PANDAS BUILT-IN DATA VISUALIZATION

In [2]:

```python
import matplotlib.pyplot as plt
```

In [3]:

```python
import pandas as pd
```

In [7]:

```python
data =pd.read_csv(r'C:\Users\hp\Desktop\pandas projecrs\Pandas Build in Visualization\iris.csv',index_col='I
```

In [8]:

```python
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 150 entries, 1 to 150
Data columns (total 5 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   SepalLengthCm  150 non-null    float64
 1   SepalWidthCm   150 non-null    float64
 2   PetalLengthCm  150 non-null    float64
 3   PetalWidthCm   150 non-null    float64
 4   Species        150 non-null    object
dtypes: float64(4), object(1)
memory usage: 7.0+ KB
```

In [9]:
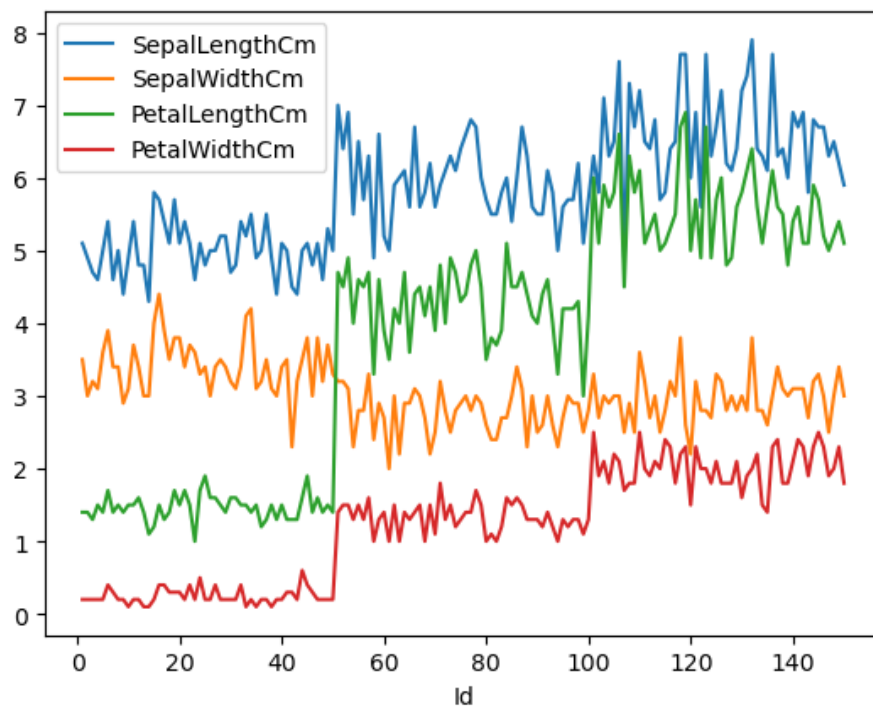
```python
data.head(5)
```

Out[9]:

Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
1	5.1	3.5	1.4	0.2	Iris-setosa
2	4.9	3.0	1.4	0.2	Iris-setosa
3	4.7	3.2	1.3	0.2	Iris-setosa
4	4.6	3.1	1.5	0.2	Iris-setosa
5	5.0	3.6	1.4	0.2	Iris-setosa

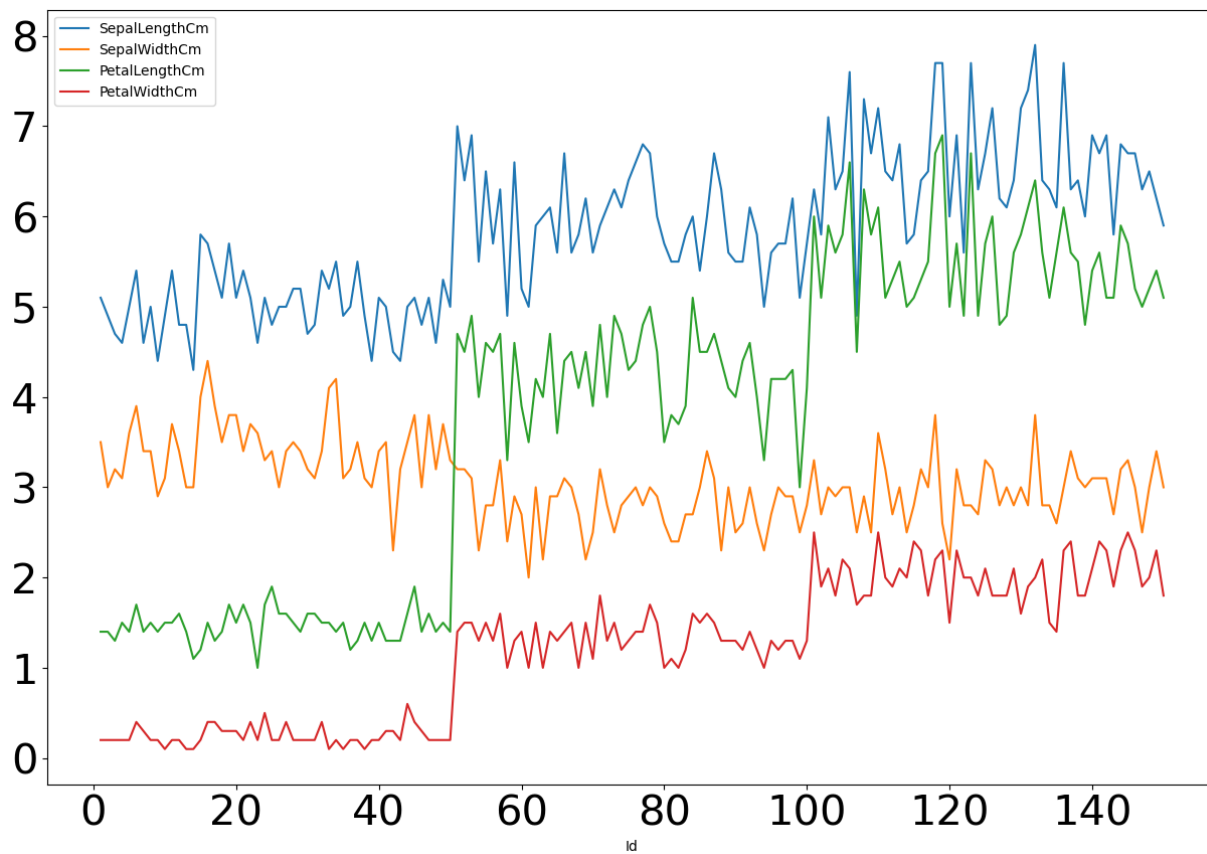# 1 . Draw a line plot for All Numerical Columns.

