In [1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline

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

In [2]:
```
df = pd.DataFrame(randn(1000),index=pd.date_range('2019-06-07',periods=1000),columns=['value'])
ts = pd.Series(randn(1000),index=pd.date_range('2019-06-07',periods=1000))
```

In [3]:
```
df['value'] = df['value'].cumsum()
df.head()
```

Out[3]:

	value
2019-06-07	-0.069767
2019-06-08	0.855426
2019-06-09	2.292657
2019-06-10	2.361732
2019-06-11	2.128053

In [4]:
```
ts = ts.cumsum()
ts.head()
```

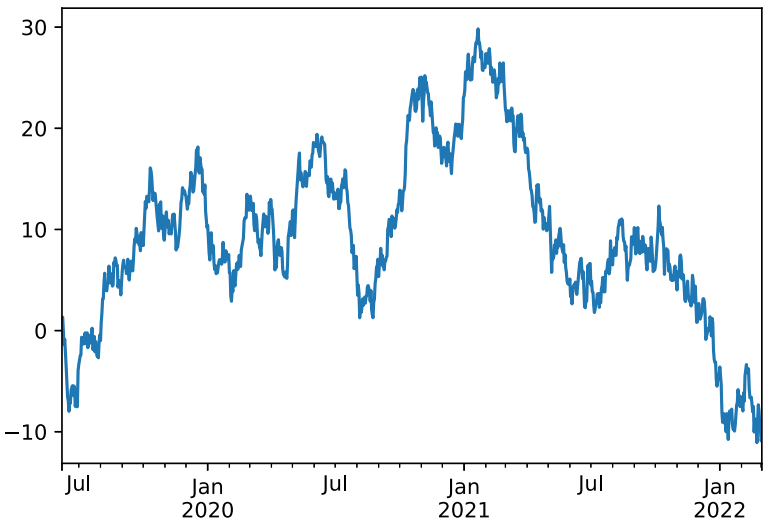
Out[4]:
```
2019-06-07    1.157698
2019-06-08    1.330188
2019-06-09    0.046533
2019-06-10   -1.386425
2019-06-11   -0.871049
Freq: D, dtype: float64
```

In [5]:
```
type(df),type(ts)
```

Out[5]:
```
(pandas.core.frame.DataFrame, pandas.core.series.Series)
```

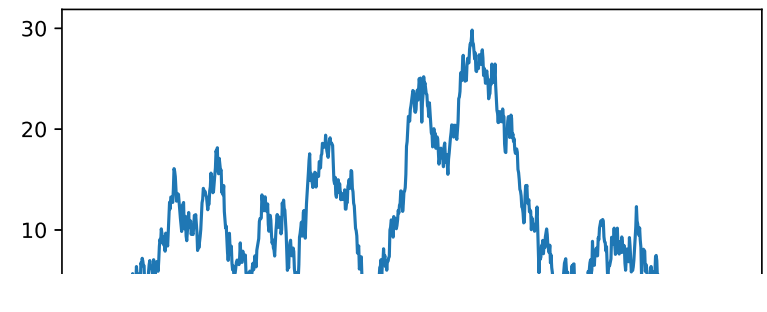
In [6]:
```
ts.plot()
```

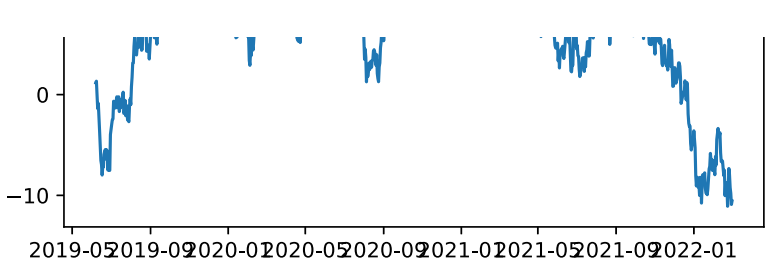
Out[6]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2427a850>
```



In [7]:
```
plt.plot(ts)
```

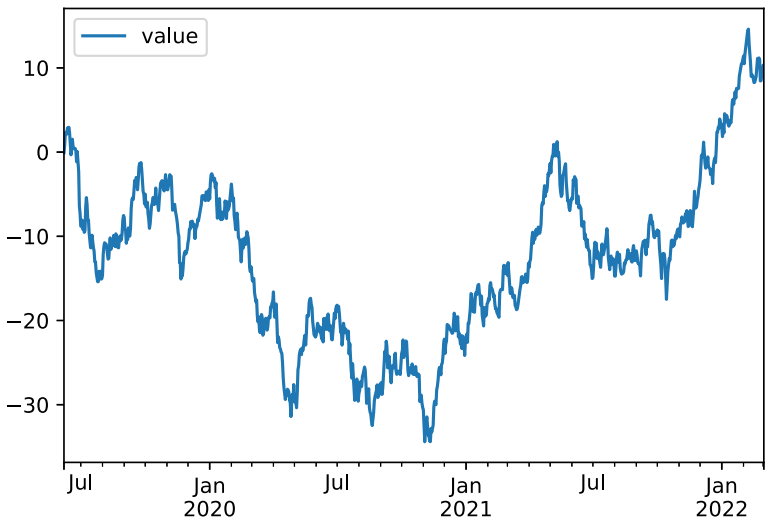
Out[7]:
```
[<matplotlib.lines.Line2D at 0x2538ece8>]
```





In [8]:
```
df.plot()
```

Out[8]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x25a54f70>
```



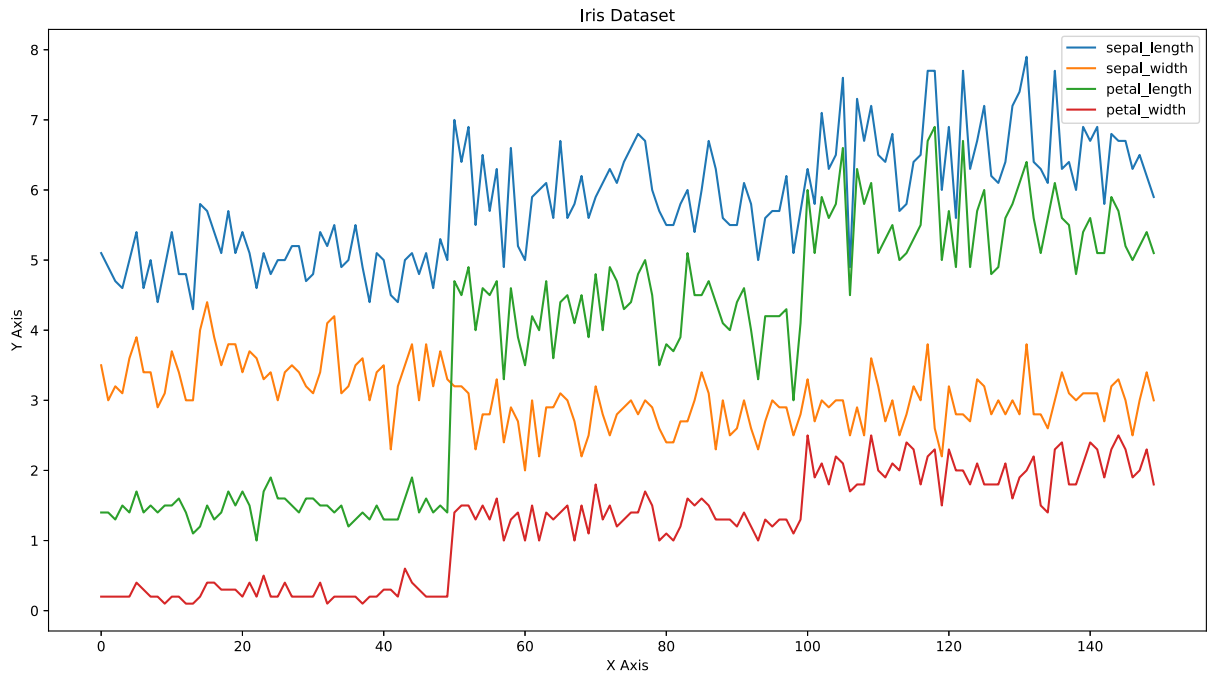
In [9]:
```
iris = sns.load_dataset('iris')
iris.head()
```

Out[9]:

