Entrée [1]:

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

Entrée [2]:

```
from numpy.random import randn, randint, uniform, sample
```

Entrée [7]:

```
df = pd.DataFrame(randn(1000), index = pd.date_range('2019-06-07', periods = 1000), columns
ts = pd.Series(randn(1000), index = pd.date_range('2019-06-07', periods = 1000))
```

Entrée [9]:

```
df['value'] = df['value'].cumsum()
df.head()
```

Out[9]:

	value
2019-06-07	-0.499108
2019-06-08	-0.538066
2019-06-09	-0.960615
2019-06-10	-1.034272
2019-06-11	0.425206

Entrée [10]:

```
ts = ts.cumsum()
ts.head()
```

Out[10]:

```
2019-06-07   -0.755066
2019-06-08   -1.720570
2019-06-09   -1.386561
2019-06-10   -2.759992
2019-06-11   -3.949663
Freq: D, dtype: float64
```

Entrée [11]:

```
type(df), type(ts)
```

Out[11]:

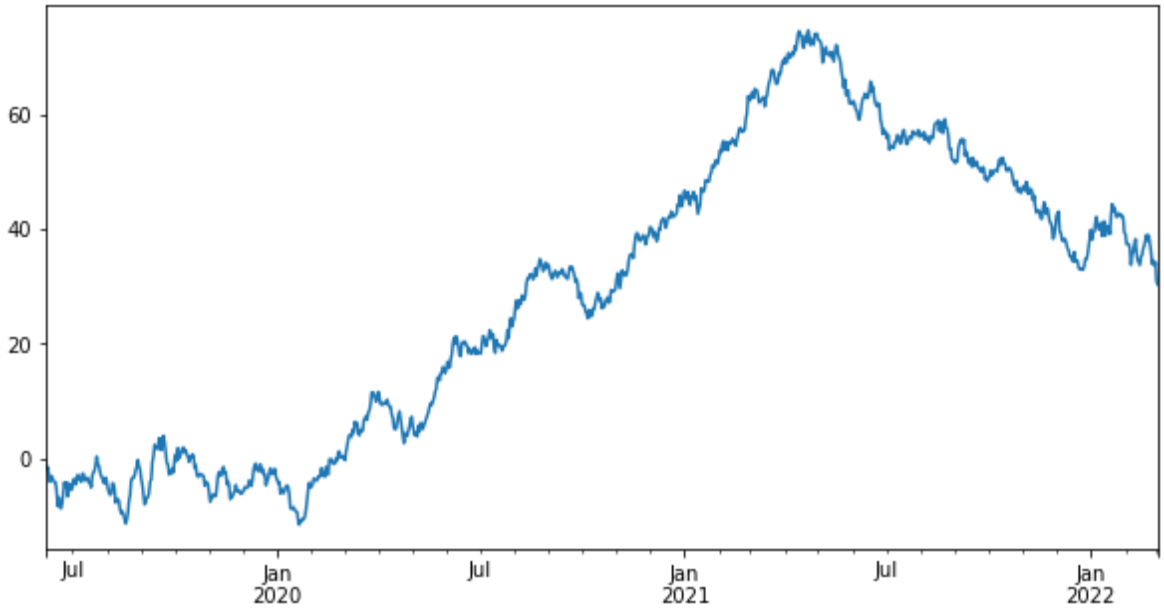
```
(pandas.core.frame.DataFrame, pandas.core.series.Series)
```

Entrée [14]:

```
ts.plot(figsize=(10,5))
```

Out[14]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7f007bf28>
```

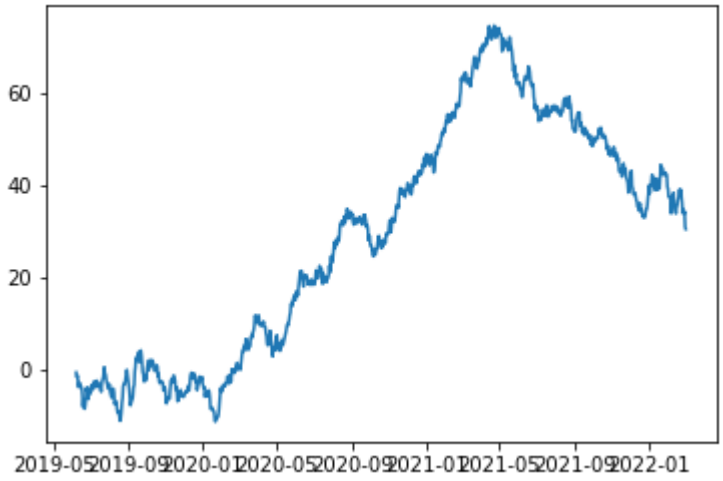


Entrée [13]:

```
plt.plot(ts)
```

Out[13]:

```
[<matplotlib.lines.Line2D at 0x1f7efe9fa58>]
```

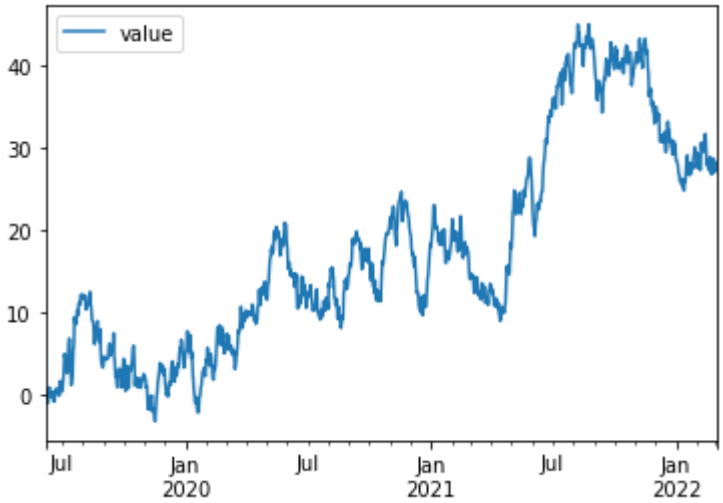


Entrée [15]:

```
df.plot()
```

Out[15]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7f2d20978>
```



Entrée [16]:

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

Out[16]:

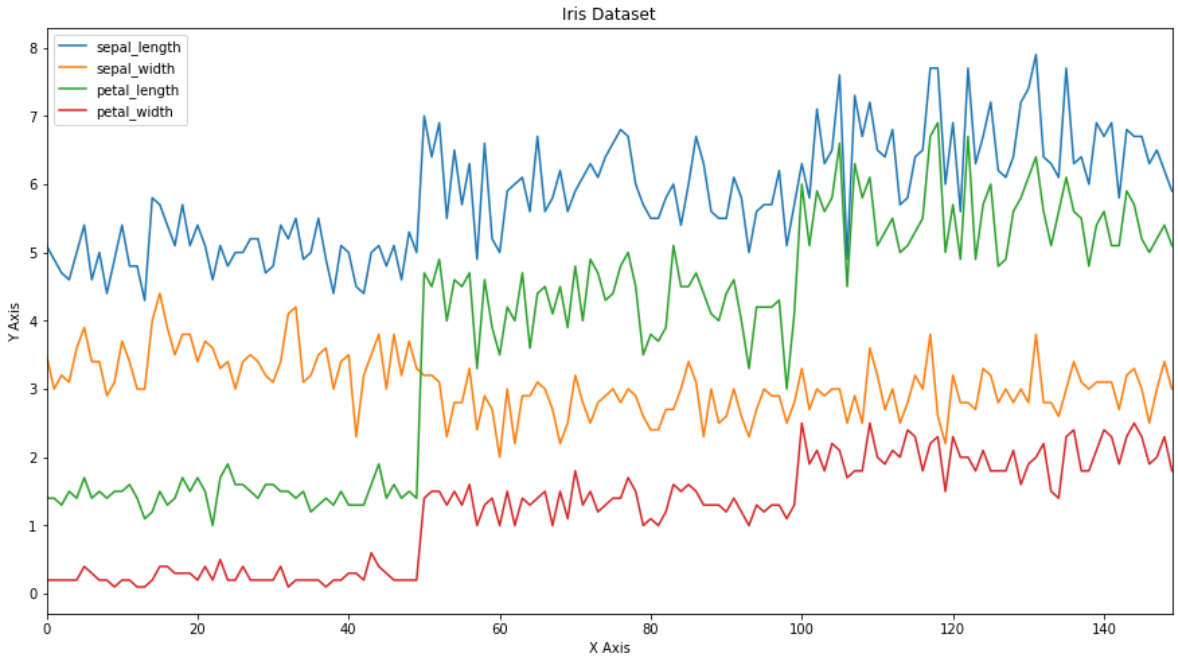
	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

Entrée [25]:

```
ax = iris.plot(figsize=(15,8), title='Iris Dataset')
ax.set_xlabel('X Axis')
ax.set_ylabel('Y Axis')
```

Out[25]:

```
Text(0, 0.5, 'Y Axis')
```

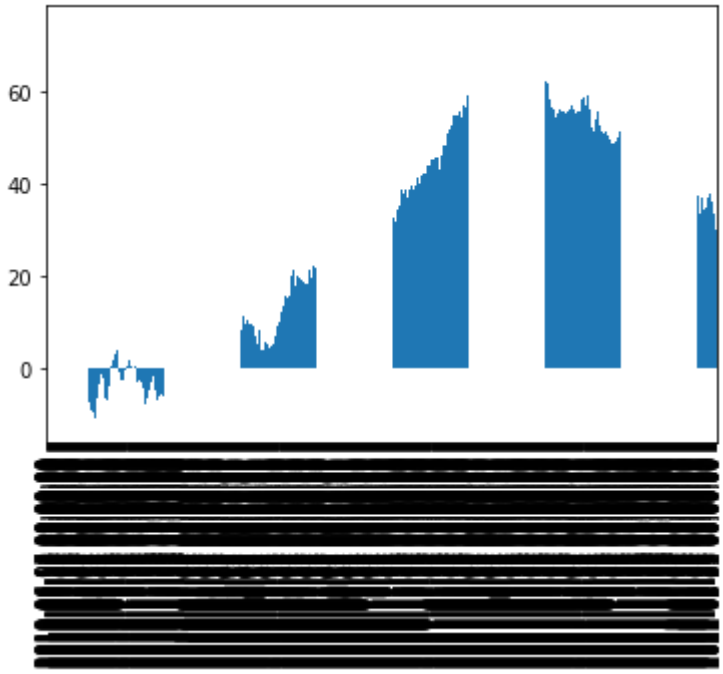


Entrée [28]:

```
ts.plot(kind = 'bar')
```

Out[28]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7f54f8da0>
```



Entrée [30]:

```
iris.iloc[0].plot(kind='bar')
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-30-1667280aea5d> in <module>
----> 1 iris.iloc[0].plot(kind='bar')

C:\ProgramData\Anaconda3\lib\site-packages\pandas\plotting\_core.py in __cal
l__(self, kind, ax, figsize, use_index, title, grid, legend, style, logx, lo
gy, loglog, xticks, yticks, xlim, ylim, rot, fontsize, colormap, table, yer
r, xerr, label, secondary_y, **kwds)
   2740                            colormap=colormap, table=table, yerr=yerr
,
   2741                            xerr=xerr, label=label, secondary_y=secon
dary_y,
-> 2742                            **kwds)
   2743     __call__.__doc__ = plot_series.__doc__
   2744

C:\ProgramData\Anaconda3\lib\site-packages\pandas\plotting\_core.py in plot_
series(data, kind, ax, figsize, use_index, title, grid, legend, style, logx,
logy, loglog, xticks, yticks, xlim, ylim, rot, fontsize, colormap, table, ye
rr, xerr, label, secondary_y, **kwds)
   1996                  yerr=yerr, xerr=xerr,
   1997                  label=label, secondary_y=secondary_y,
-> 1998                  **kwds)
   1999
   2000

C:\ProgramData\Anaconda3\lib\site-packages\pandas\plotting\_core.py in _plot
(data, x, y, subplots, ax, kind, **kwds)
   1799         plot_obj = klass(data, subplots=subplots, ax=ax, kind=kind,
**kwds)
   1800
-> 1801     plot_obj.generate()
   1802     plot_obj.draw()
   1803     return plot_obj.result

C:\ProgramData\Anaconda3\lib\site-packages\pandas\plotting\_core.py in gener
ate(self)
    247     def generate(self):
    248         self._args_adjust()
--> 249         self._compute_plot_data()
    250         self._setup_subplots()
    251         self._make_plot()

C:\ProgramData\Anaconda3\lib\site-packages\pandas\plotting\_core.py in _comp
ute_plot_data(self)
    365         if is_empty:
    366             raise TypeError('Empty {0!r}: no numeric data to '
--> 367                             'plot'.format(numeric_data.__class__.__n
ame__))
    368
    369         self.data = numeric_data

TypeError: Empty 'DataFrame': no numeric data to plot
```

Entrée [37]:

```
df = iris.drop(['species'], axis = 1)
```

Entrée [38]:

```
df.head()
```

Out[38]:

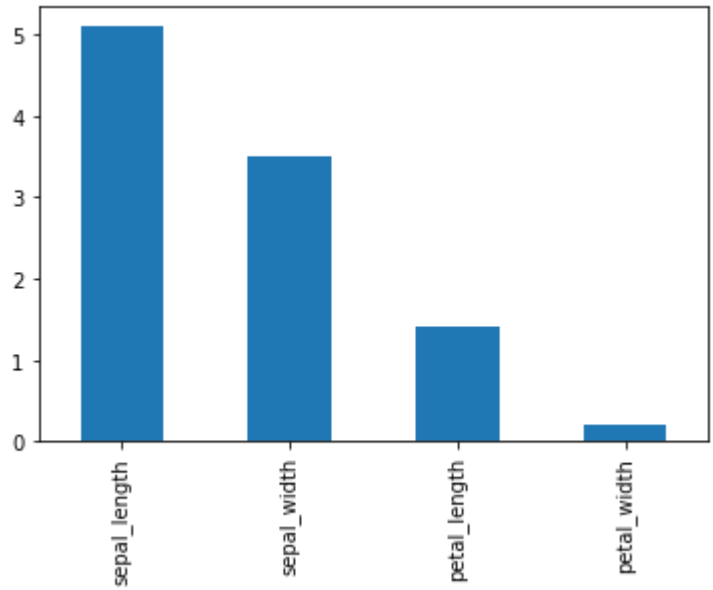
	sepal_length	sepal_width	petal_length	petal_width
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

Entrée [40]:

```
df.iloc[0].plot(kind='bar')
```

Out[40]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7f922cfd0>
```

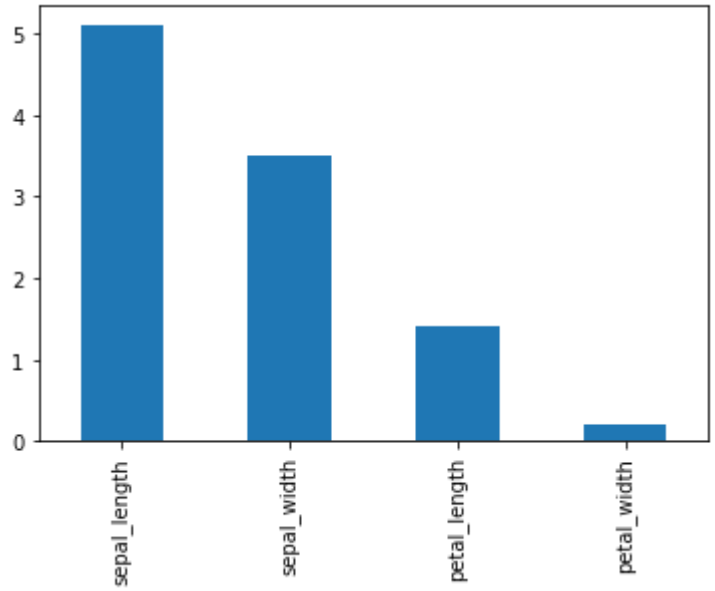


Entrée [41]:

```
df.iloc[0].plot.bar()
```

Out[41]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7f91be780>
```



Entrée [42]:

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

Entrée [43]:

```
titanic.head()
```

Out[43]:

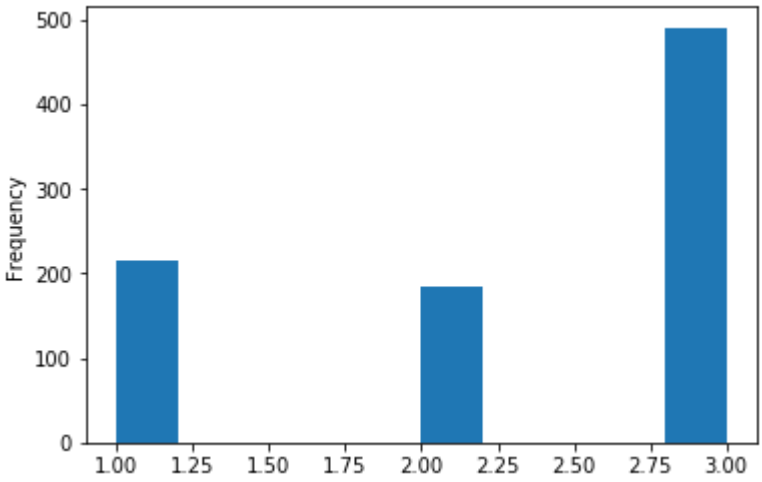
	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False
4	0	3	male	35.0	0	0	8.0500	S	Third	man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

Entrée [47]:

```
titanic['pclass'].plot(kind = 'hist')
```

Out[47]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fb342ac8>
```



Entrée [45]:

```
df = pd.DataFrame(randn(10, 4), columns=['a', 'b', 'c', 'd'])
df.head()
```

Out[45]:

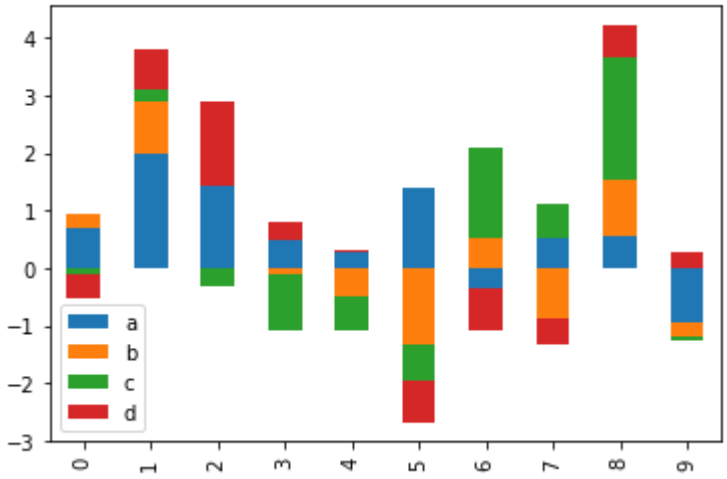
	a	b	c	d
0	0.693134	0.246069	-0.095928	-0.435621
1	1.991620	0.898734	0.219975	0.686955
2	1.429917	-0.007097	-0.292612	1.468410
3	0.468390	-0.104998	-0.988780	0.342933
4	0.263979	-0.476728	-0.605610	0.036741

Entrée [48]:

```
df.plot.bar(stacked = True)
```

Out[48]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fb5bec50>
```

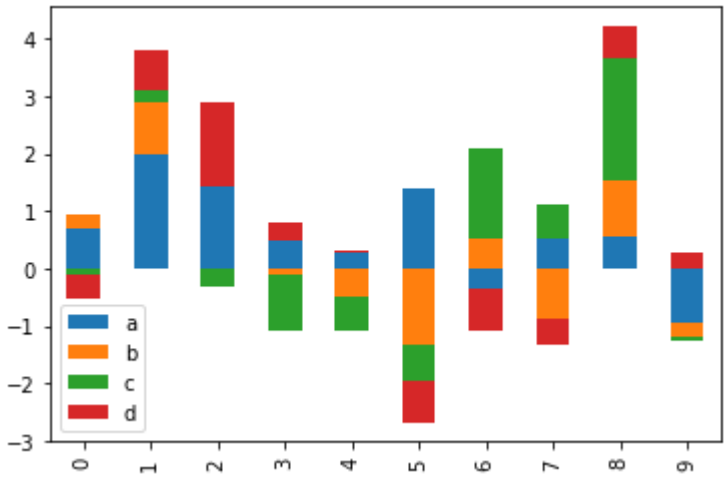


Entrée [50]:

```
df.plot(kind = 'bar', stacked = True)
```

Out[50]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fb827fd0>
```

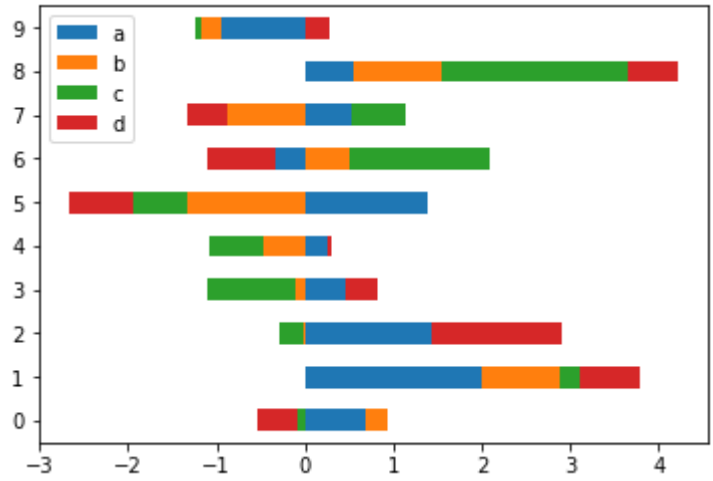


Entrée [58]:

```
df.plot.barh(stacked = True)
```

Out[58]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fb99b780>
```

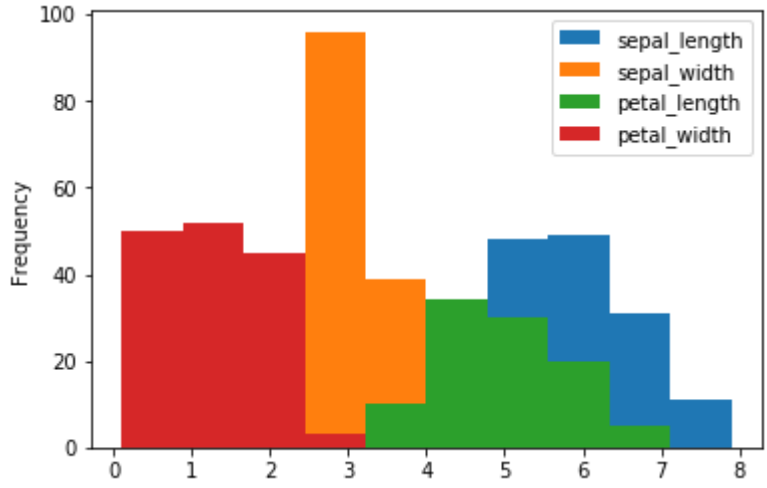


Entrée [59]:

```
iris.plot.hist()
```

Out[59]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fbb54588>
```

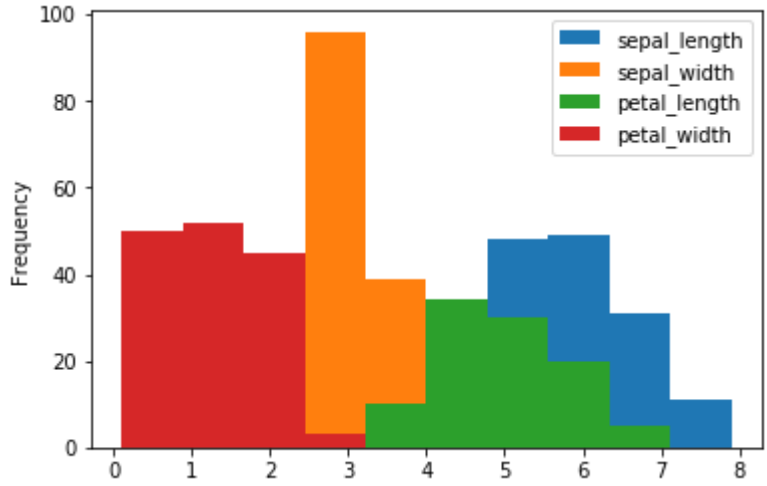


Entrée [60]:

```
iris.plot(kind = 'hist')
```

Out[60]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fbc12400>
```

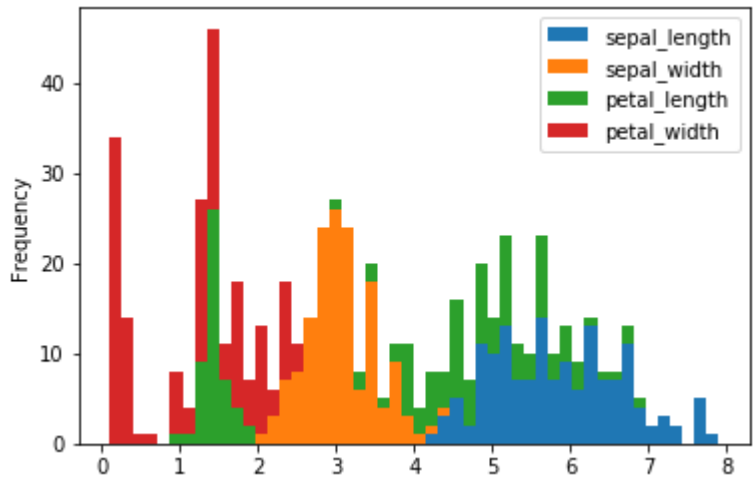


Entrée [63]:

```
iris.plot(kind = 'hist', stacked = True, bins = 50)
```

Out[63]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fbe6f0f0>
```

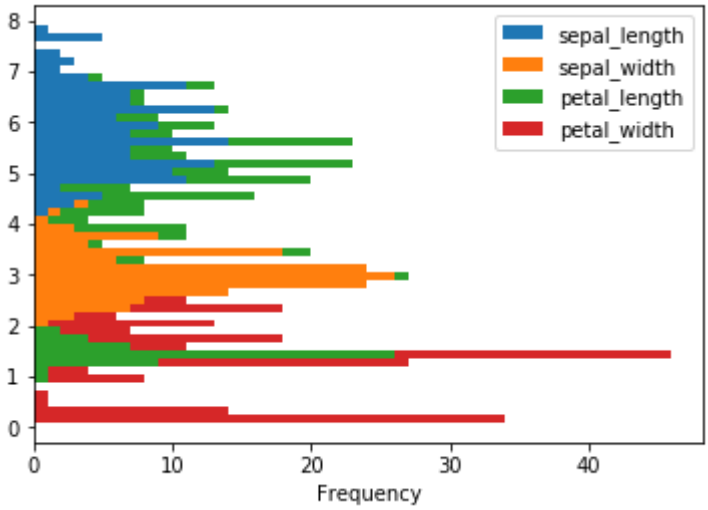


Entrée [64]:

```
iris.plot(kind = 'hist', stacked = True, bins = 50, orientation = 'horizontal')
```

Out[64]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fc0b4978>
```

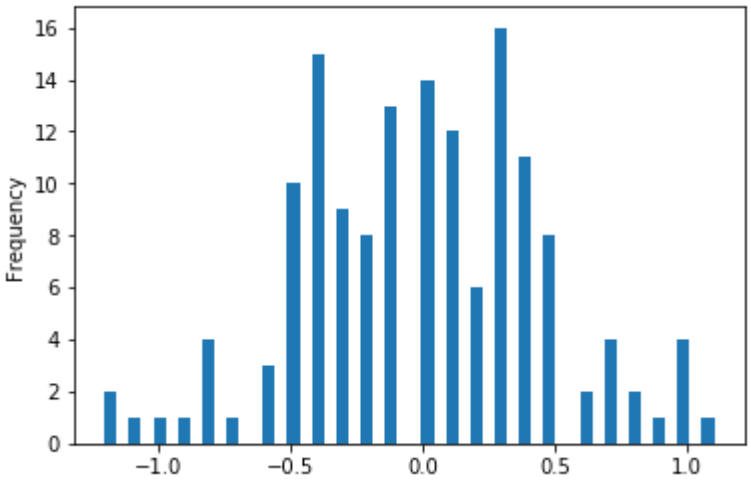


Entrée [67]:

```
iris['sepal_width'].diff().plot(kind = 'hist', stacked = True, bins = 50)
```

Out[67]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fc359710>
```



Entrée [70]:

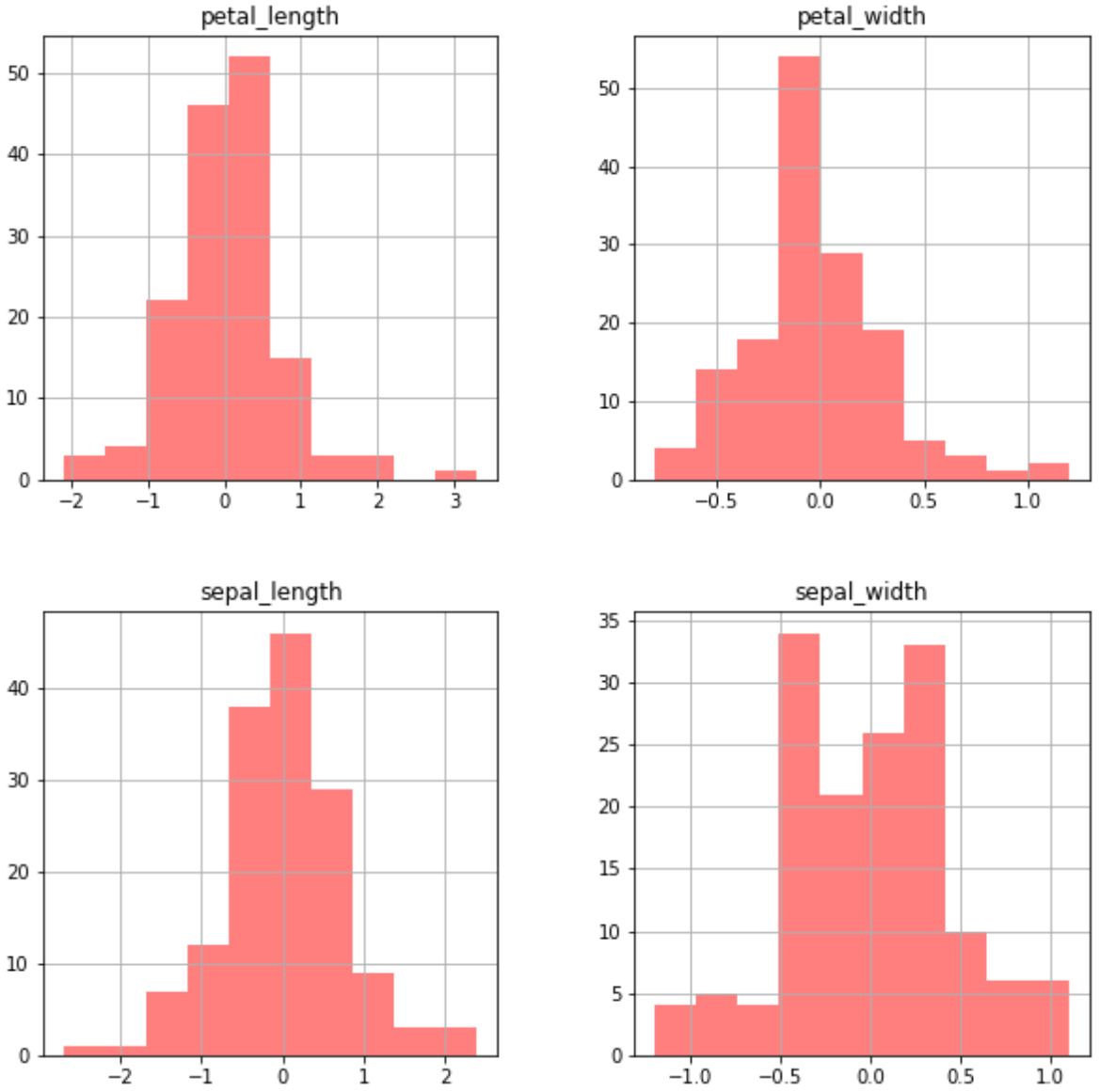
```
df = iris.drop(['species'], axis = 1)
```

Entrée [73]:

```
df.diff().hist(color = 'r', alpha = 0.5, figsize=(10,10))
```

Out[73]:

```
array([[<matplotlib.axes._subplots.AxesSubplot object at 0x000001F7FC637A20
>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x000001F7FD66F7B8
>],
       [<matplotlib.axes._subplots.AxesSubplot object at 0x000001F7FD6959B0
>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x000001F7FD6BDC18
>]],
      dtype=object)
```



Entrée [79]:

```
color = {'boxes': 'DarkGreen', 'whiskers': 'r'}
color
```

Out[79]:

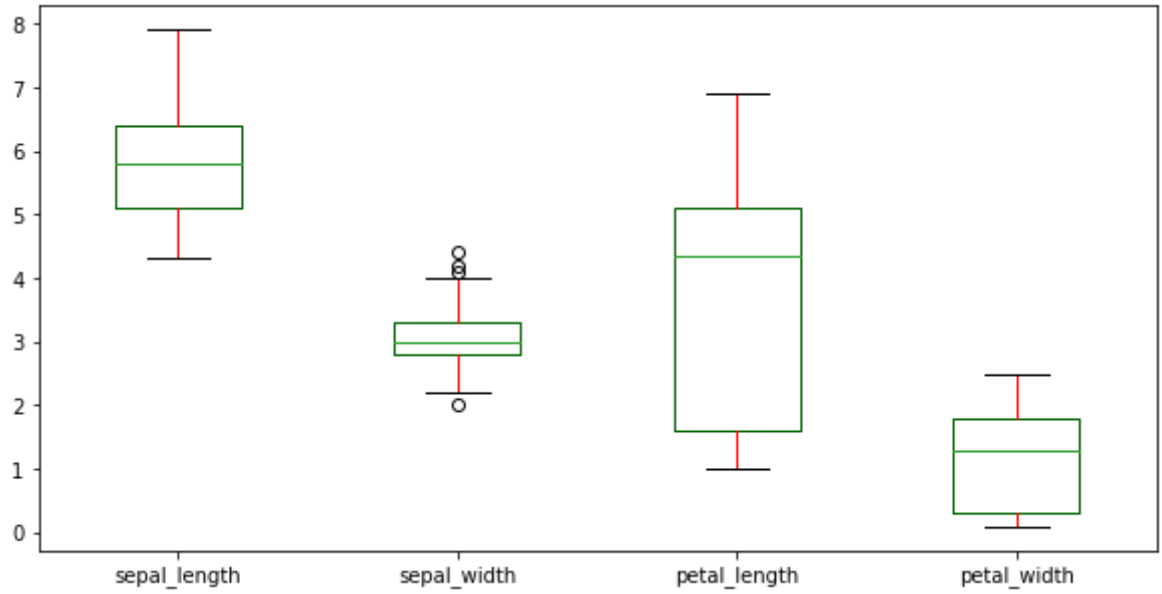
```
{'boxes': 'DarkGreen', 'whiskers': 'r'}
```

Entrée [80]:

```
df.plot(kind = 'box', figsize=(10,5), color = color)
```

Out[80]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fd8d28d0>
```

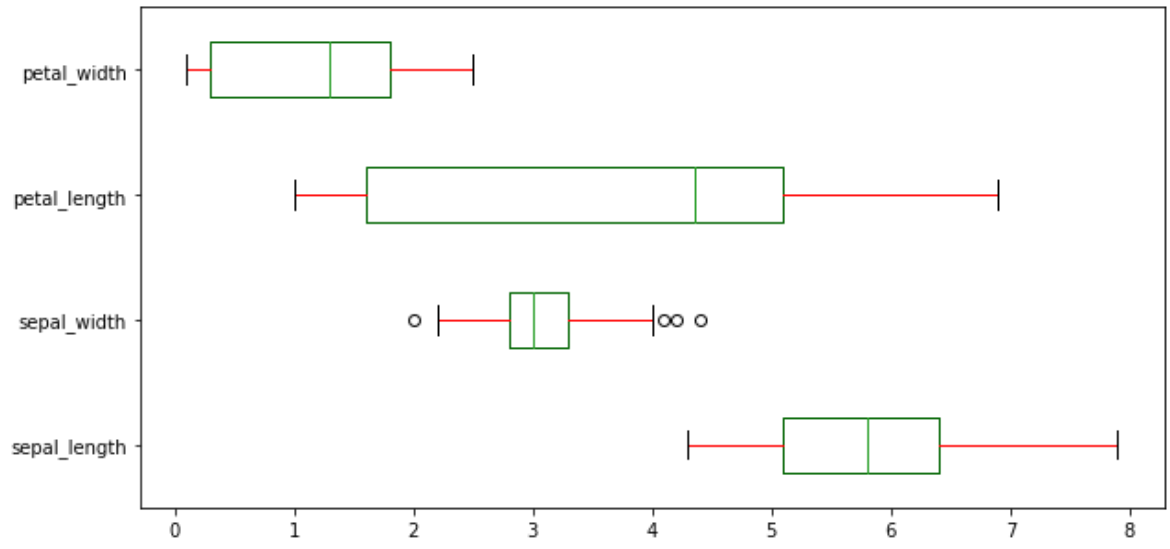


Entrée [81]:

```
df.plot(kind = 'box', figsize=(10,5), color = color, vert = False)
```

Out[81]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fd8f29e8>
```

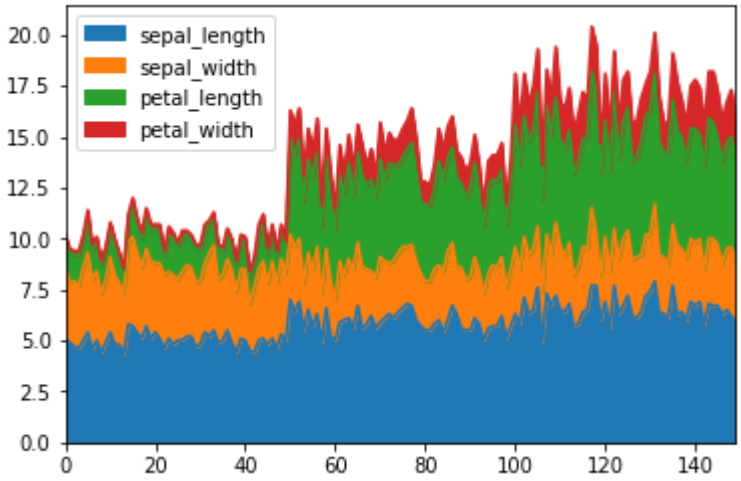


Entrée [84]:

```
df.plot(kind = 'area')
```

Out[84]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fdc3b550>
```

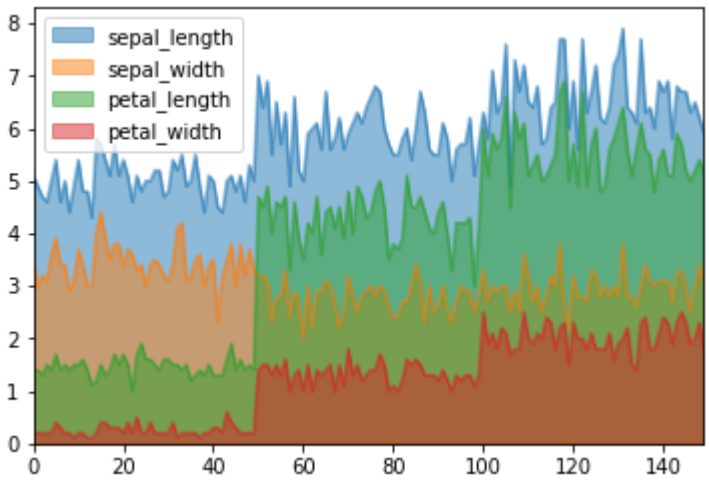


Entrée [85]:

```
df.plot.area(stacked = False)
```

Out[85]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fdd75080>
```



Entrée [ ]:

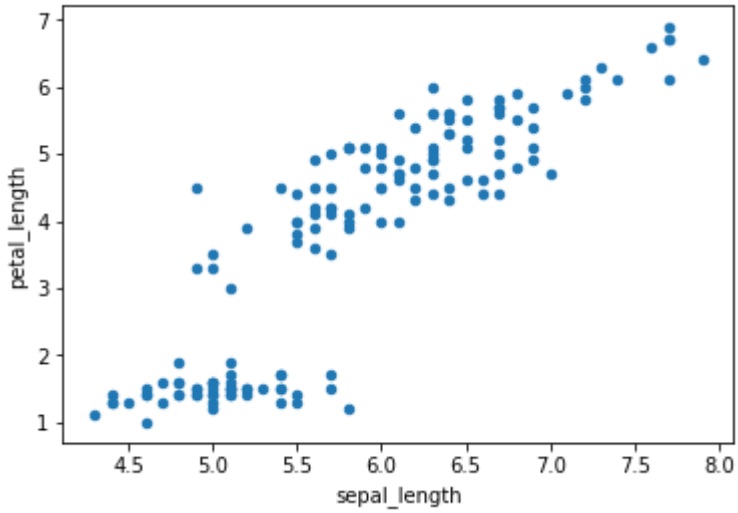
```

```

Entrée [86]:

```
df.plot.scatter(x = 'sepal_length', y = 'petal_length')
```

Out[86]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fdd9fc18>
```

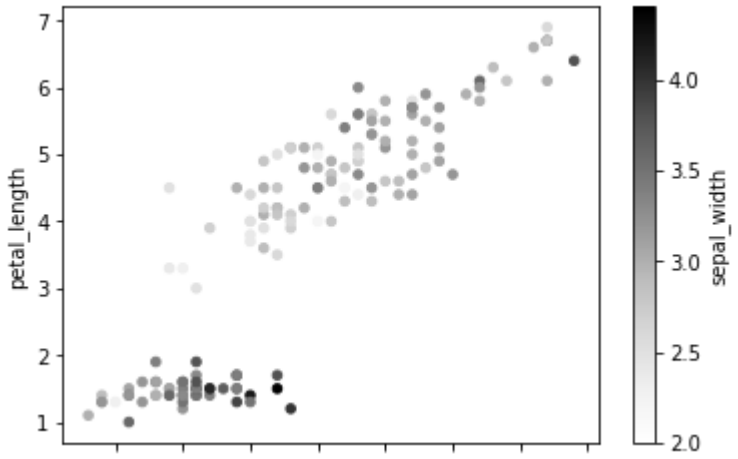


Entrée [87]:

```
df.plot.scatter(x = 'sepal_length', y = 'petal_length', c = 'sepal_width')
```

Out[87]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fdf80978>
```



Entrée [ ]:

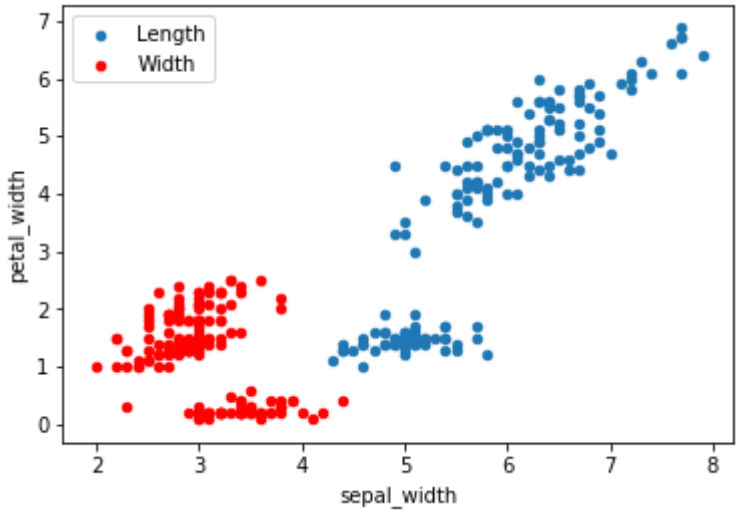
```

```

Entrée [89]:

```
ax = df.plot.scatter(x = 'sepal_length', y = 'petal_length', label = 'Length');
df.plot.scatter(x = 'sepal_width', y = 'petal_width', label = 'Width', ax = ax, color = 'r'
```

Out[89]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fe0f7d68>
```



Entrée [ ]:

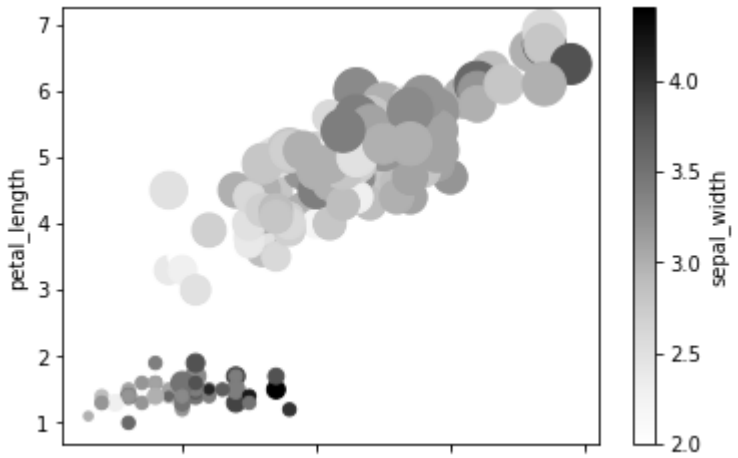
```

```

Entrée [92]:

```
df.plot.scatter(x = 'sepal_length', y = 'petal_length', c = 'sepal_width', s = df['petal_wi
```

Out[92]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7fe2abe10>
```



Entrée [ ]:

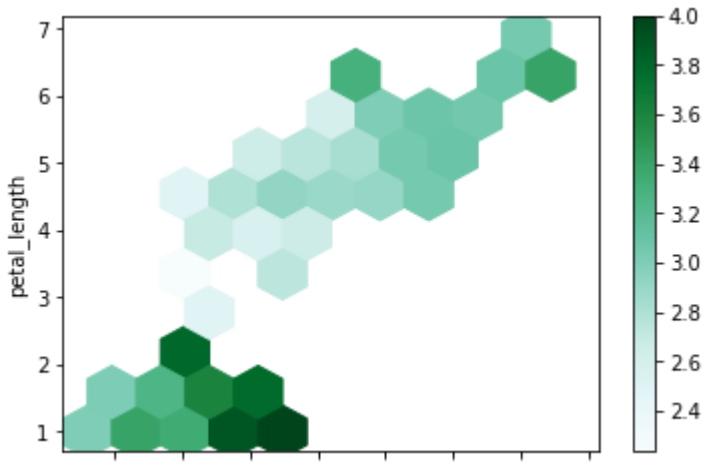
```

```

Entrée [100]:

```
df.plot.hexbin(x = 'sepal_length', y = 'petal_length', gridsize = 10, C = 'sepal_width')
```

Out[100]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7ff691978>
```



Entrée [ ]:

```

```

Entrée [102]:

```
d = df.iloc[0]
d
```

Out[102]:

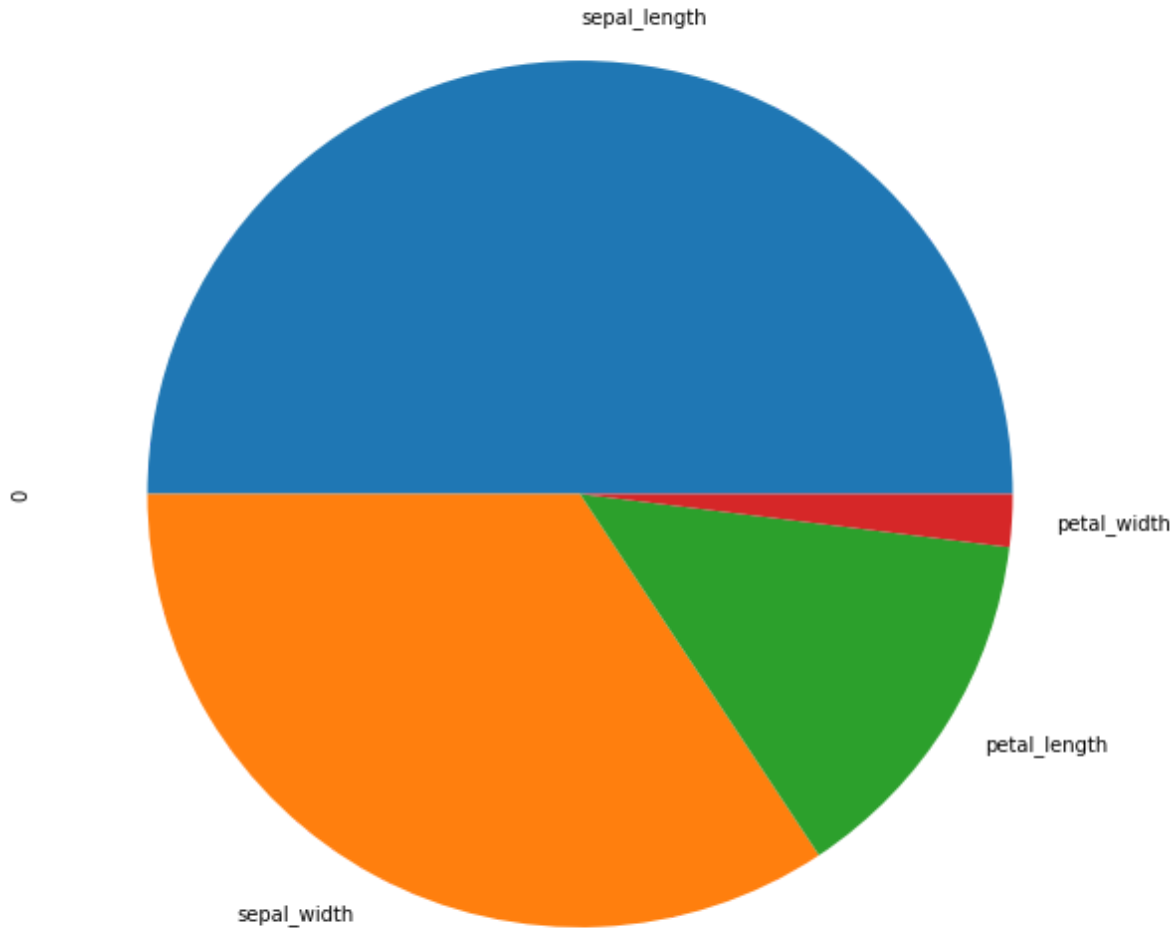
```
sepal_length    5.1
sepal_width     3.5
petal_length    1.4
petal_width     0.2
Name: 0, dtype: float64
```

Entrée [104]:

```
d.plot.pie(figsize = (10,10))
```

Out[104]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7ff7a1ba8>
```



Entrée [114]:

```
d = df.head(3).T
```

Entrée [115]:

```
d
```

Out[115]:

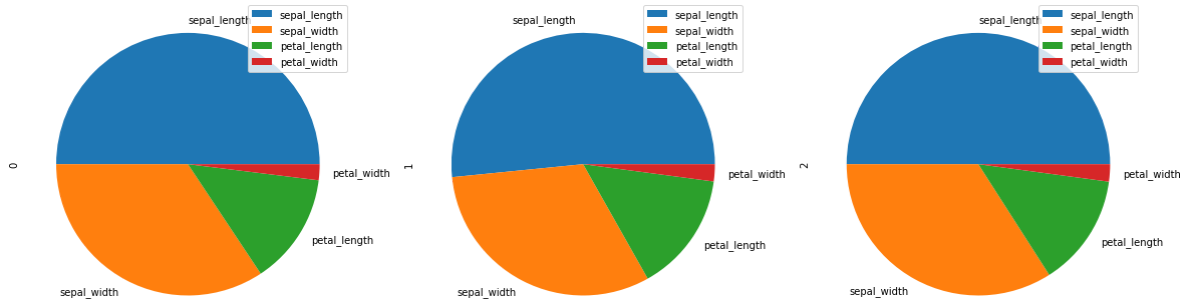
	0	1	2
sepal_length	5.1	4.9	4.7
sepal_width	3.5	3.0	3.2
petal_length	1.4	1.4	1.3
petal_width	0.2	0.2	0.2

Entrée [116]:

```
d.plot.pie(subplots = True, figsize = (20, 20))
```

Out[116]:

```
array([<matplotlib.axes._subplots.AxesSubplot object at 0x000001F7FFF70518>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x000001F780010208>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x000001F780038320
>],
      dtype=object)
```

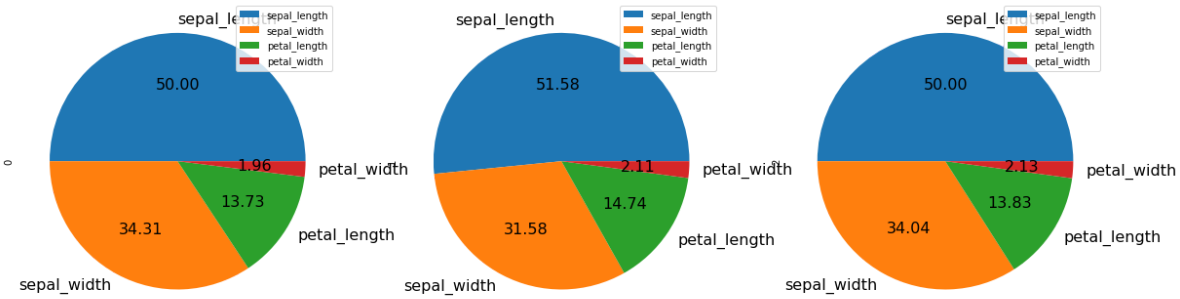


Entrée [118]:

```
d.plot.pie(subplots = True, figsize = (20, 20), fontsize = 16, autopct = '%.2f')
```

Out[118]:

```
array([<matplotlib.axes._subplots.AxesSubplot object at 0x000001F7808D0898>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x000001F780330780>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x000001F780358898
>],
      dtype=object)
```



Entrée [119]:

```
[0.1]*4
```

Out[119]:

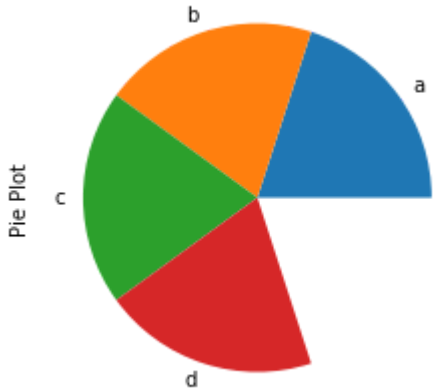
```
[0.1, 0.1, 0.1, 0.1]
```

Entrée [128]:

```
series = pd.Series([0.2]*4, index = ['a','b','c', 'd'], name = 'Pie Plot')
series.plot.pie()
```

Out[128]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f780685fd0>
```



Entrée [ ]:

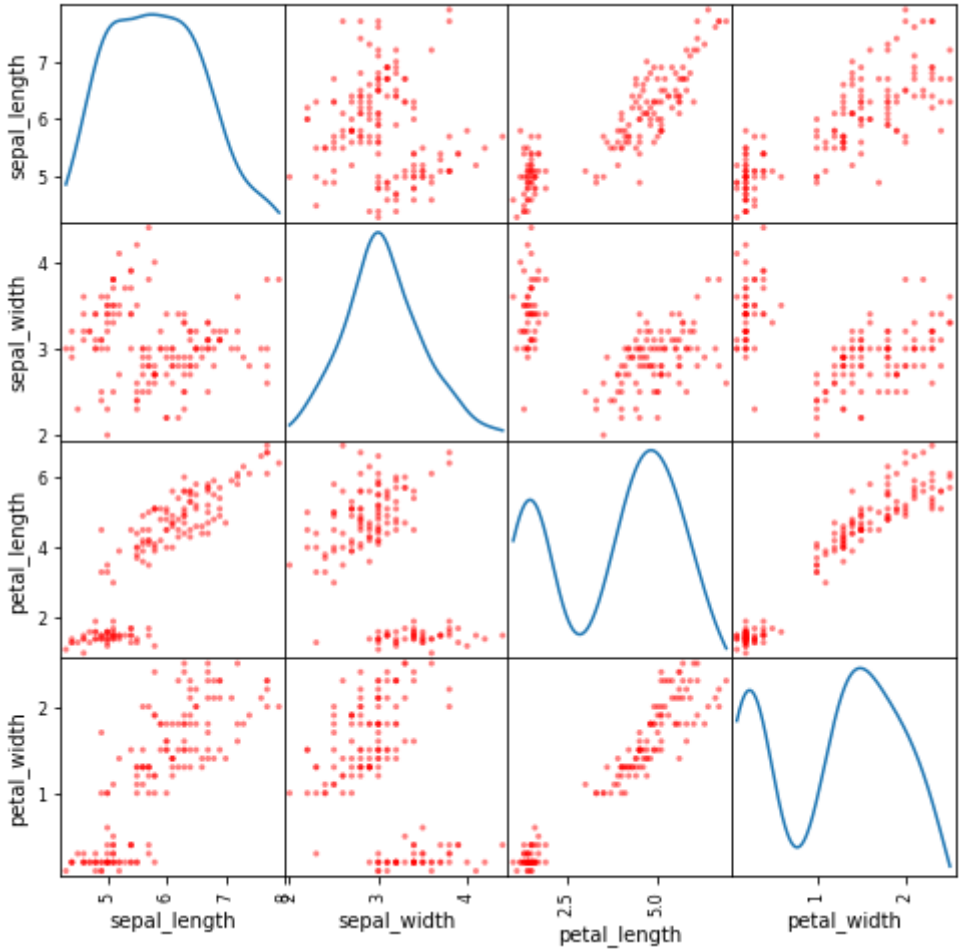
```

```

Entrée [130]:

```
from pandas.plotting import scatter_matrix
```

Entrée [137]:

```
scatter_matrix(df, figsize= (8,8), diagonal='kde', color = 'r')
plt.show()
```

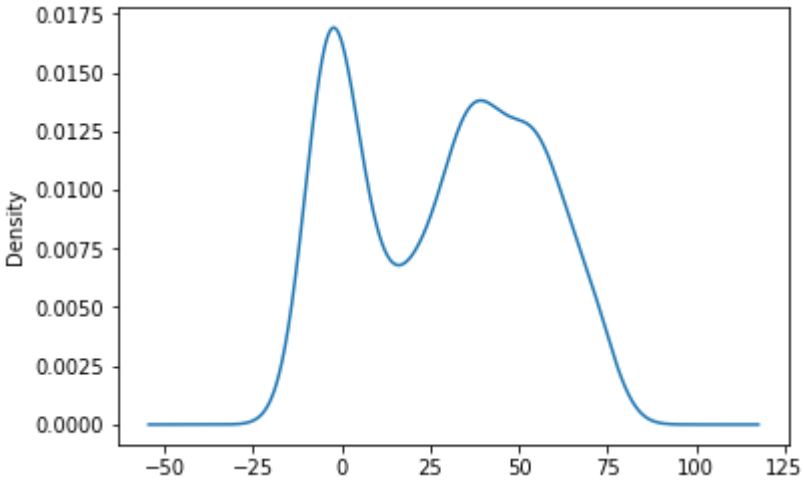


Entrée [138]:

```
ts.plot.kde()
```

Out[138]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7831142b0>
```



Entrée [ ]:

```

```

Entrée [139]:

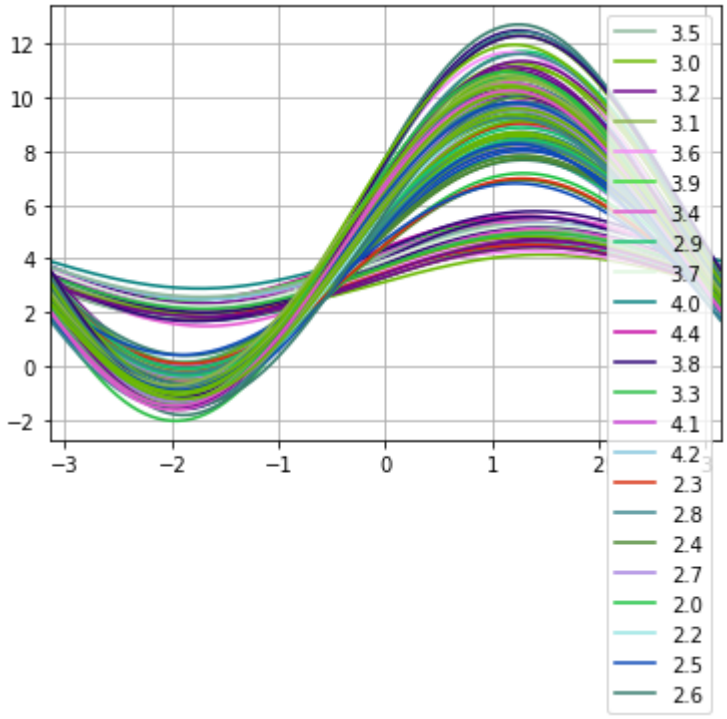
```
from pandas.plotting import andrews_curves
```

Entrée [142]:

```
andrews_curves(df, 'sepal_width')
```

Out[142]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f784cf1d68>
```



Entrée [ ]:

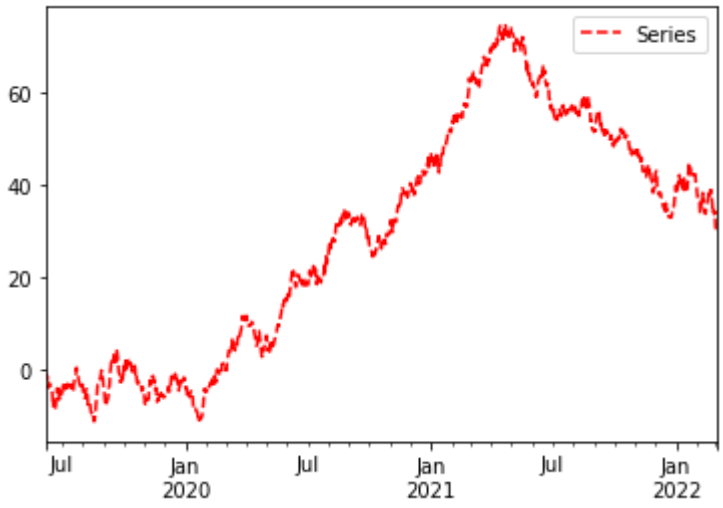
```

```

Entrée [146]:

```
ts.plot(style = 'r--', label = 'Series', legend = True)
```

Out[146]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f78512c518>
```

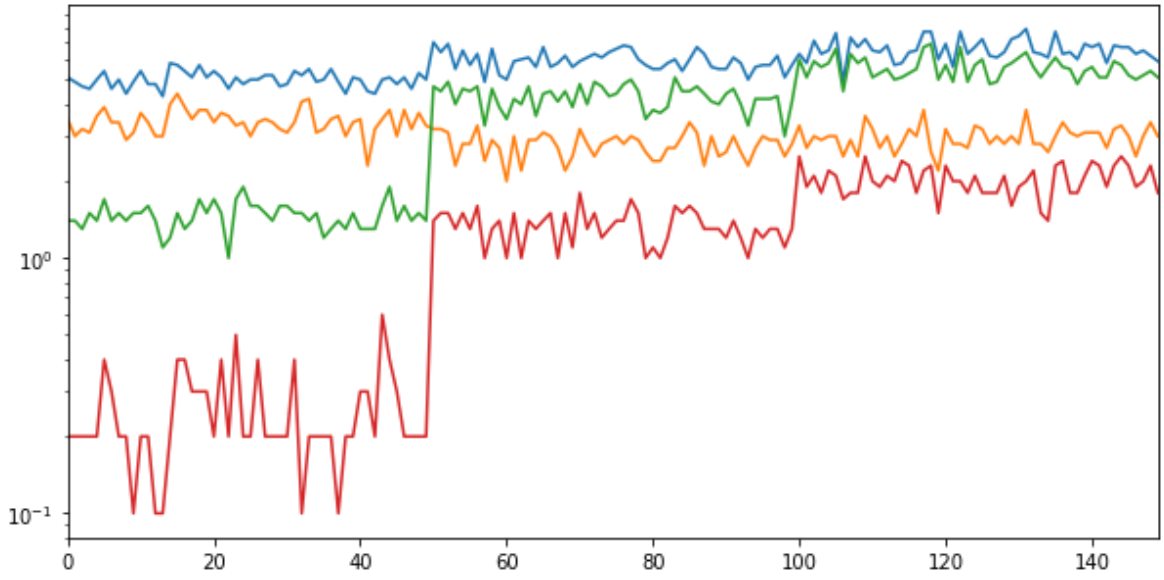


Entrée [150]:

```
df.plot(legend = False, figsize = (10, 5), logy = True)
```

Out[150]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f784f4d0b8>
```



Entrée [151]:

```
df.head(0)
```

Out[151]:

	sepal_length	sepal_width	petal_length	petal_width

Entrée [ ]:

```

```

Entrée [153]:

```
x = df.drop(['sepal_width', 'petal_width'], axis = 1)
x.head()
```

Out[153]:

	sepal_length	petal_length
0	5.1	1.4
1	4.9	1.4
2	4.7	1.3
3	4.6	1.5
4	5.0	1.4

Entrée [155]:

```
y = df.drop(['sepal_length', 'petal_length'], axis = 1)
y.head()
```

Out[155]:

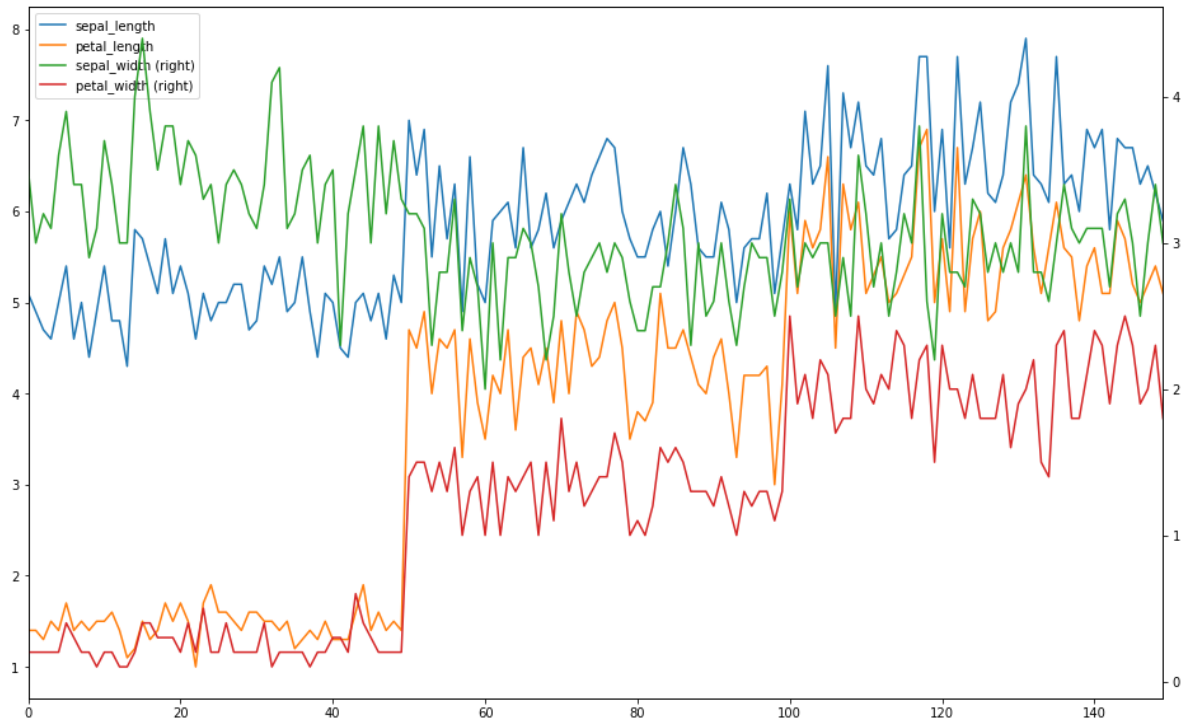
	sepal_width	petal_width
0	3.5	0.2
1	3.0	0.2
2	3.2	0.2
3	3.1	0.2
4	3.6	0.2

Entrée [161]:

```
ax = x.plot()
y.plot(figsize = (16,10), secondary_y=True, ax = ax)
```

Out[161]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f7859fd940>
```



Entrée [ ]:

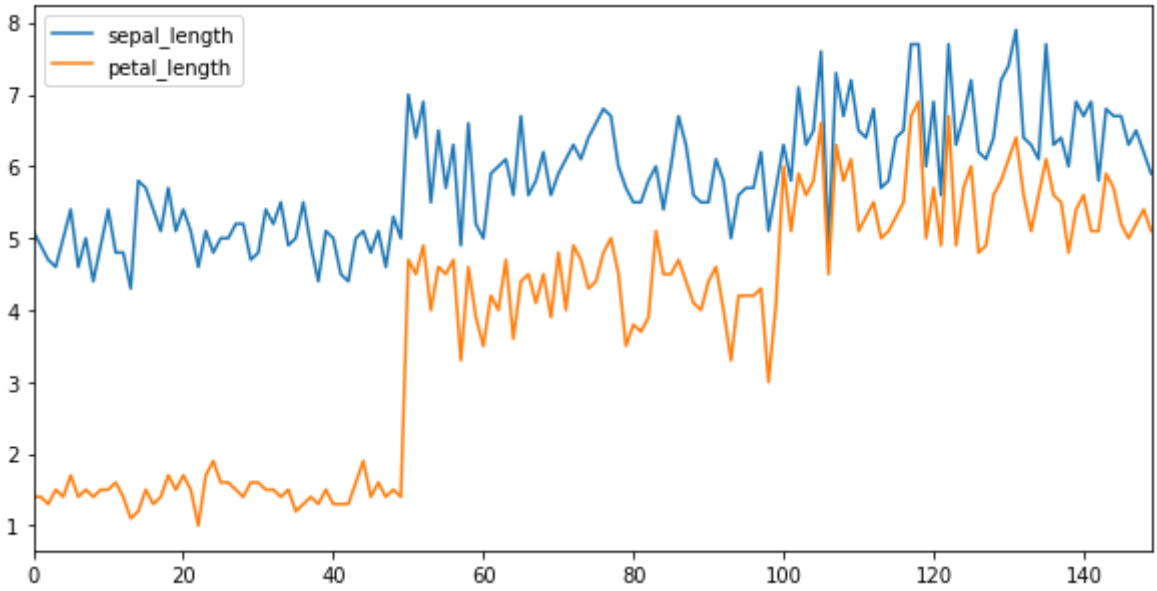
```

```

Entrée [164]:

```
x.plot(figsize=(10,5), x_compat = True)
```

Out[164]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1f786dfb6a0>
```

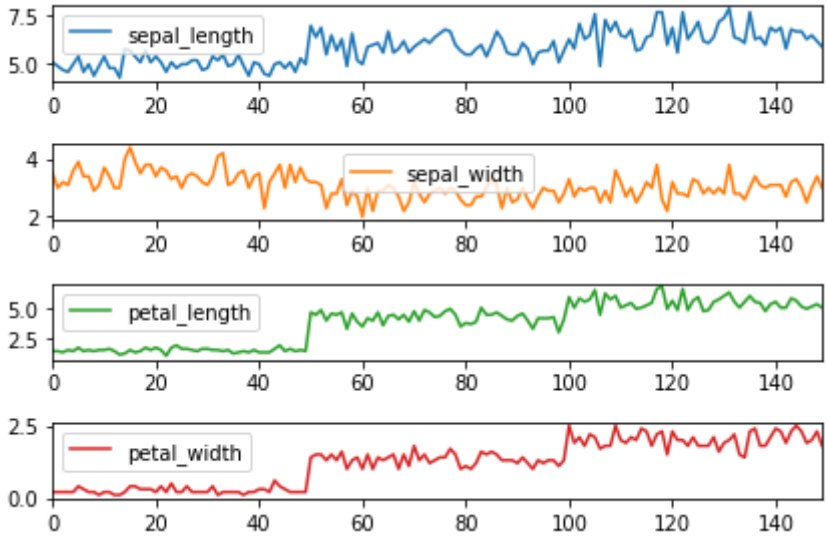


Entrée [ ]:

```

```

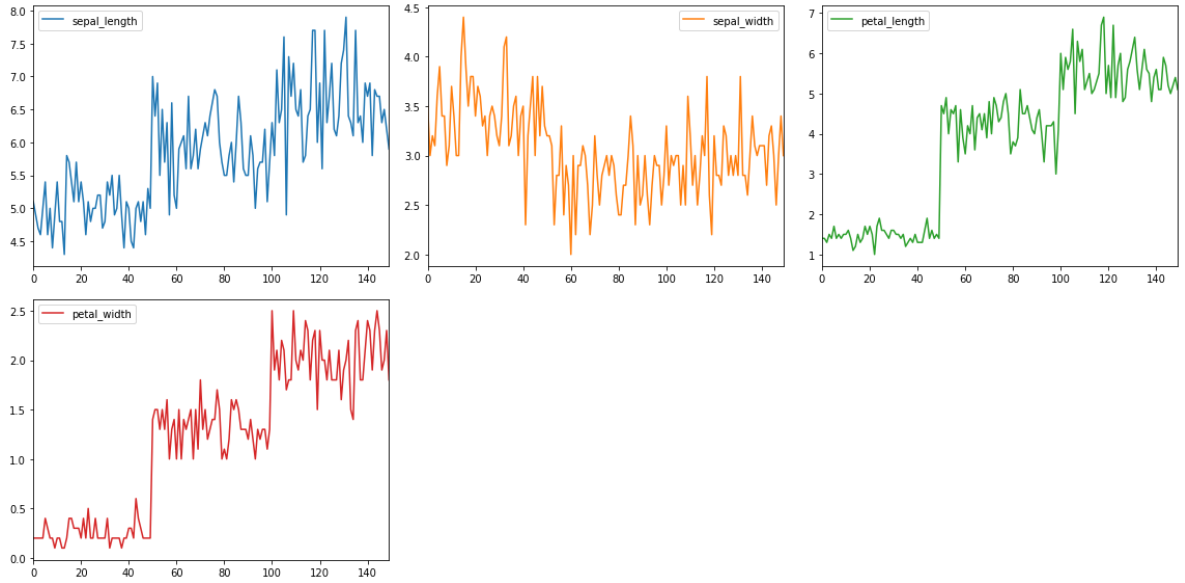
Entrée [167]:

```
df.plot(subplots = True, sharex = False)
plt.tight_layout()
```



Entrée [174]:

```
df.plot(subplots = True, sharex = False, layout = (2,3), figsize = (16,8))
plt.tight_layout()
```



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