In [11]:

```
data.plot()
plt.show()
```


2 . Change Size of a Figure and font : Figure size :The width is 15 and height is 10 and font size : 10
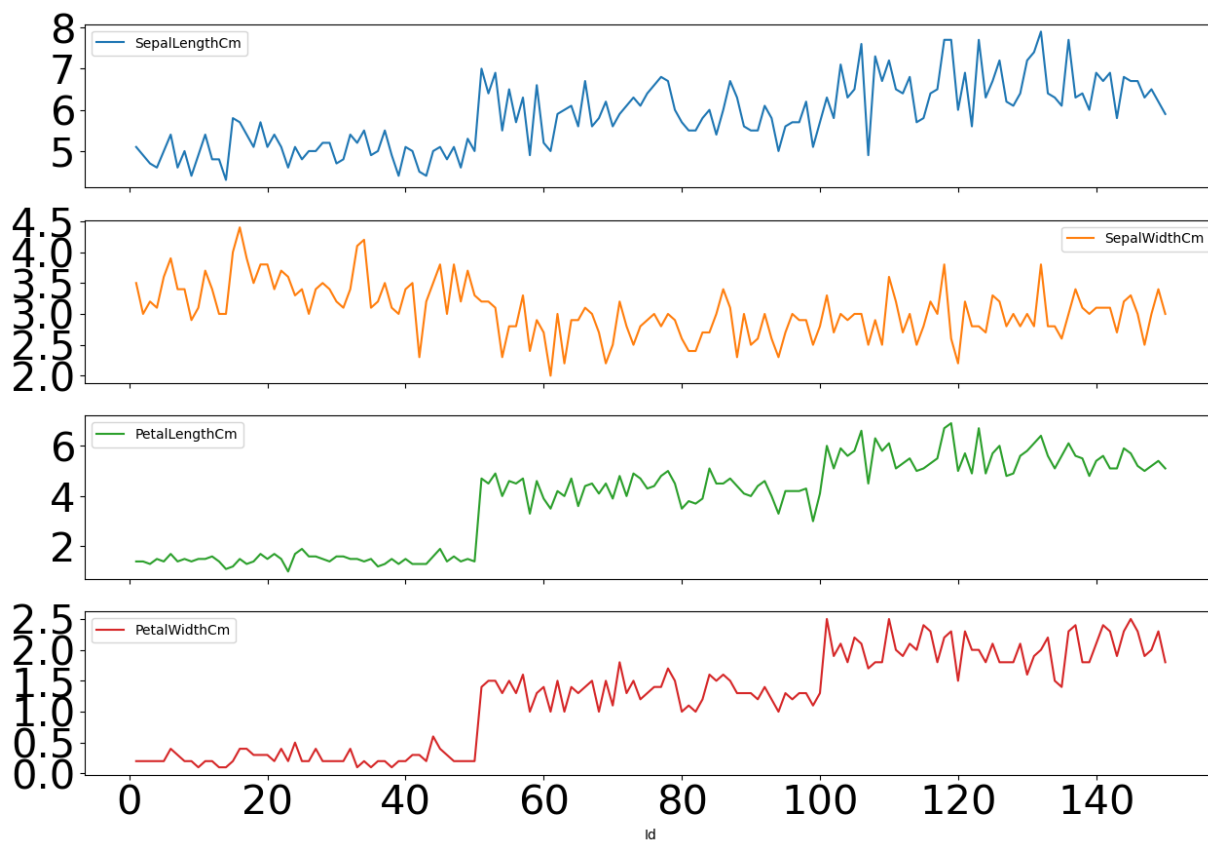
In [12]:

```python
data.plot(figsize=(15,10),fontsize=30)
plt.show()
```


3. Make Separate subplots for each column
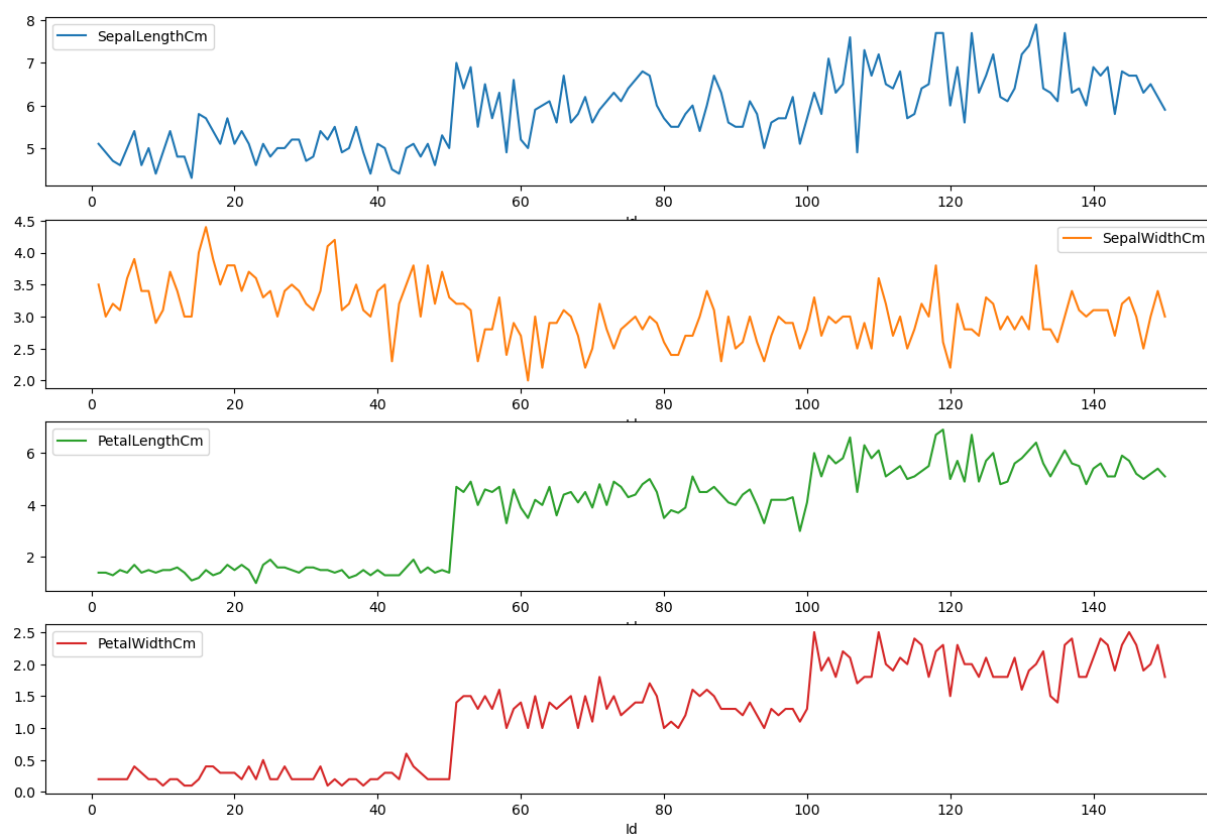
In [13]:

```python
data.plot(subplots=True,figsize=(15,10),fontsize=30)
plt.show()
```


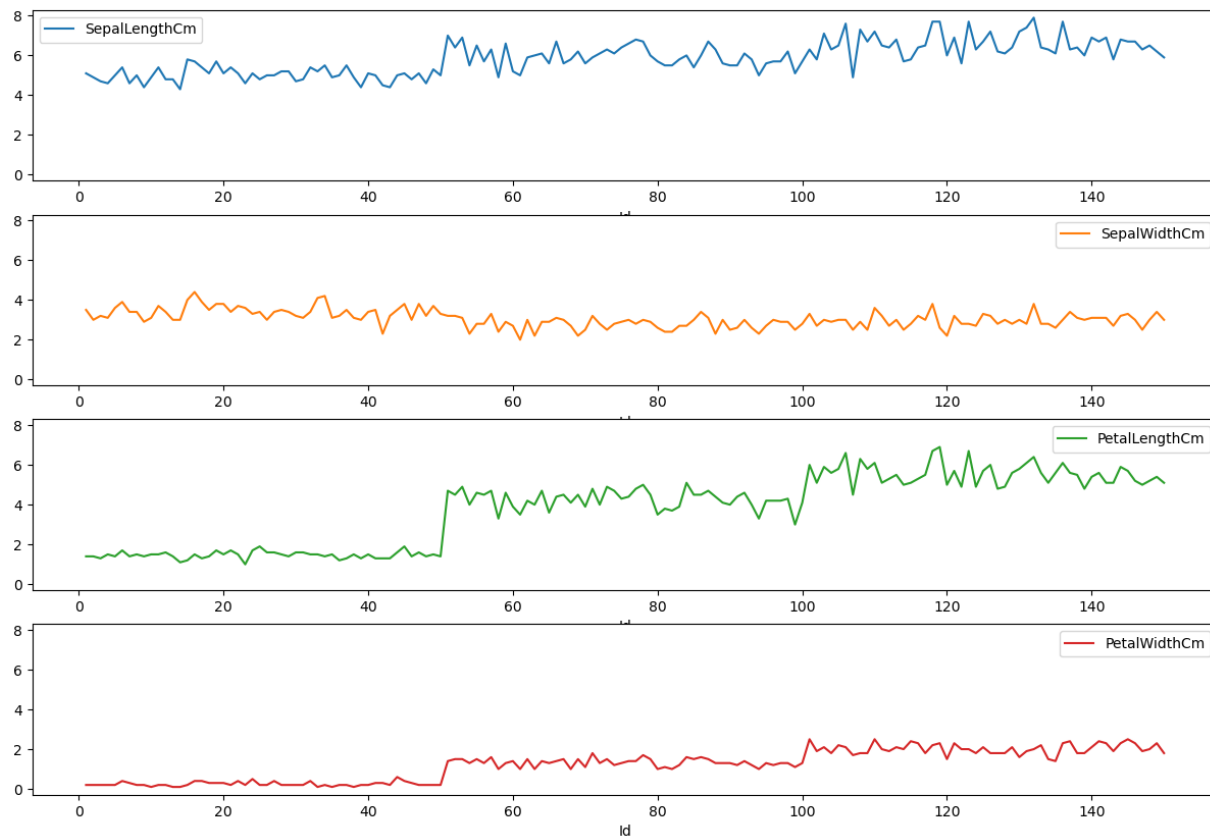# 4. Share X-Axis values with other Graphs .

In [14]:

```python
data.plot(subplots=True,figsize=(15,10),fontsize=10,sharex=False)
plt.show()
```


5. Share Y - Axis values with other Graphs .

In [15]:

```python
data.plot(subplots=True,figsize=(15,10),fontsize=10,sharex=False,sharey=True)
plt.show()
```


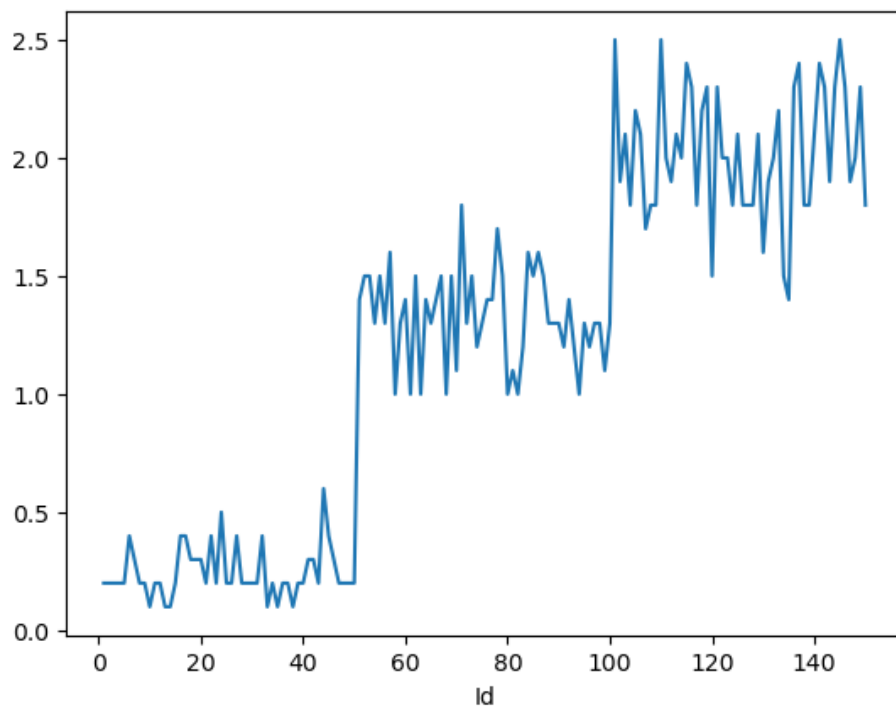## 6 . Draw the Line plot only for Petal Width column .

In [16]:

```python
data.columns
```

Out[16]:

```
Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [17]:
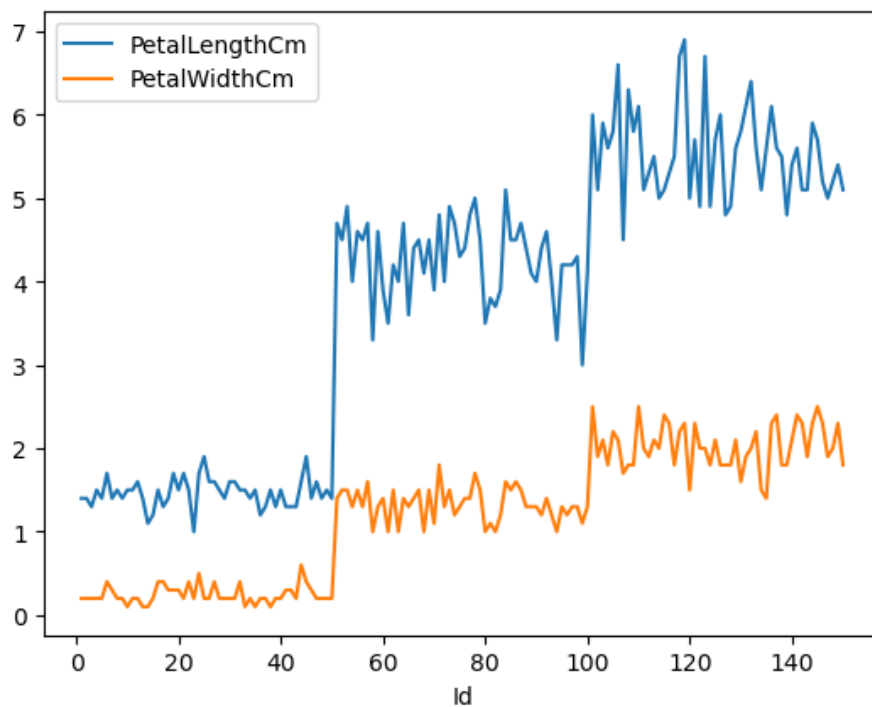
```python
data['PetalWidthCm'].plot()
plt.show()
```


In [18]:

```python
data[['PetalLengthCm','PetalWidthCm']].plot()
```

Out[18]:

```
<Axes: xlabel='Id'>
```
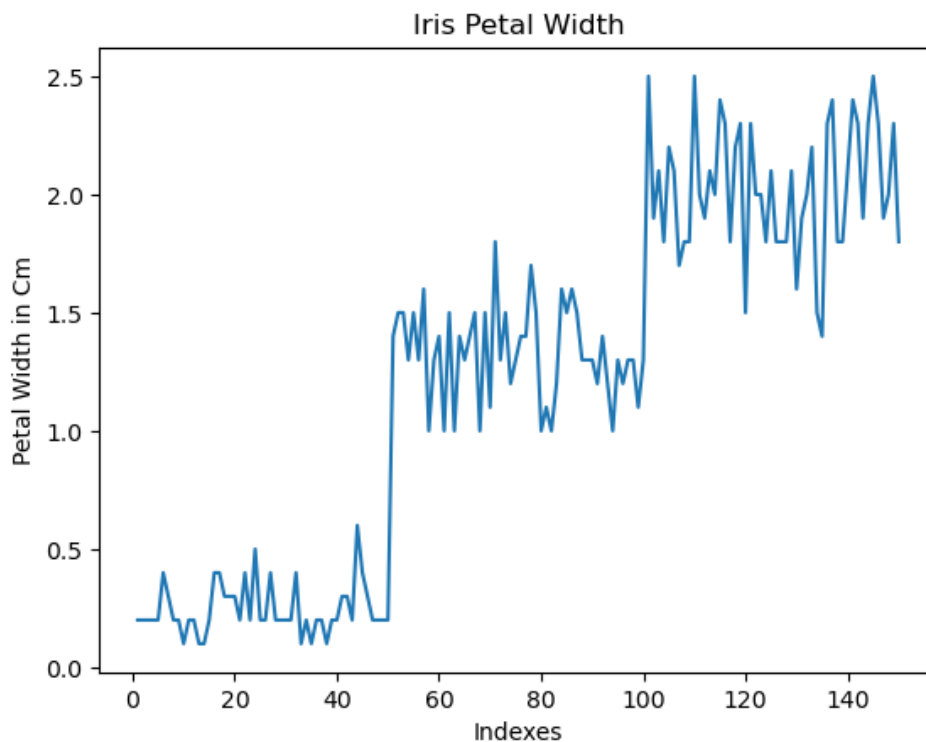

7. Add the Title and Labels To X-Axis and Y-Axis .

In [20]:

```python
data['PetalWidthCm'].plot(title="Iris Petal Width",
                          xlabel="Indexes",
                          ylabel="Petal Width in Cm")
plt.show()
```


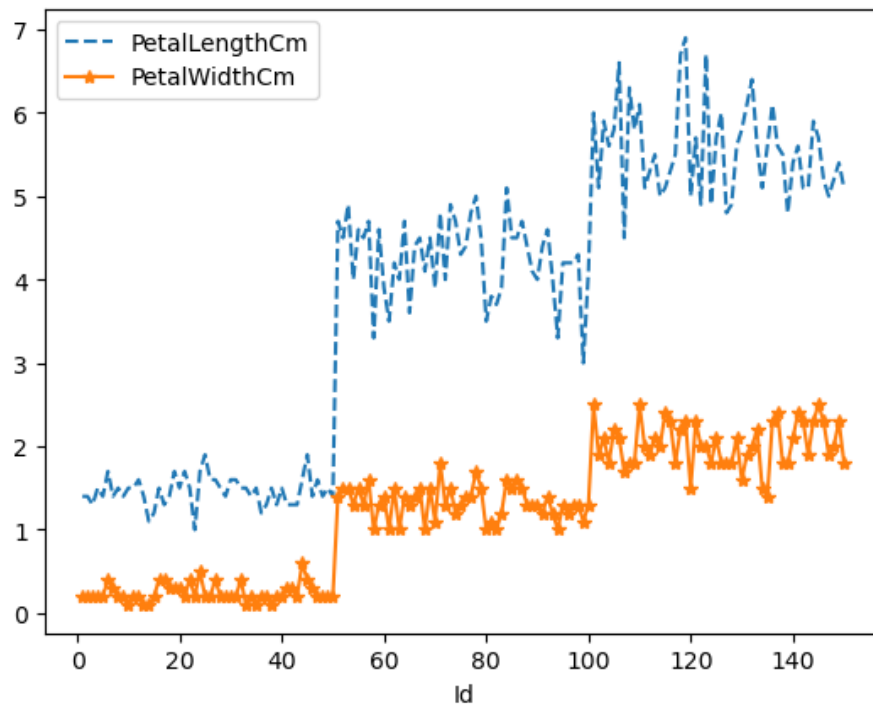## 8 . Draw the Line Plot for Petal Length and Petal width columns(Also change line style)

In [23]:

```python
data[['PetalLengthCm','PetalWidthCm']].plot(style=['--','*-'])
```
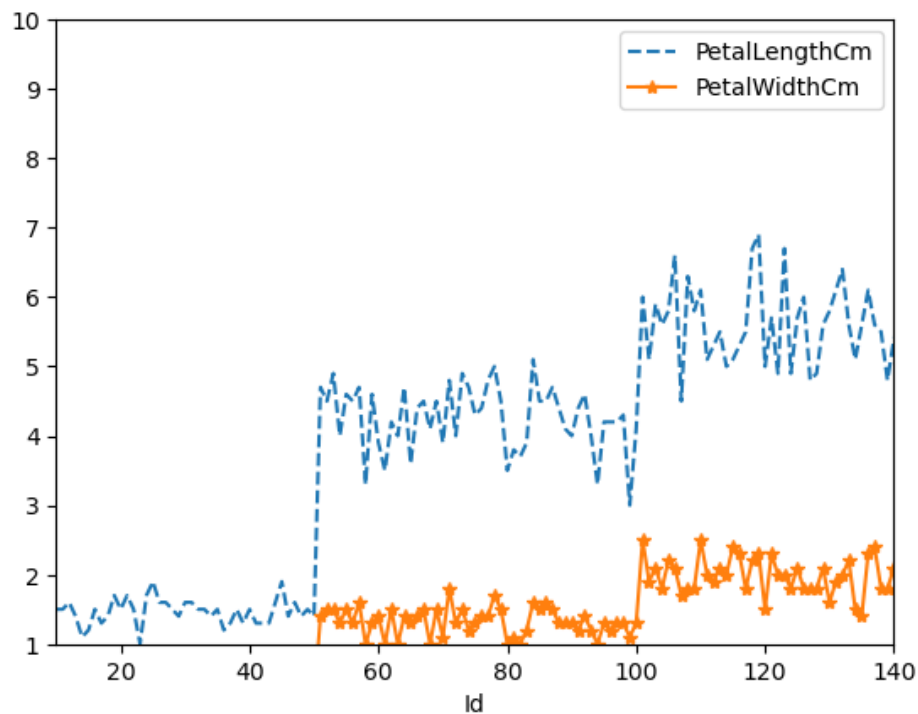
Out[23]:

```
<Axes: xlabel='Id'>
```


9. Draw the Line Plot for Petal Length and Petal width Column(Change limit of X and Y Axis).

In [26]:

```python
data[['PetalLengthCm','PetalWidthCm']].plot(style=['--','*-'],
                                            xlim=(10,140),
                                            ylim=(1,10))
```

Out[26]:

```
<Axes: xlabel='Id'>
```


10. X ticks and Y ticks

In [27]:

```python
x=[x for x in range(0,140,10)]
y=[y for y in range(0,10,3)]
```

In [28]:

```python
x
```

Out[28]:

```
[0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130]
```

In [29]:

```python
y
```

Out[29]:

```
[0, 3, 6, 9]
```
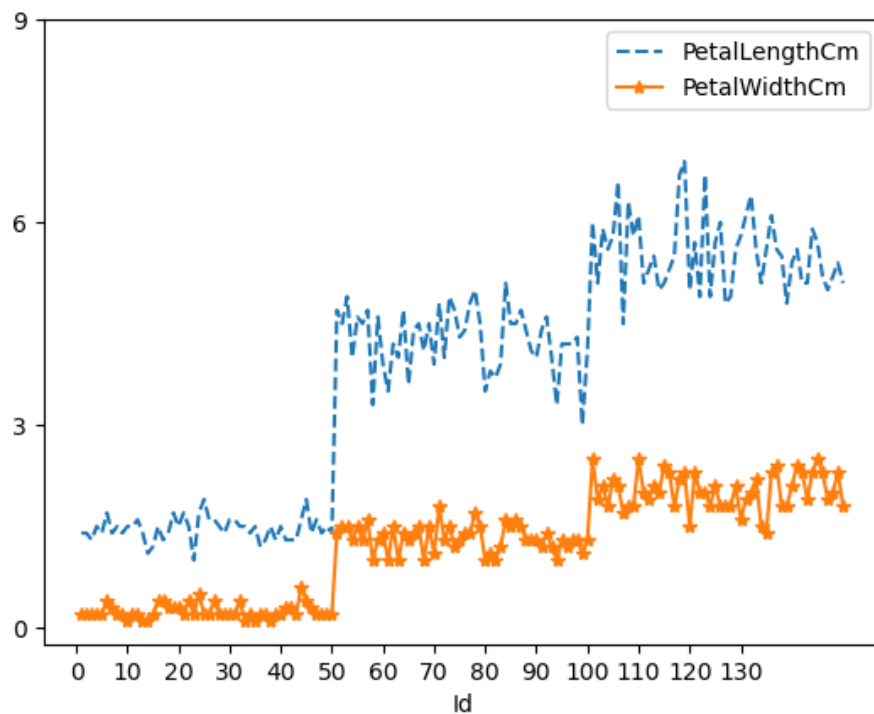
In [30]:

```python
data[['PetalLengthCm','PetalWidthCm']].plot(style=['--','*-'],
                                            xticks=x,
                                            yticks=y)
```
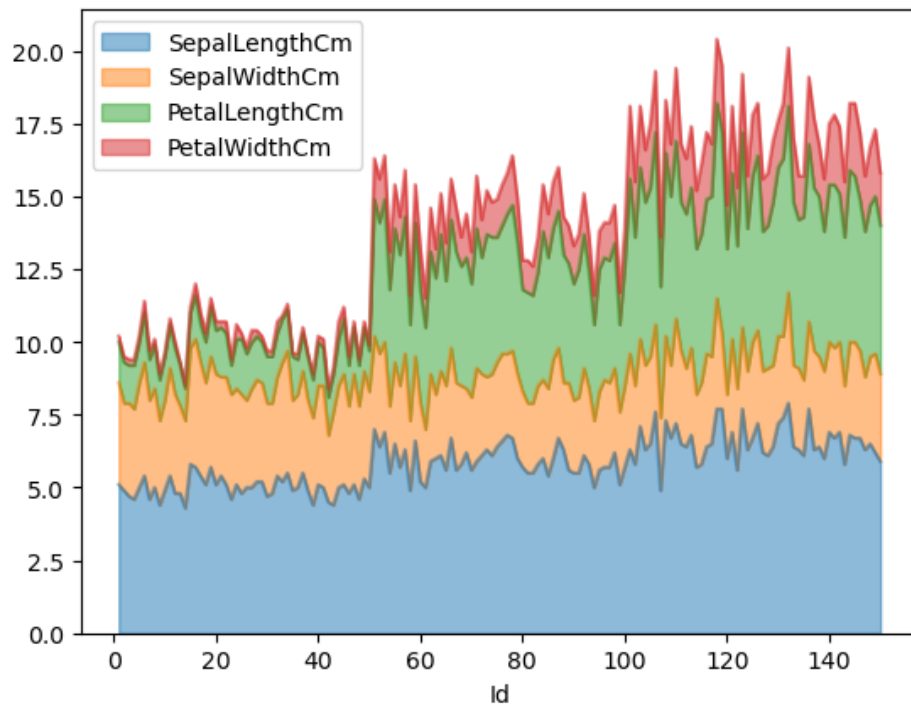
Out[30]:

```
<Axes: xlabel='Id'>
```


11. Area Plot

In [33]:

```python
data.plot(kind='area',alpha=0.5)
```

Out[33]:

```
<Axes: xlabel='Id'>
```


12. Draw Histogram for SepalLengthCm column.

In [34]:

```python
data.columns
```
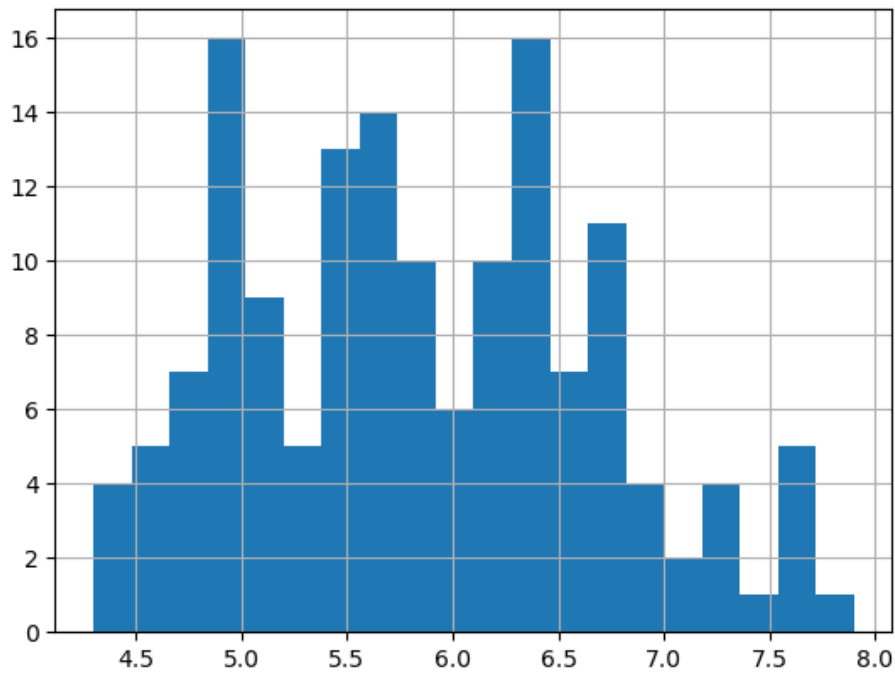
Out[34]:

```
Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [36]:

```python
data['SepalLengthCm'].hist(bins=20)
```

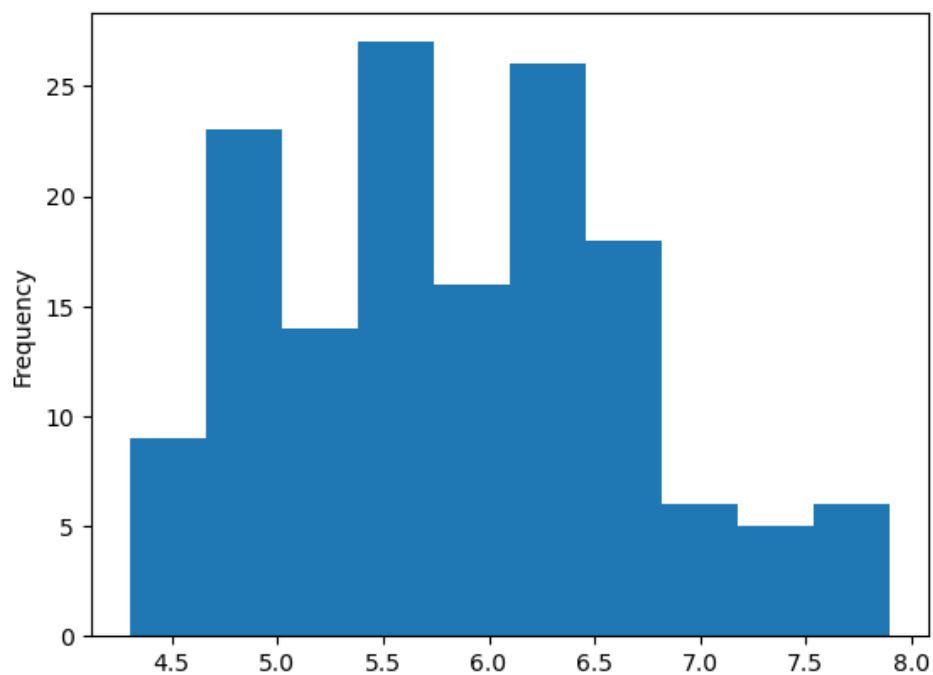Out[36]:

```
<Axes: >
```


In [39]:

```python
data['SepalLengthCm'].plot.hist(bins=10)
```

Out[39]:

```
<Axes: ylabel='Frequency'>
```


13. BarPlot

In [41]:

```
data.columns
```
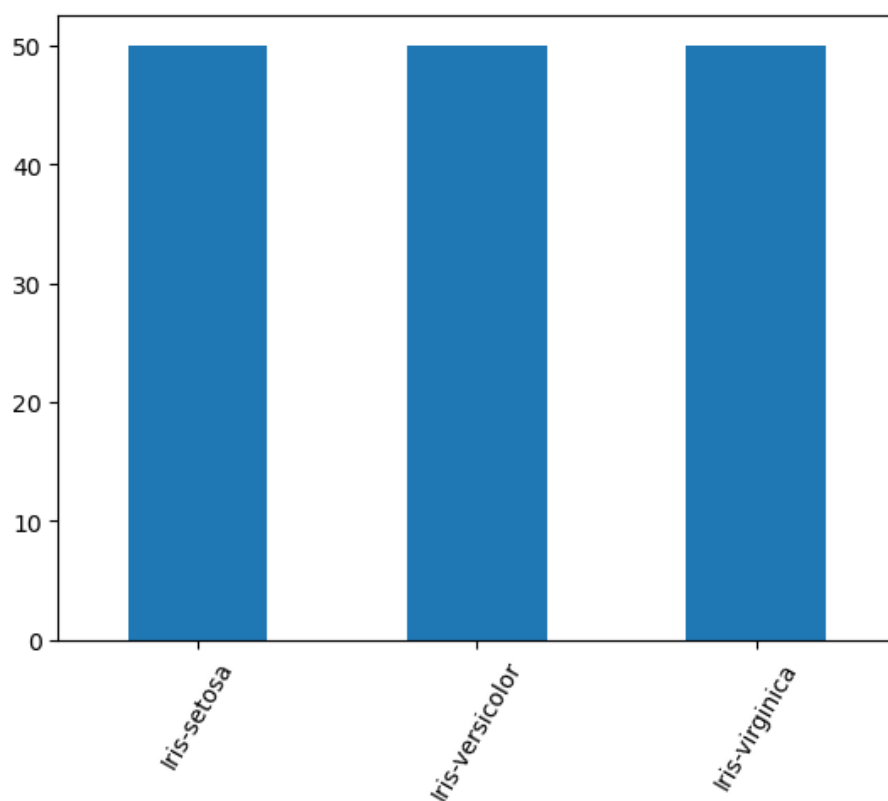
Out[41]:

```
Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [42]:

```
data['Species'].value_counts().plot.bar(rot=60)
```

Out[42]:

```
<Axes: >
```


14. Scatter Plot

In [43]:
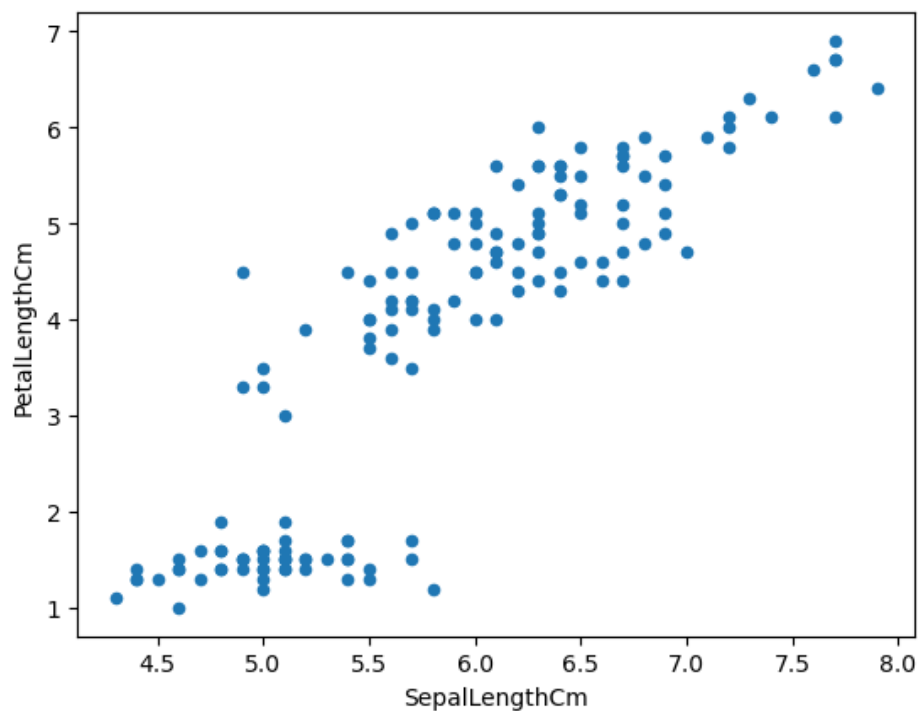
```
data.columns
```

Out[43]:

```
Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [44]:

```python
data.plot.scatter(x='SepalLengthCm',y='PetalLengthCm')
```

Out[44]:

```
<Axes: xlabel='SepalLengthCm', ylabel='PetalLengthCm'>
```


15. HexBin Plot

In [45]:

```python
data.columns
```
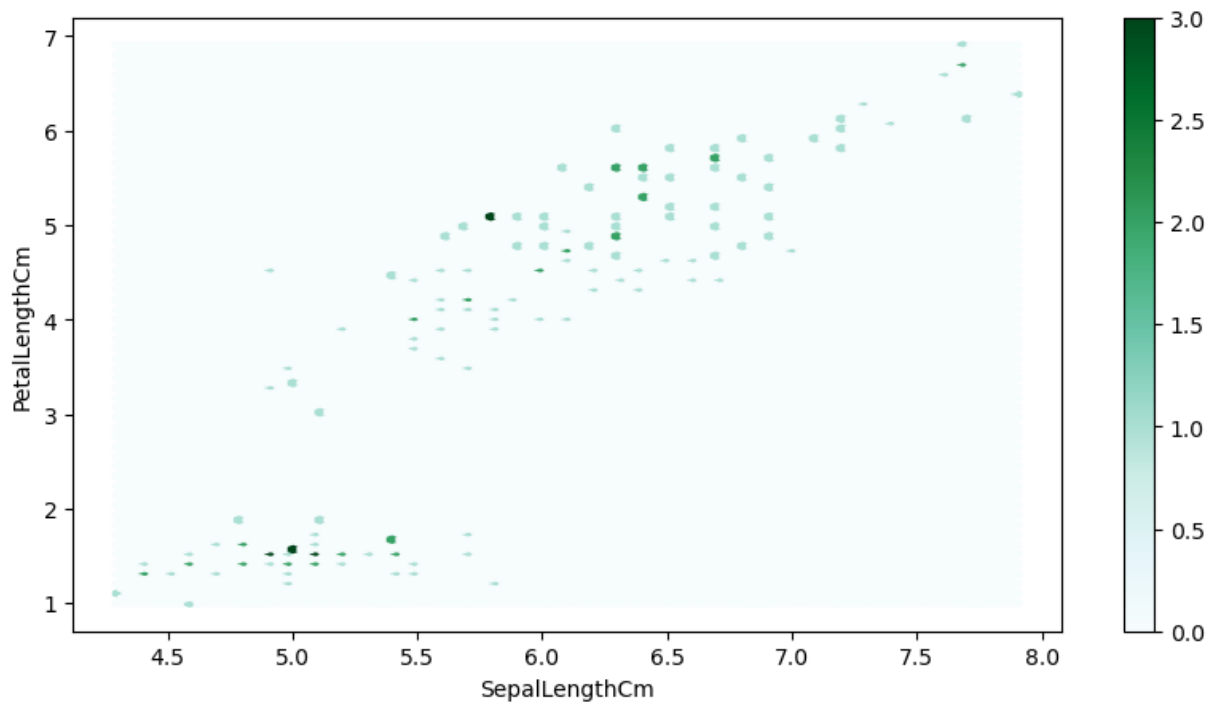
Out[45]:

```
Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [47]:

```python
data.plot(kind="hexbin",x='SepalLengthCm',y='PetalLengthCm',
          figsize=(10,5))
```

Out[47]:

```
<Axes: xlabel='SepalLengthCm', ylabel='PetalLengthCm'>
```
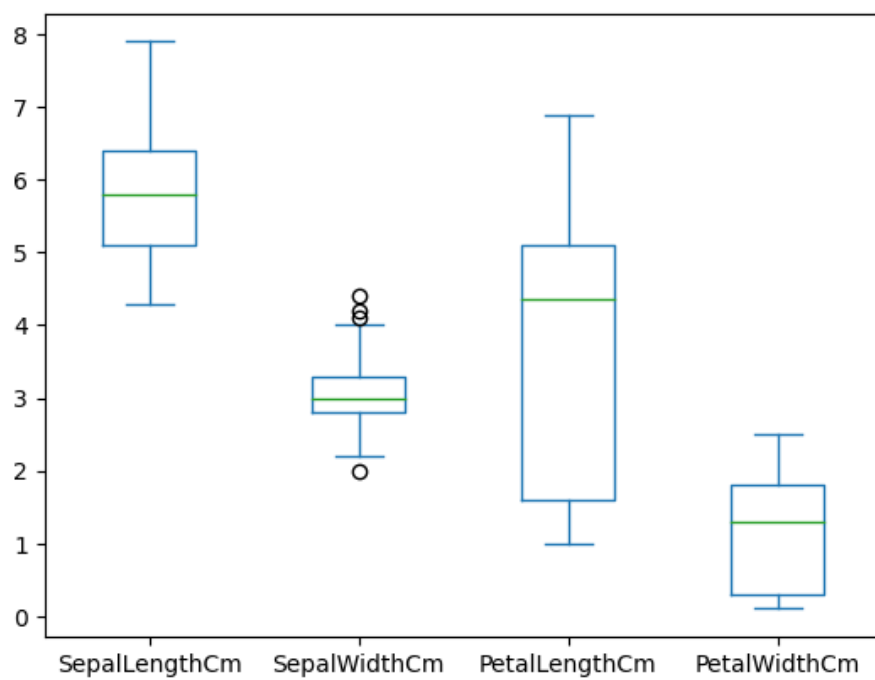

16 . Box Plot

In [48]:

```python
data.plot.box()
```

Out[48]:

```
<Axes: >
```


In [ ]: