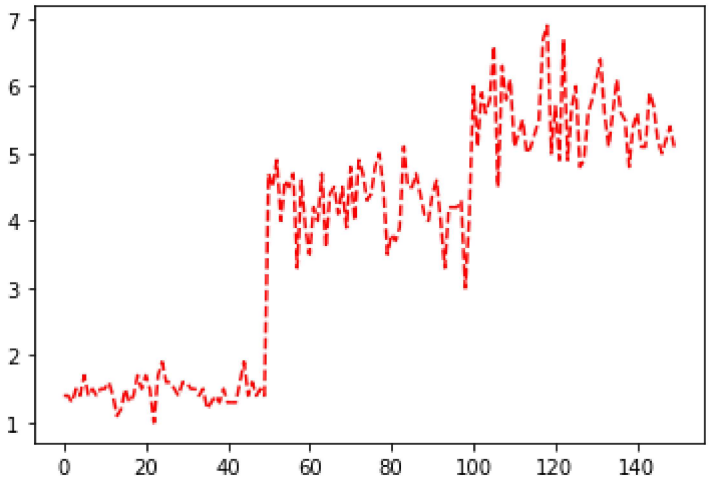
In [16]:
```
plt.plot(df["sepal.length"],"r--")
```

```
plt.show()
```



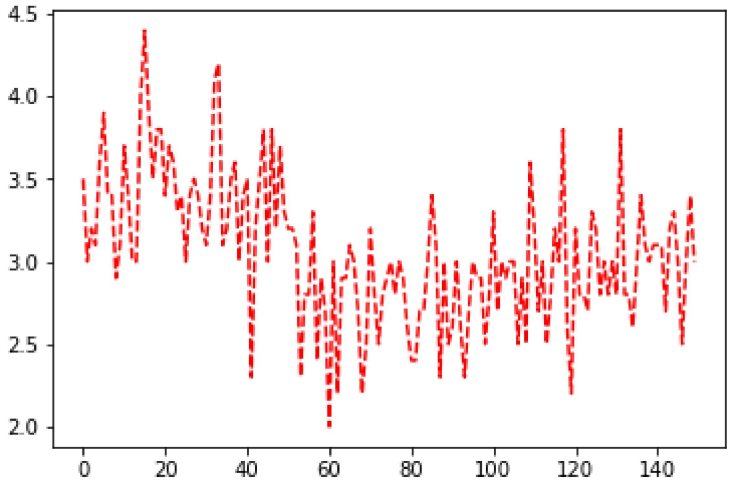
In [17]:

```
plt.plot(df["petal.length"],"r--")
plt.show()
```



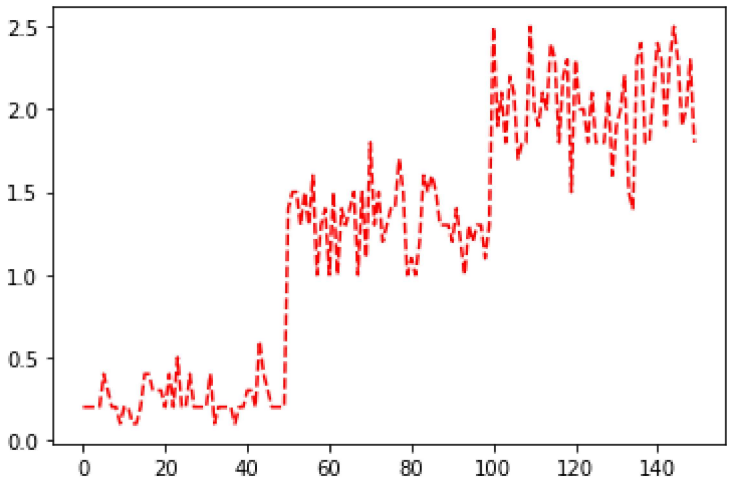
In [18]:

```
plt.plot(df["sepal.width"],"r--")
plt.show()
```



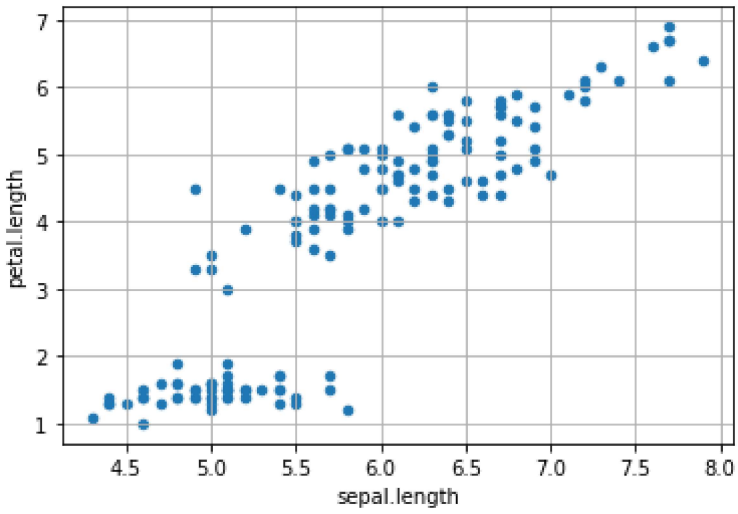
In [19]:

```
plt.plot(df["petal.width"],"r--")
plt.show()
```



In [20]:

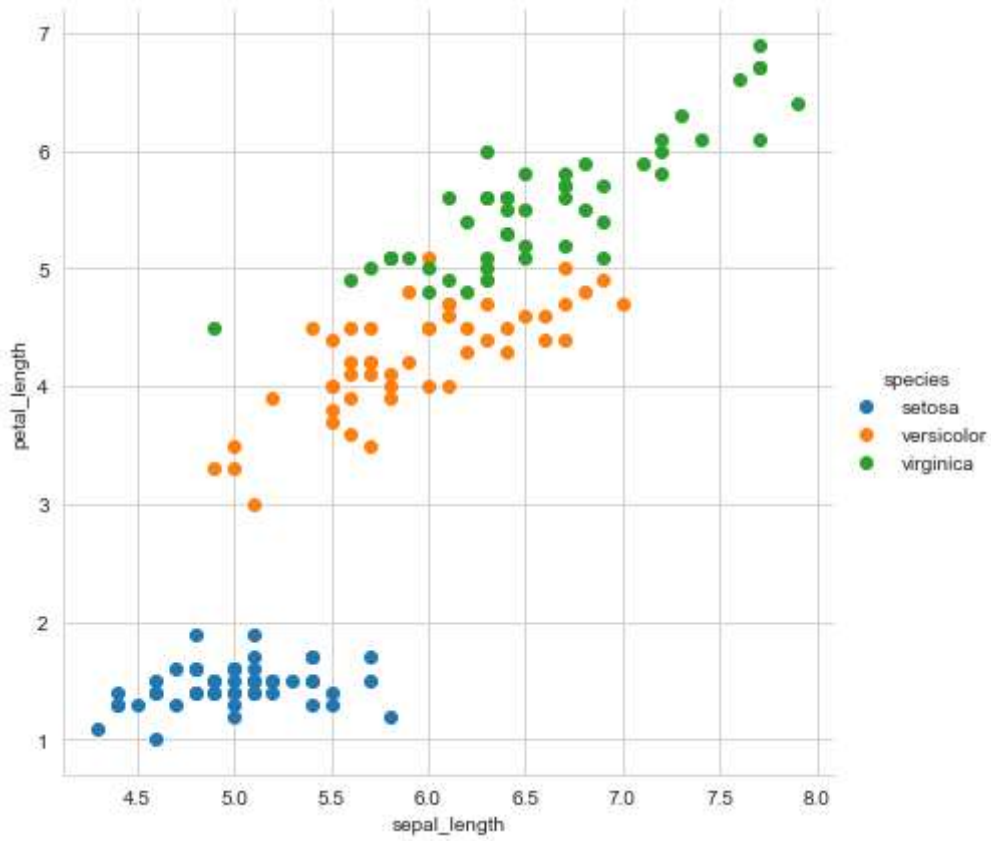
```
df.plot(kind="scatter",x="sepal.length",y="petal.length")
plt.grid()
```



In [26]:

```
iris=sns.load_dataset('iris')
sns.set_style("whitegrid")
sns.FacetGrid(iris,hue="species",height=6).map(plt.scatter,'sepal_length','petal_length
```

Out[26]: <seaborn.axisgrid.FacetGrid at 0x229a329cac0>



In [ ]:

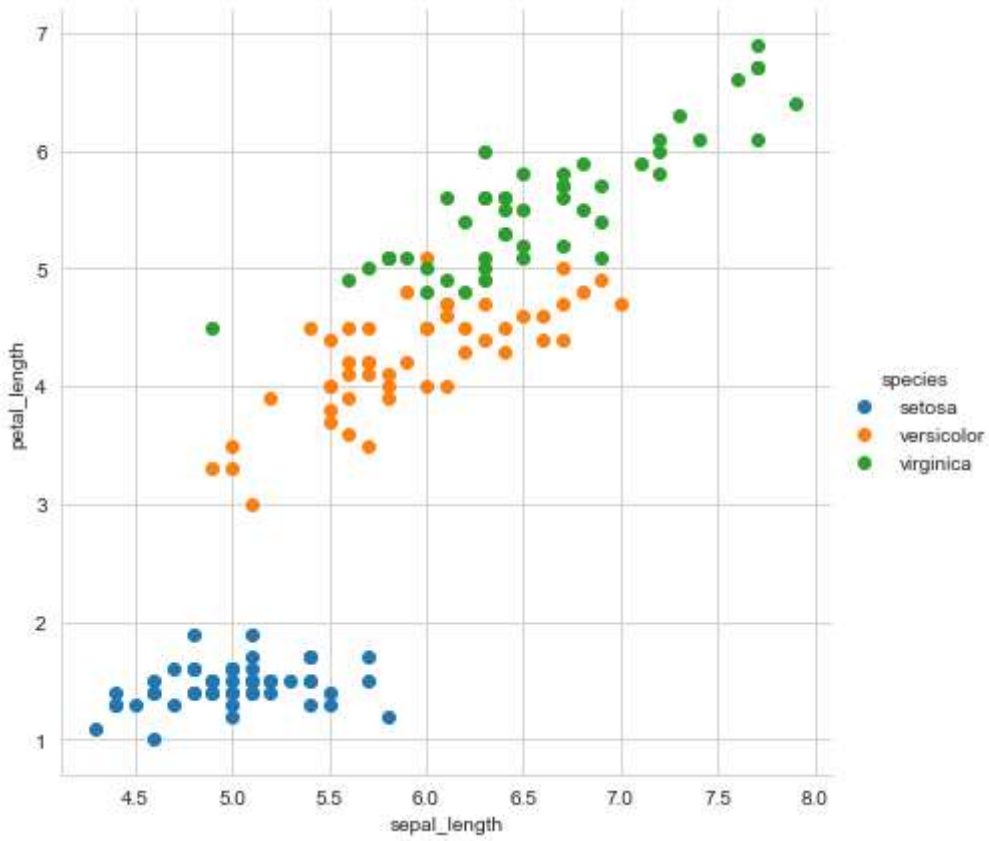
In [ ]:

In [24]:
```
iris = sns.load_dataset('iris')

# style used as a theme of graph
# for example if we want black
# graph with grid then write "darkgrid"
sns.set_style("whitegrid")

# sepal_length, petal_length are iris
# feature data height used to define
# Height of graph whereas hue store the
# class of iris dataset.
sns.FacetGrid(iris, hue ="species",
              height = 6).map(plt.scatter,
                              'sepal_length',
                              'petal_length').add_legend()
```

Out[24]: <seaborn.axisgrid.FacetGrid at 0x229a2003580>

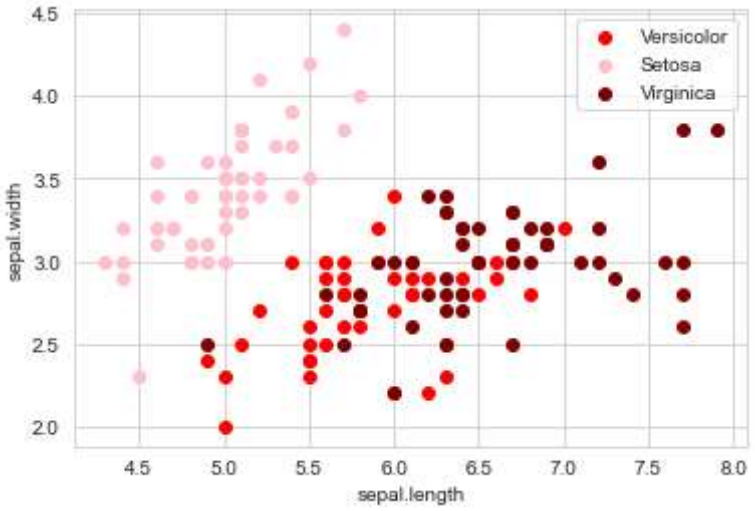


In [27]:
```
df.sample(10)
```

Out[27]:

	sepal.length	sepal.width	petal.length	petal.width	variety
93	5.0	2.3	3.3	1.0	Versicolor
60	5.0	2.0	3.5	1.0	Versicolor
29	4.7	3.2	1.6	0.2	Setosa
96	5.7	2.9	4.2	1.3	Versicolor
86	6.7	3.1	4.7	1.5	Versicolor
76	6.8	2.8	4.8	1.4	Versicolor
12	4.8	3.0	1.4	0.1	Setosa
48	5.3	3.7	1.5	0.2	Setosa
146	6.3	2.5	5.0	1.9	Virginica
111	6.4	2.7	5.3	1.9	Virginica

In [37]:
```
ds=pd.read_csv('iris.csv')
colors=['red','pink','maroon']
variety=['Versicolor','Setosa','Virginica']
for i in range(3):
    x=ds[ds['variety']==variety[i]]
    plt.scatter(x['sepal.length'],x['sepal.width'],c=colors[i],label=variety[i])
    plt.xlabel('sepal.length')
    plt.ylabel('sepal.width')
    plt.legend()
```



In [38]:
```
df.columns
```

Out[38]:
```
Index(['sepal.length', 'sepal.width', 'petal.length', 'petal.width',
       'variety'],
      dtype='object')
```

In [39]:
```
df.shape
```

Out[39]:
```
(150, 5)
```

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

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In [ ]:

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