	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

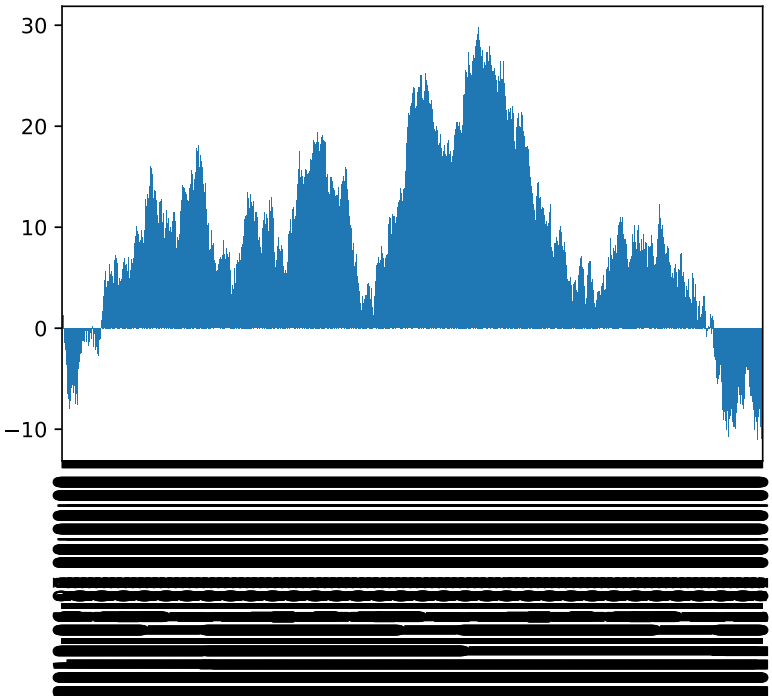
In [10]:
```
ax = iris.plot(figsize=(15,8),title="Iris Dataset")
ax.set_xlabel('X Axis')
ax.set_ylabel('Y Axis')
```

Out[10]:
```
Text(0, 0.5, 'Y Axis')
```



In [11]:
```
ts.plot(kind = 'bar')
```

Out[11]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x25b114f0>
```



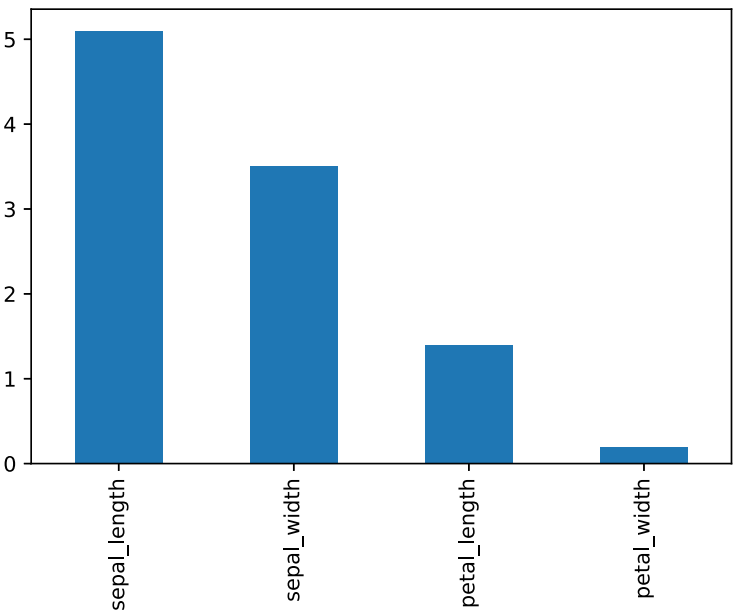
In [12]:
```
df = iris.drop(['species'],axis=1)
df.head()
```

Out[12]:

	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

In [13]:
```
## Same Result
# df.iloc[0].plot(kind='bar')
df.iloc[0].plot.bar()
```

Out[13]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x25b1f730>
```



In [14]:
```
titanic = sns.load_dataset('titanic')
titanic.head()
```

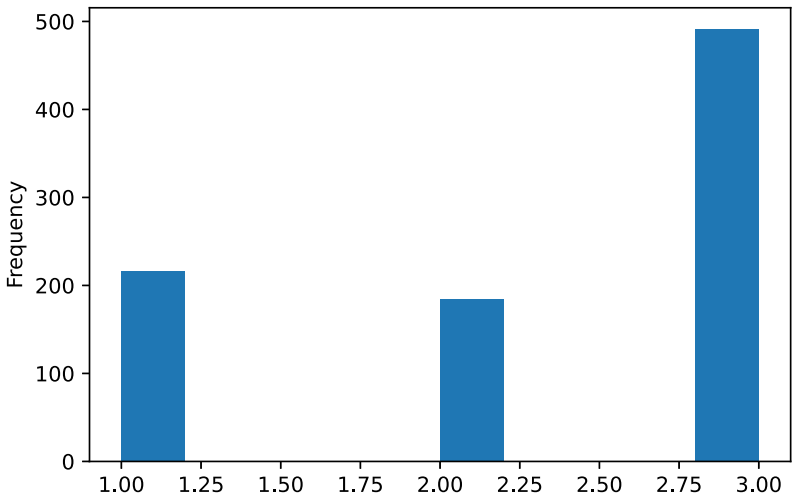
Out[14]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	embark_town

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

In [15]:
```
# titanic['pclass'].plot(kind='bar')  # Too Dense
titanic['pclass'].plot(kind='hist')
```

Out[15]: <matplotlib.axes._subplots.AxesSubplot at 0x26886880>



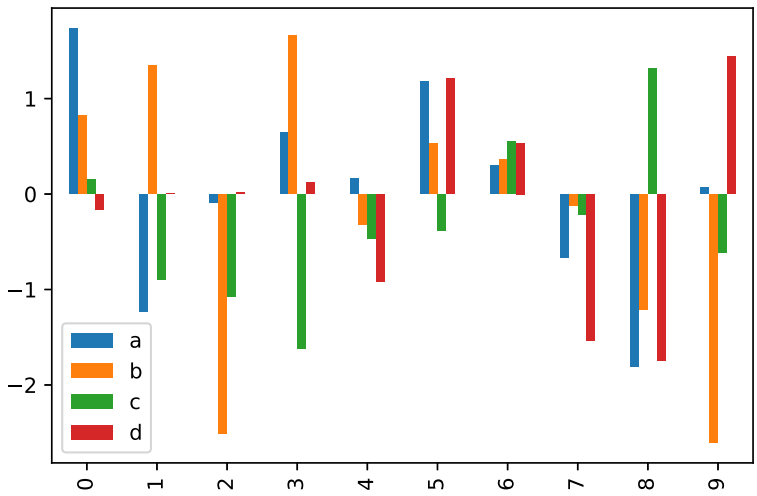
In [16]:
```
df =pd.DataFrame(randn(10,4),columns=['a','b','c','d'])
df.head()
```

Out[16]:

	a	b	c	d
0	1.731810	0.820223	0.148647	-0.163526
1	-1.235545	1.345377	-0.895509	0.001187
2	-0.092366	-2.511320	-1.078872	0.015677
3	0.644796	1.657930	-1.621722	0.124866
4	0.159099	-0.314360	-0.470257	-0.912141

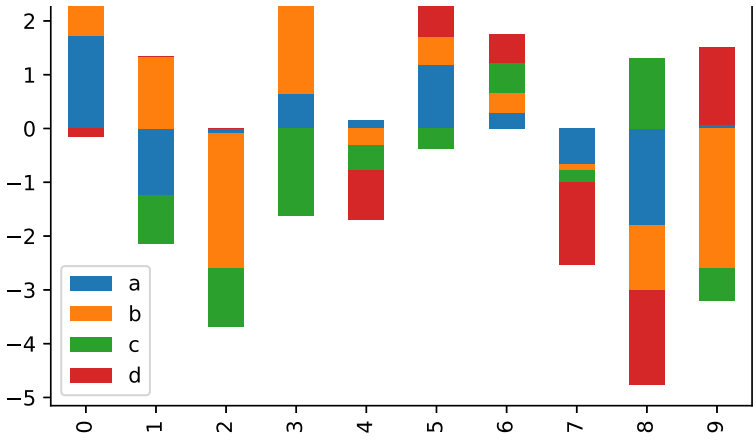
In [17]:
```
df.plot.bar()
```

Out[17]: <matplotlib.axes._subplots.AxesSubplot at 0x2674e8c8>



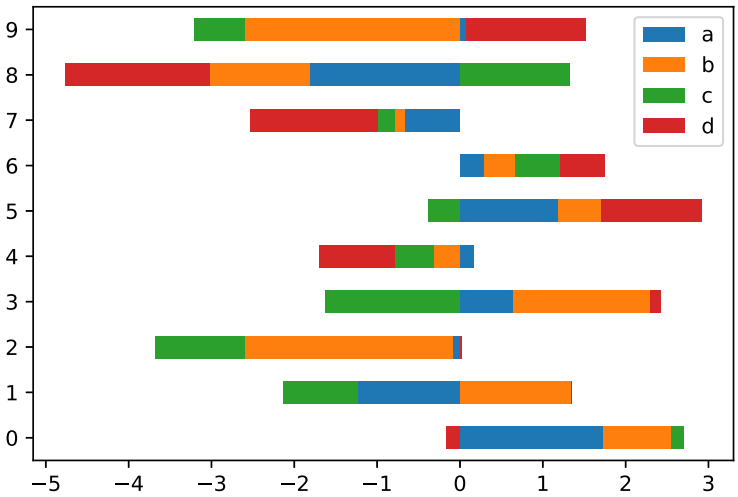
In [18]:
```
df.plot(kind='bar',stacked=True)
```

Out[18]: <matplotlib.axes._subplots.AxesSubplot at 0x279646b8>



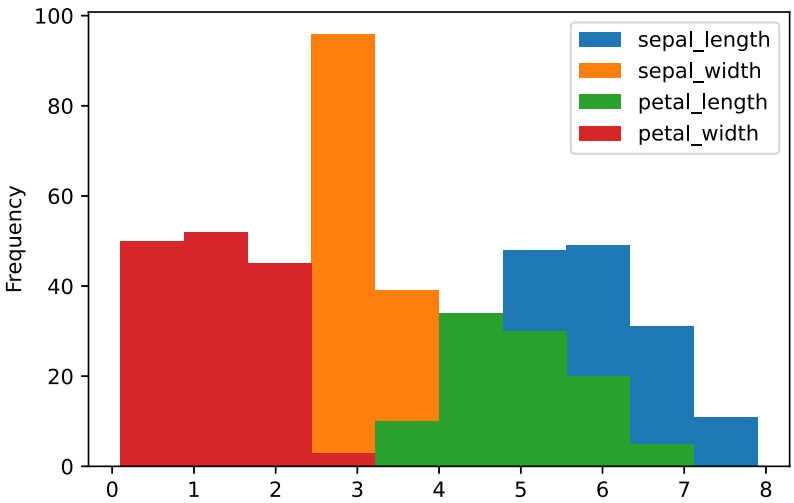
In [19]:
```
df.plot.barh(stacked=True)
```

Out[19]: <matplotlib.axes._subplots.AxesSubplot at 0x27987fa0>



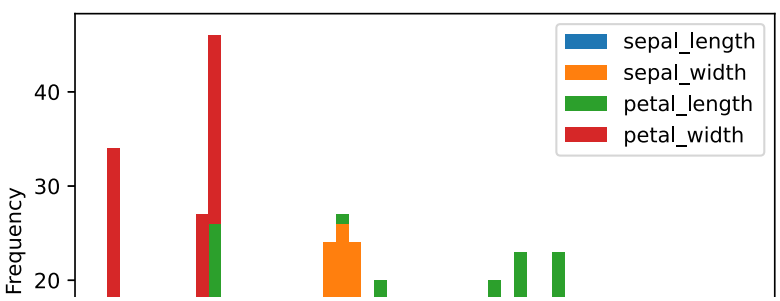
In [20]:
```
# iris.plot.hist()
iris.plot(kind='hist')
```

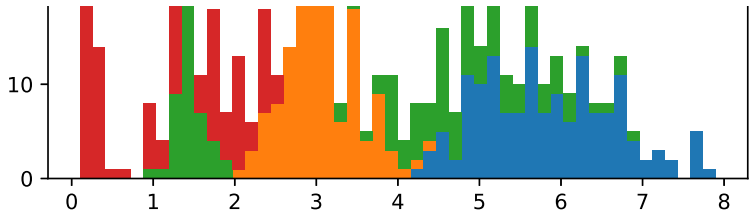
Out[20]: <matplotlib.axes._subplots.AxesSubplot at 0x27a4e4c0>



In [21]:
```
iris.plot(kind='hist',stacked = True,bins= 50)
```

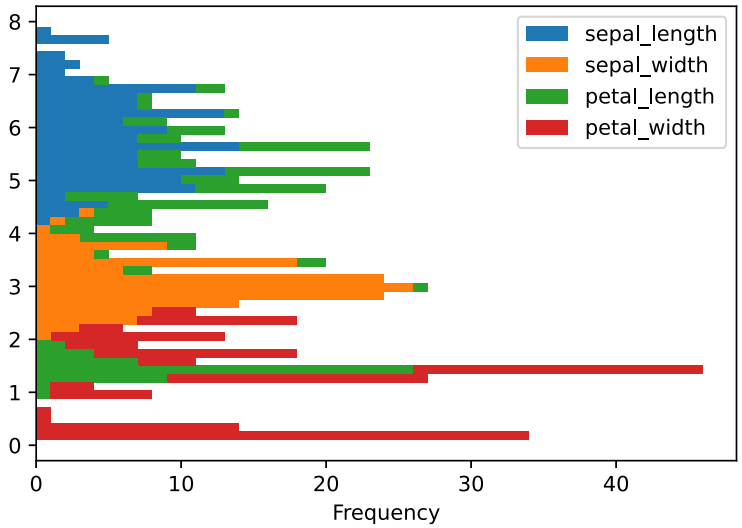
Out[21]: <matplotlib.axes._subplots.AxesSubplot at 0x28b8bac0>





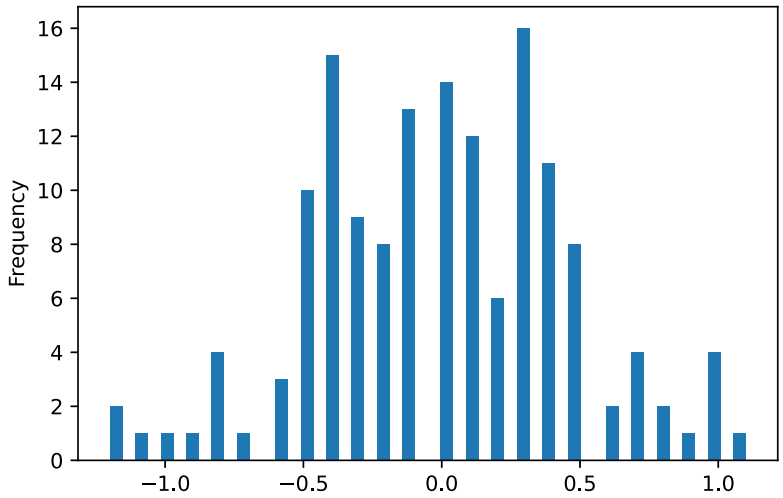
In [22]:
```
iris.plot(kind='hist',stacked = True,bins= 50,orientation='horizontal')
```

Out[22]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2864fcb8>
```



In [23]:
```
iris['sepal_width'].diff().plot(kind='hist',stacked = True,bins= 50)
```

Out[23]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2873b388>
```



In [24]:
```
df = iris.drop(['species'],axis=1)
```

In [25]:
```
df.diff()
```

Out[25]:

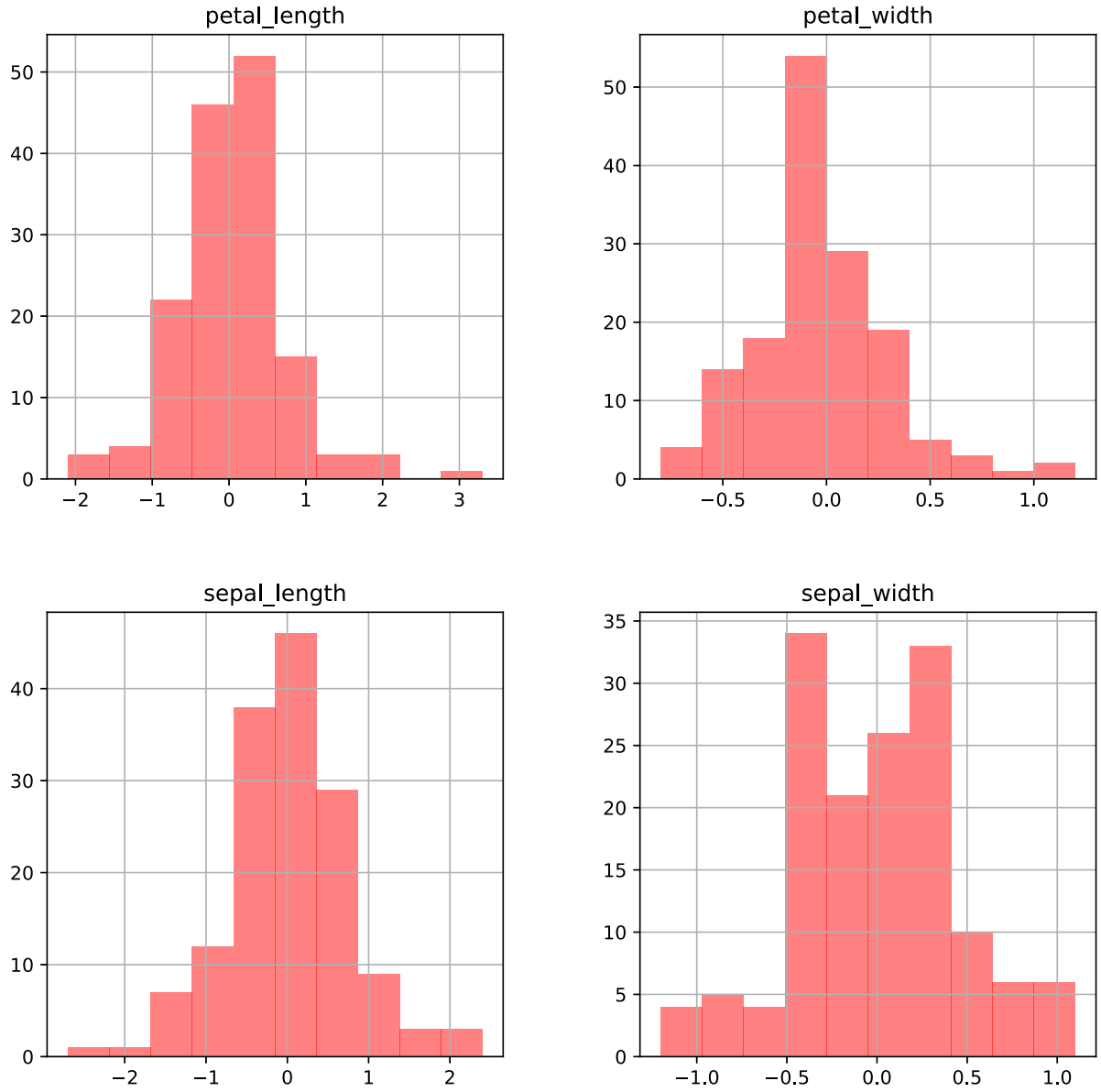
	sepal_length	sepal_width	petal_length	petal_width
0	NaN	NaN	NaN	NaN
1	-0.2	-0.5	0.0	0.0
2	-0.2	0.2	-0.1	0.0
3	-0.1	-0.1	0.2	0.0
4	0.4	0.5	-0.1	0.0
...	...	...	...	...
145	0.0	-0.3	-0.5	-0.2
146	-0.4	-0.5	-0.2	-0.4
147	0.2	0.5	0.2	0.1
148	-0.3	0.4	0.2	0.3

149	-0.3	-0.4	-0.3	-0.5

150 rows × 4 columns

In [26]:
```
df.diff().hist(color='r',alpha=0.5,figsize=(10,10))
```

Out[26]:
```
array([[<matplotlib.axes._subplots.AxesSubplot object at 0x289D38F8>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x285AD6B8>],
       [<matplotlib.axes._subplots.AxesSubplot object at 0x2861F958>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x2875EC58>]],
      dtype=object)
```

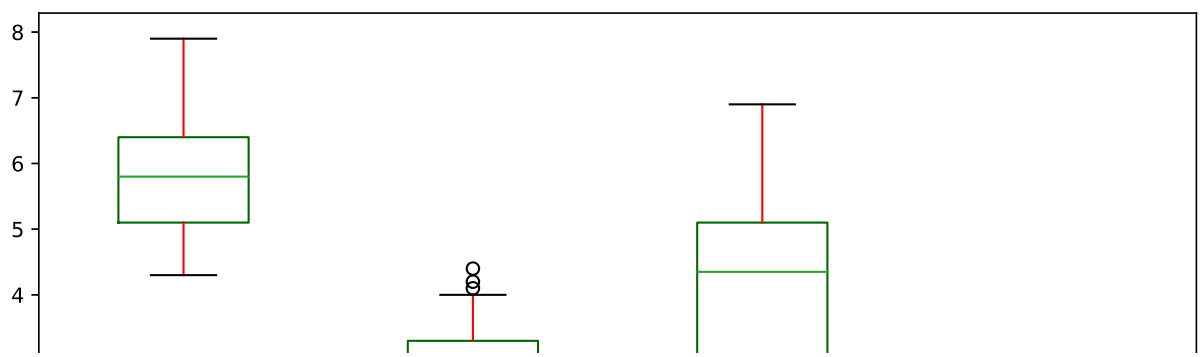


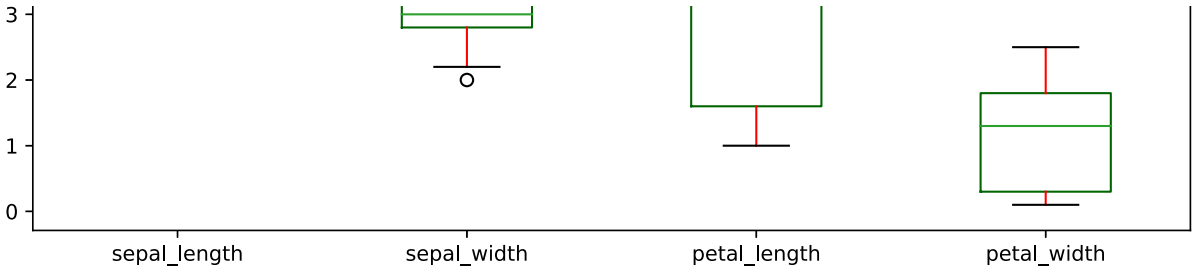
In [27]:
```
color = {'boxes': 'DarkGreen' ,'whiskers':'r'}
color
```

Out[27]:
```
{'boxes': 'DarkGreen', 'whiskers': 'r'}
```

In [28]:
```
df.plot(kind='box',figsize=(10,5),color=color)
```

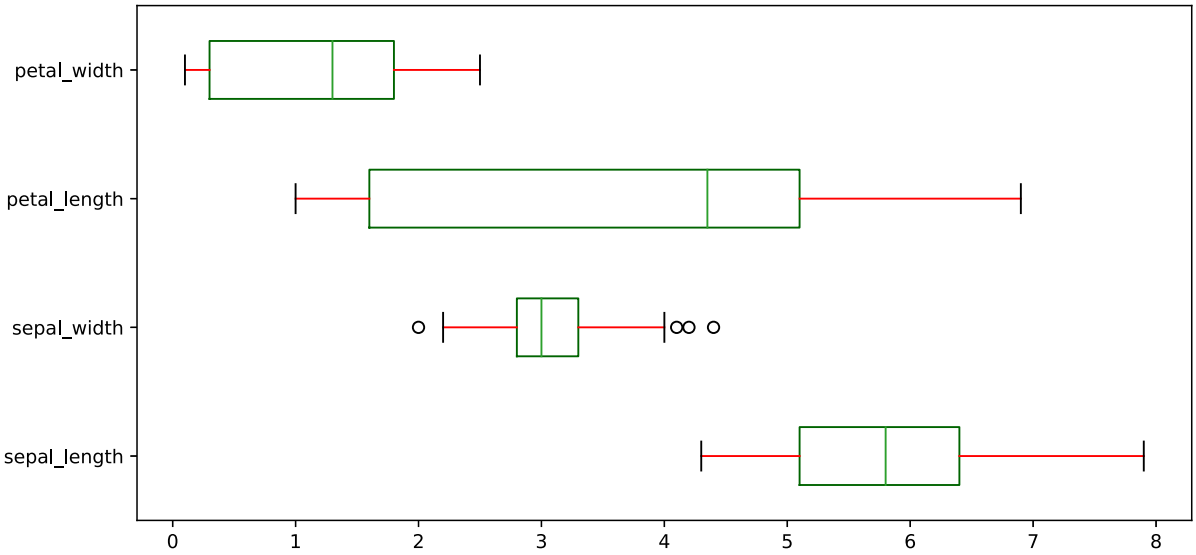
Out[28]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x28505370>
```





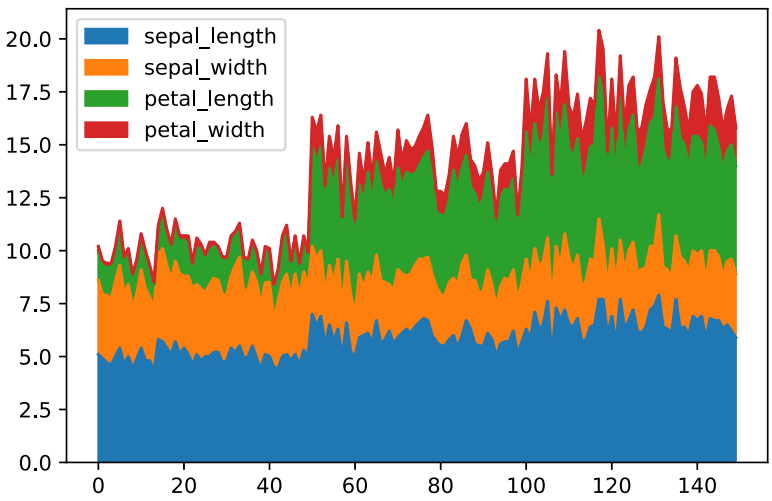
In [29]:
```
df.plot(kind='box',figsize=(10,5),color=color,vert=False)
```

Out[29]: <matplotlib.axes._subplots.AxesSubplot at 0x28930808>



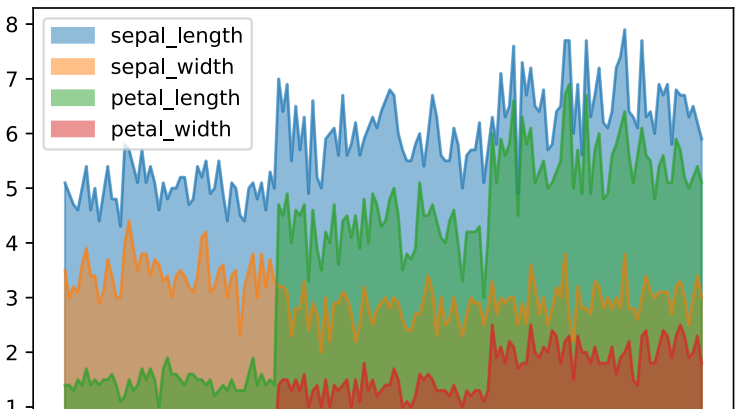
In [30]:
```
# df.plot.(kind='area')
df.plot.area()
```

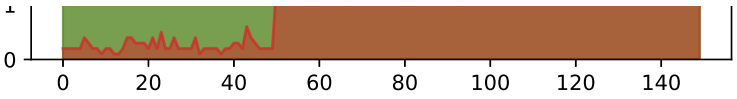
Out[30]: <matplotlib.axes._subplots.AxesSubplot at 0x28c0fe68>



In [31]:
```
df.plot.area(stacked=False)
```

Out[31]: <matplotlib.axes._subplots.AxesSubplot at 0x289389e8>

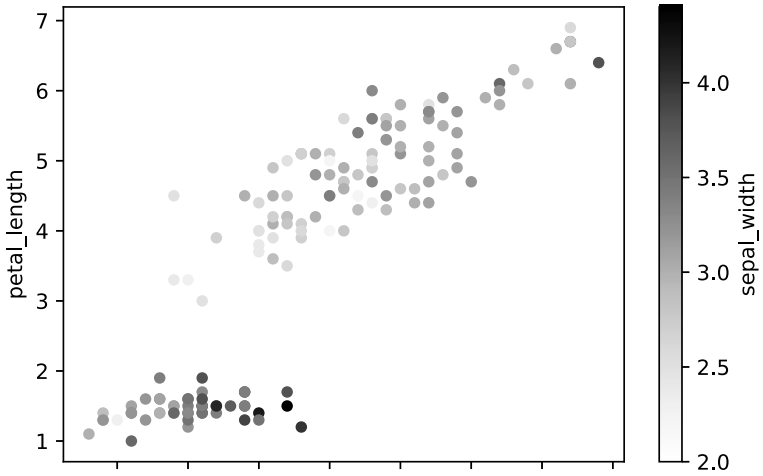




In [ ]:
```
df.plot.scatter(x='sepal_length',y='petal_length')
```

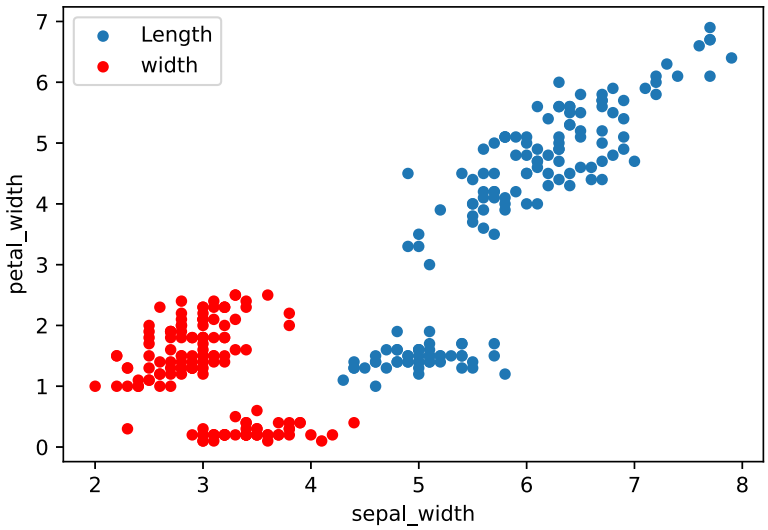
In [34]:
```
df.plot.scatter(x='sepal_length',y='petal_length',c='sepal_width')
```

Out[34]: <matplotlib.axes._subplots.AxesSubplot at 0x290a9df0>



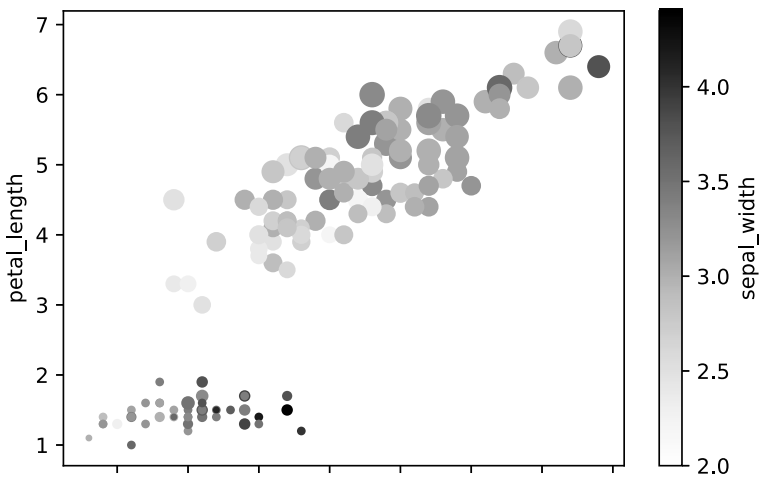
In [35]:
```
ax = df.plot.scatter(x='sepal_length',y='petal_length',label='Length')
df.plot.scatter(x='sepal_width',y='petal_width',label='width',ax=ax,color='r')
```

Out[35]: <matplotlib.axes._subplots.AxesSubplot at 0x29115040>



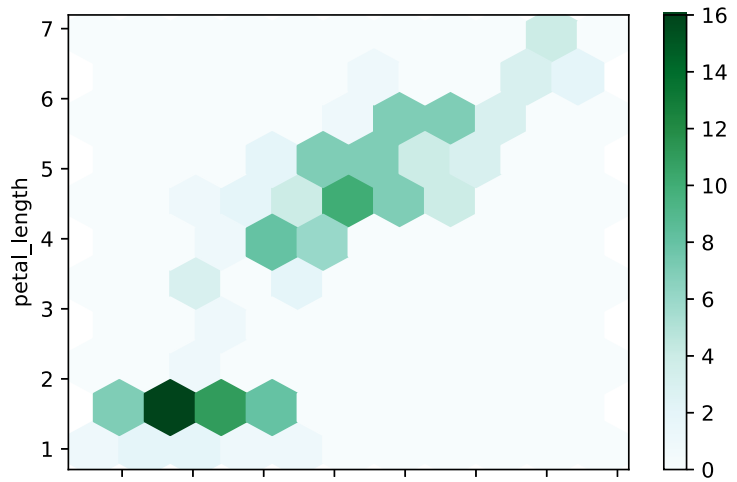
In [36]:
```
df.plot.scatter(x='sepal_length',y='petal_length',c='sepal_width',s=df['petal_width']*50)
```

Out[36]: <matplotlib.axes._subplots.AxesSubplot at 0x29147b98>



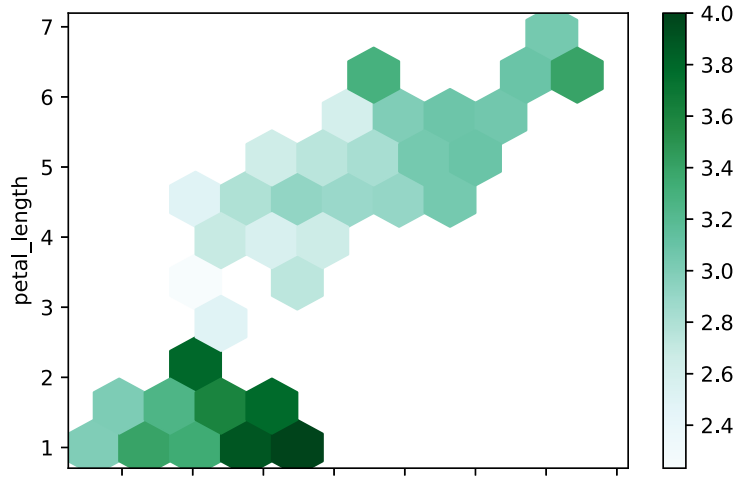
In [37]:
```
df.plot.hexbin(x='sepal_length',y='petal_length',gridsize=10)
```

Out[37]: <matplotlib.axes._subplots.AxesSubplot at 0x286cd610>



In [38]:
```
df.plot.hexbin(x='sepal_length',y='petal_length',gridsize=10,C='sepal_width')
```

Out[38]: <matplotlib.axes._subplots.AxesSubplot at 0x2918cac0>

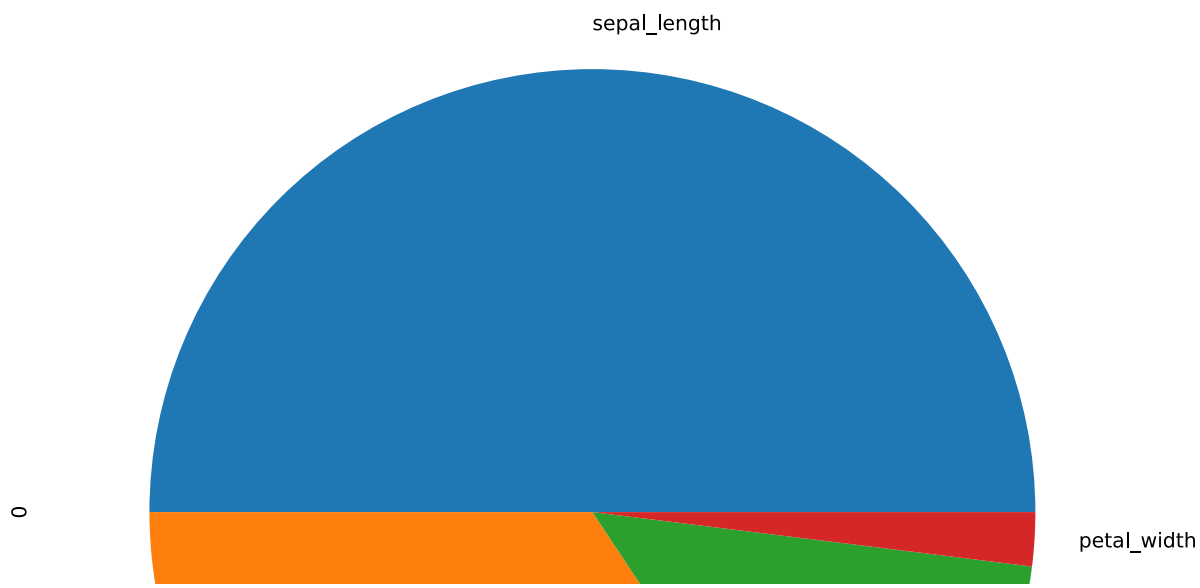


In [39]:
```
d = df.iloc[0]
d
```

Out[39]:
```
sepal_length    5.1
sepal_width     3.5
petal_length    1.4
petal_width     0.2
Name: 0, dtype: float64
```

In [41]:
```
d.plot.pie(figsize=(10,10))
```

Out[41]: <matplotlib.axes._subplots.AxesSubplot at 0x29c8faa8>



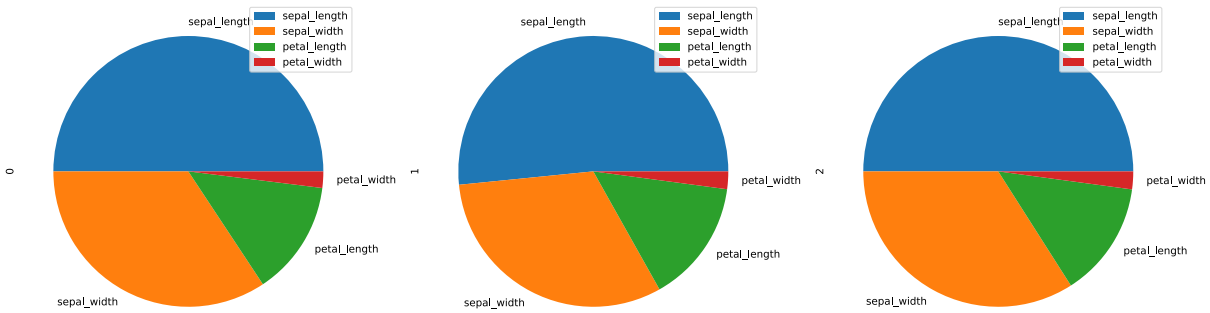
In [51]:
```
d = df.head(3).T
d
```

Out[51]:

	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

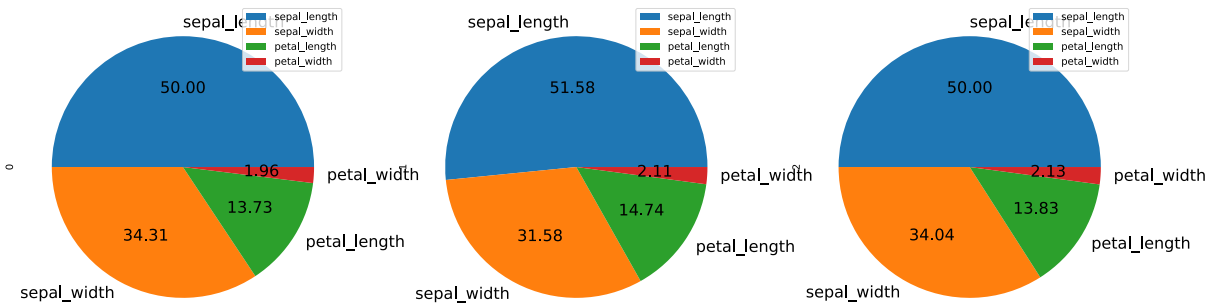
In [52]:
```
d.plot.pie(subplots=True,figsize=(20,20))
```

Out[52]:
```
array([<matplotlib.axes._subplots.AxesSubplot object at 0x2AB8E448>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x2ABA2940>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x2ABA28E0>],
      dtype=object)
```



In [53]:
```
d.plot.pie(subplots=True,figsize=(20,20),fontsize=16,autopct='%.2f')
```

Out[53]:
```
array([<matplotlib.axes._subplots.AxesSubplot object at 0x2C1F7EF8>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x2C1C25B0>,
       <matplotlib.axes._subplots.AxesSubplot object at 0x2C1E89D0>],
      dtype=object)
```

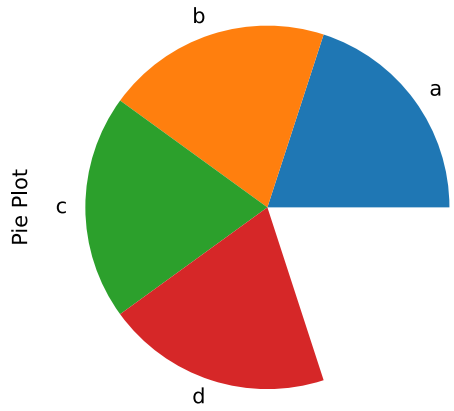


In [54]:
```
[0.1]*4
```

Out[54]:
```
[0.1, 0.1, 0.1, 0.1]
```

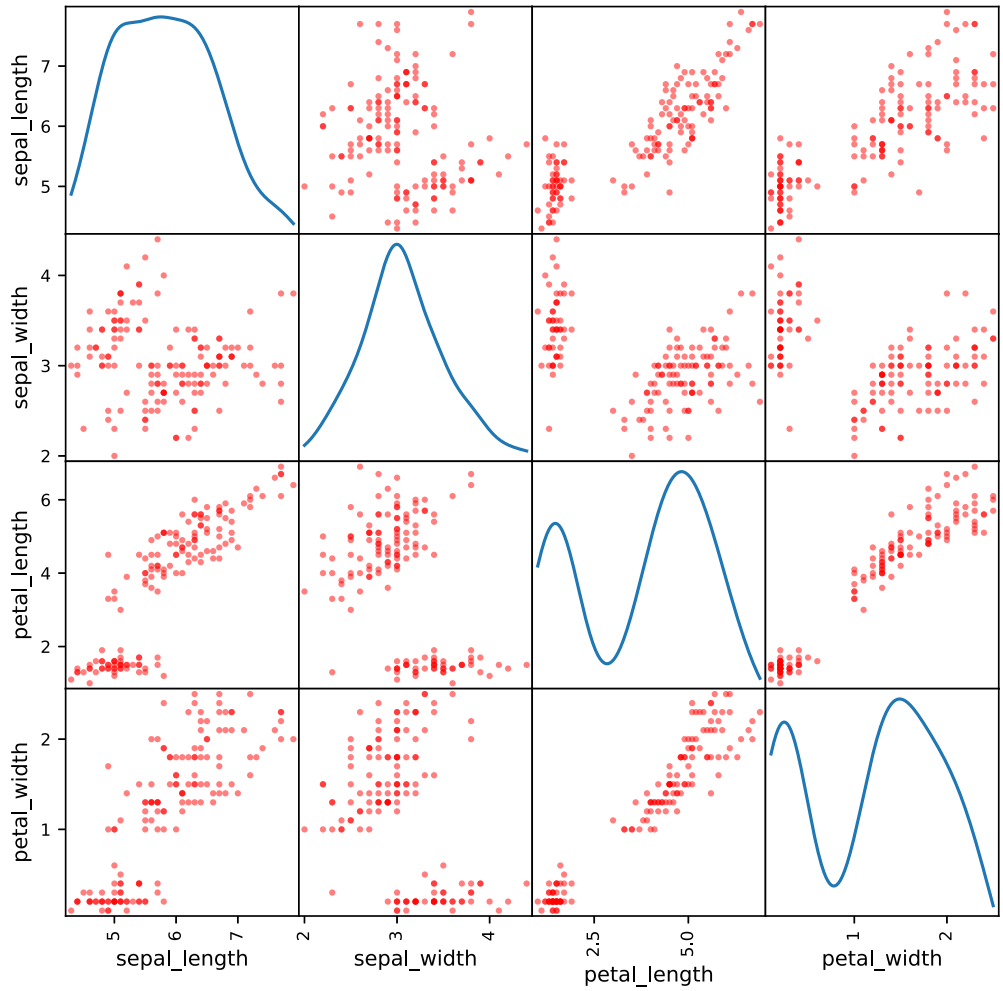
In [56]:
```
series = pd.Series([0.2]*4,index=['a','b','c','d'],name='Pie Plot')
series.plot.pie()
```

Out[56]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x29758c70>
```



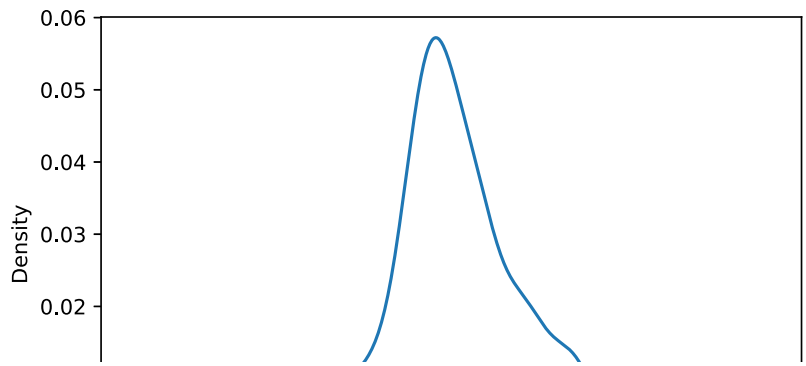
In [57]:
```
from pandas.plotting import scatter_matrix
```

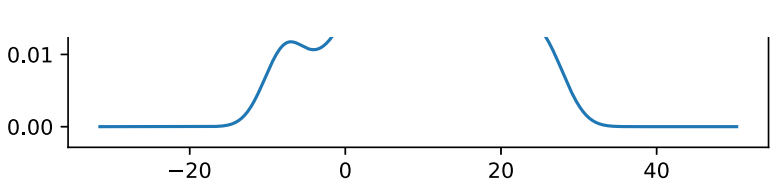
In [61]:
```
scatter_matrix(df,figsize=(8,8),diagonal='kde',color='r')
plt.show()
```



In [62]:
```
ts.plot.kde()
```

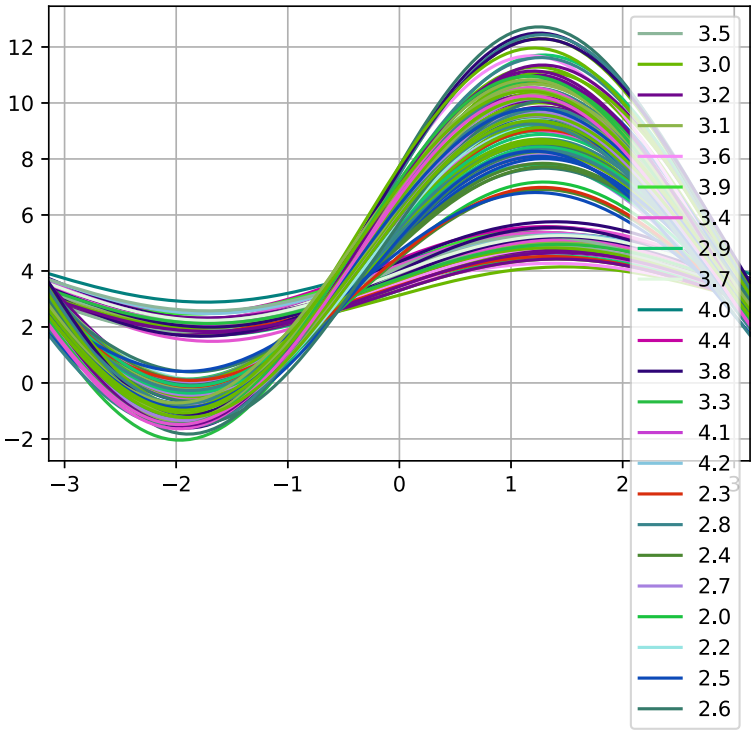
Out[62]: `<matplotlib.axes._subplots.AxesSubplot at 0x2e3ebbf8>`





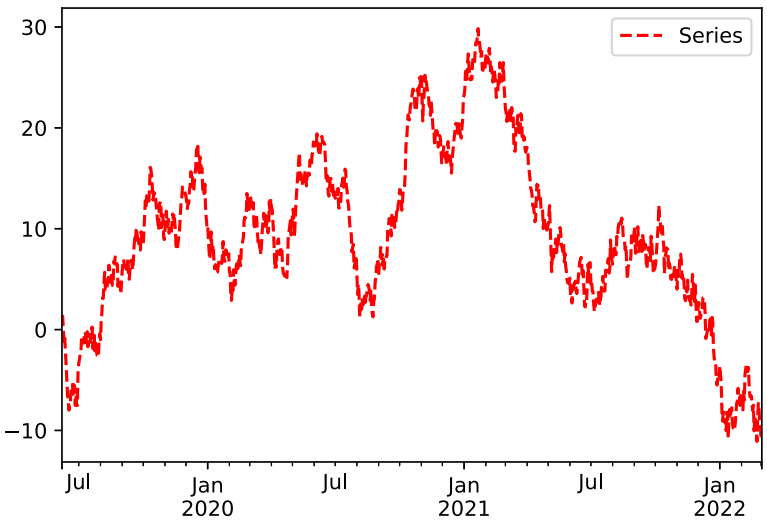
In [63]:
```
from pandas.plotting import andrews_curves
andrews_curves(df,'sepal_width')
```

Out[63]: <matplotlib.axes._subplots.AxesSubplot at 0x2e468e38>



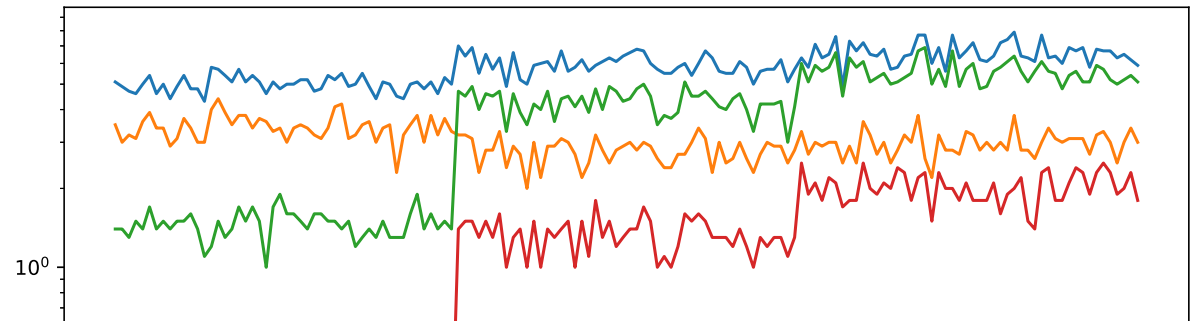
In [64]:
```
ts.plot(style='r--',label='Series',legend=True)
```

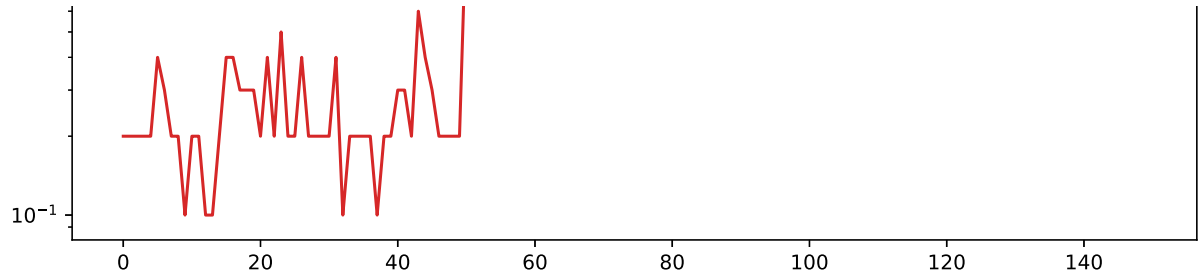
Out[64]: <matplotlib.axes._subplots.AxesSubplot at 0x2e750538>



In [66]:
```
df.plot(legend=False,figsize=(10,5),logy=True)
```

Out[66]: <matplotlib.axes._subplots.AxesSubplot at 0x2f8ff640>





In [67]:
```
df.head()
```

Out[67]:

	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

In [68]:
```
x = df.drop(['sepal_width','petal_width'],axis=1)
x.head()
```

Out[68]:

	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

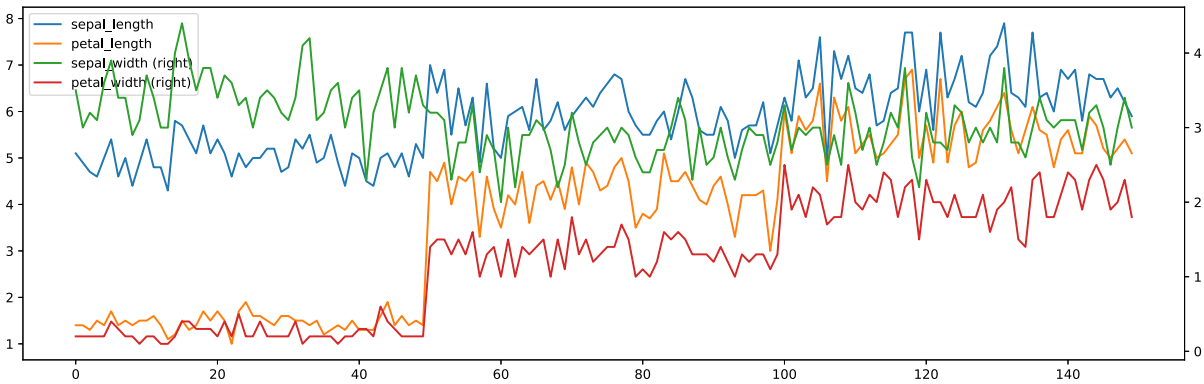
In [69]:
```
y = df.drop(['sepal_length','petal_length'],axis=1)
y.head()
```

Out[69]:

	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

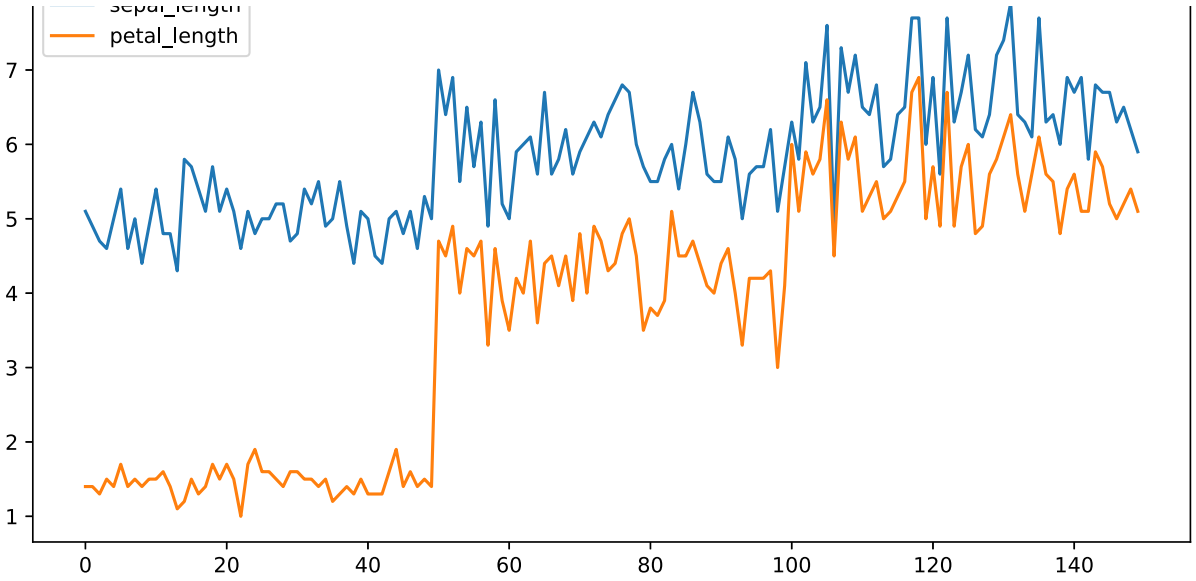
In [73]:
```
ax = x.plot()
y.plot(figsize=(16,5),secondary_y=True,ax=ax)
```

Out[73]: `<matplotlib.axes._subplots.AxesSubplot at 0x2e764370>`

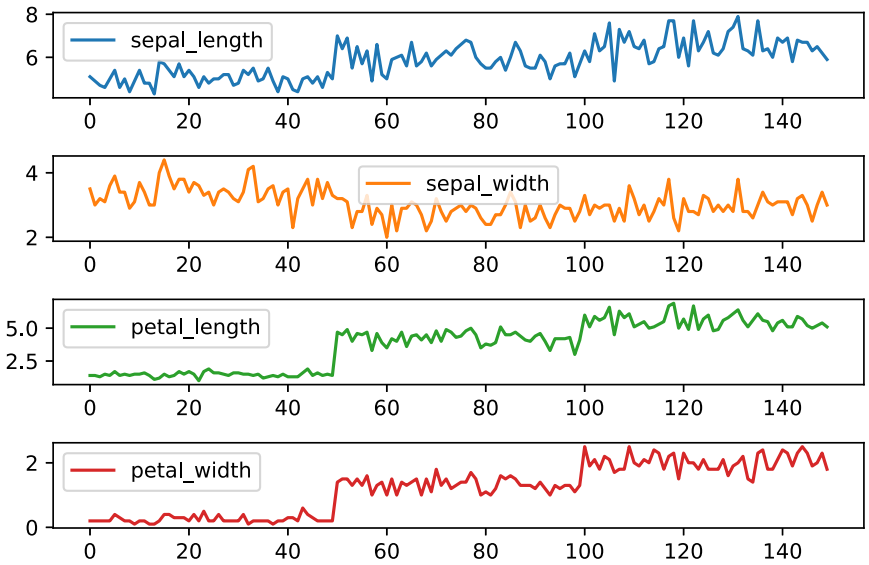


In [74]:
```
x.plot(figsize=(10,5),x_compat=True)
```

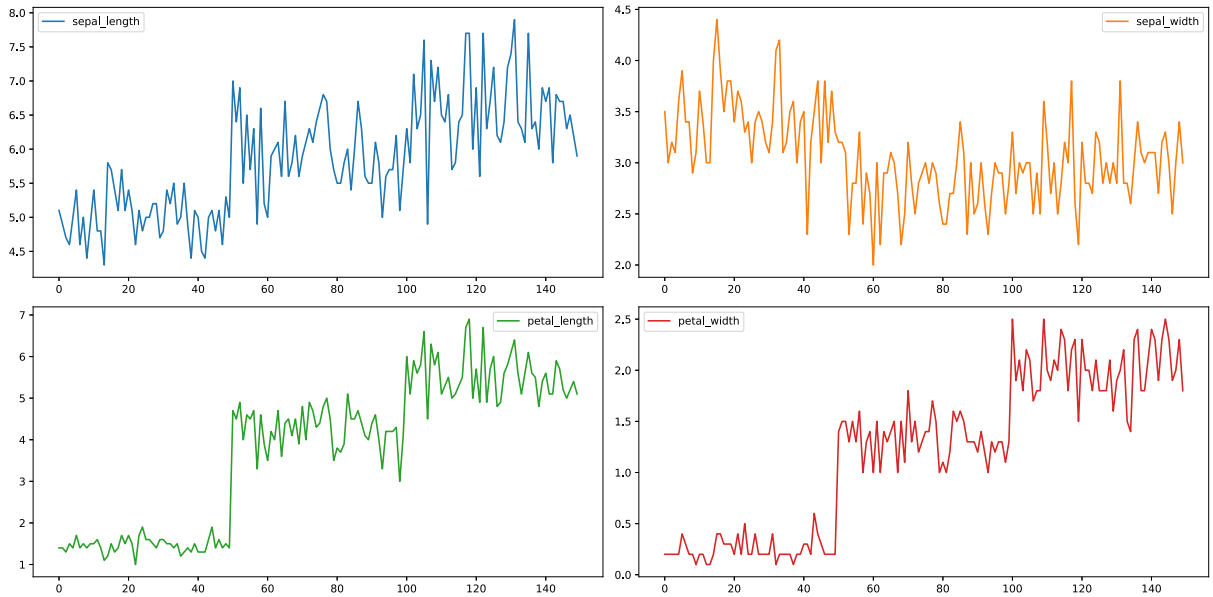
Out[74]: `<matplotlib.axes._subplots.AxesSubplot at 0x2e3e3bc8>`



In [79]:
```
# df.plot(subplots=True,sharex = True)
df.plot(subplots=True,sharex = False)
plt.tight_layout()
```



In [81]:
```
df.plot(subplots=True,sharex = False,layout=(2,2),figsize=(16,8))
plt.tight_layout()
```



In [ ]: