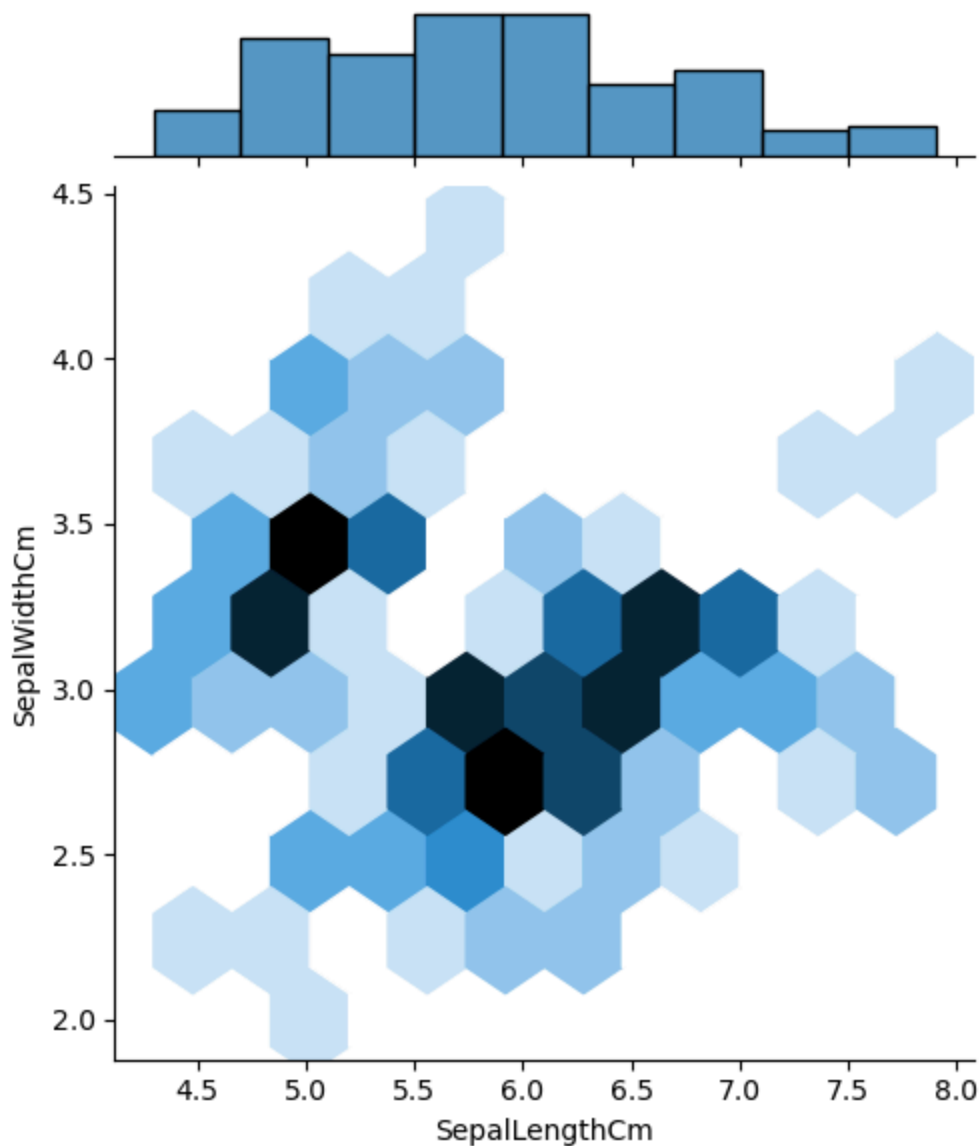


```
In [54]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [121... #kind can be ['scatter', 'hist', 'hex', 'kde', 'reg', 'resid']
sns.jointplot(iris,x='SepalLengthCm',y='SepalWidthCm',kind='hex')
plt.show()
```



```
In [65]: import warnings
warnings.filterwarnings('ignore')
```

```
In [66]: iris=pd.read_csv(r"C:\Users\nandh\Downloads\27th - Project\IRIS DATASET _ ADVANCE V
```

```
In [67]: iris
```

Out[67]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [68]:

iris.head()

Out[68]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [69]:

iris.isnull()

Out[69]:

	<b>Id</b>	<b>SepalLengthCm</b>	<b>SepalWidthCm</b>	<b>PetalLengthCm</b>	<b>PetalWidthCm</b>	<b>Species</b>
<b>0</b>	False	False	False	False	False	False
<b>1</b>	False	False	False	False	False	False
<b>2</b>	False	False	False	False	False	False
<b>3</b>	False	False	False	False	False	False
<b>4</b>	False	False	False	False	False	False
<b>...</b>	...	...	...	...	...	...
<b>145</b>	False	False	False	False	False	False
<b>146</b>	False	False	False	False	False	False
<b>147</b>	False	False	False	False	False	False
<b>148</b>	False	False	False	False	False	False
<b>149</b>	False	False	False	False	False	False

150 rows × 6 columns

In [70]:

iris.isnull().sum()

Out[70]:

Id0

SepalLengthCm0

SepalWidthCm0

PetalLengthCm0

PetalWidthCm0

Species0

dtype: int64

In [71]:

iris.describe()

Out[71]:

	<b>Id</b>	<b>SepalLengthCm</b>	<b>SepalWidthCm</b>	<b>PetalLengthCm</b>	<b>PetalWidthCm</b>
<b>count</b>	150.000000	150.000000	150.000000	150.000000	150.000000
<b>mean</b>	75.500000	5.843333	3.054000	3.758667	1.198667
<b>std</b>	43.445368	0.828066	0.433594	1.764420	0.763161
<b>min</b>	1.000000	4.300000	2.000000	1.000000	0.100000
<b>25%</b>	38.250000	5.100000	2.800000	1.600000	0.300000
<b>50%</b>	75.500000	5.800000	3.000000	4.350000	1.300000
<b>75%</b>	112.750000	6.400000	3.300000	5.100000	1.800000
<b>max</b>	150.000000	7.900000	4.400000	6.900000	2.500000

In [72]:

iris.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column          Non-Null Count  Dtype
---  ---
 0   Id              150 non-null    int64
 1   SepalLengthCm   150 non-null    float64
 2   SepalWidthCm    150 non-null    float64
 3   PetalLengthCm   150 non-null    float64
 4   PetalWidthCm    150 non-null    float64
 5   Species         150 non-null    object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

```
In [73]: iris['Id']=iris['Id'].astype('category')
```

```
In [74]: iris.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column          Non-Null Count  Dtype
---  ---
 0   Id              150 non-null    category
 1   SepalLengthCm   150 non-null    float64
 2   SepalWidthCm    150 non-null    float64
 3   PetalLengthCm   150 non-null    float64
 4   PetalWidthCm    150 non-null    float64
 5   Species         150 non-null    object
dtypes: category(1), float64(4), object(1)
memory usage: 11.5+ KB
```

```
In [75]: iris.describe()
```

```
Out[75]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
<b>count</b>	150.000000	150.000000	150.000000	150.000000
<b>mean</b>	5.843333	3.054000	3.758667	1.198667
<b>std</b>	0.828066	0.433594	1.764420	0.763161
<b>min</b>	4.300000	2.000000	1.000000	0.100000
<b>25%</b>	5.100000	2.800000	1.600000	0.300000
<b>50%</b>	5.800000	3.000000	4.350000	1.300000
<b>75%</b>	6.400000	3.300000	5.100000	1.800000
<b>max</b>	7.900000	4.400000	6.900000	2.500000

```
In [76]: iris.drop('Id',axis=1,inplace=True)#to drop an unwanted attribute
```

```
In [77]: iris
```

Out[77]:

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
<b>0</b>	5.1	3.5	1.4	0.2	Iris-setosa
<b>1</b>	4.9	3.0	1.4	0.2	Iris-setosa
<b>2</b>	4.7	3.2	1.3	0.2	Iris-setosa
<b>3</b>	4.6	3.1	1.5	0.2	Iris-setosa
<b>4</b>	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...
<b>145</b>	6.7	3.0	5.2	2.3	Iris-virginica
<b>146</b>	6.3	2.5	5.0	1.9	Iris-virginica
<b>147</b>	6.5	3.0	5.2	2.0	Iris-virginica
<b>148</b>	6.2	3.4	5.4	2.3	Iris-virginica
<b>149</b>	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 5 columns

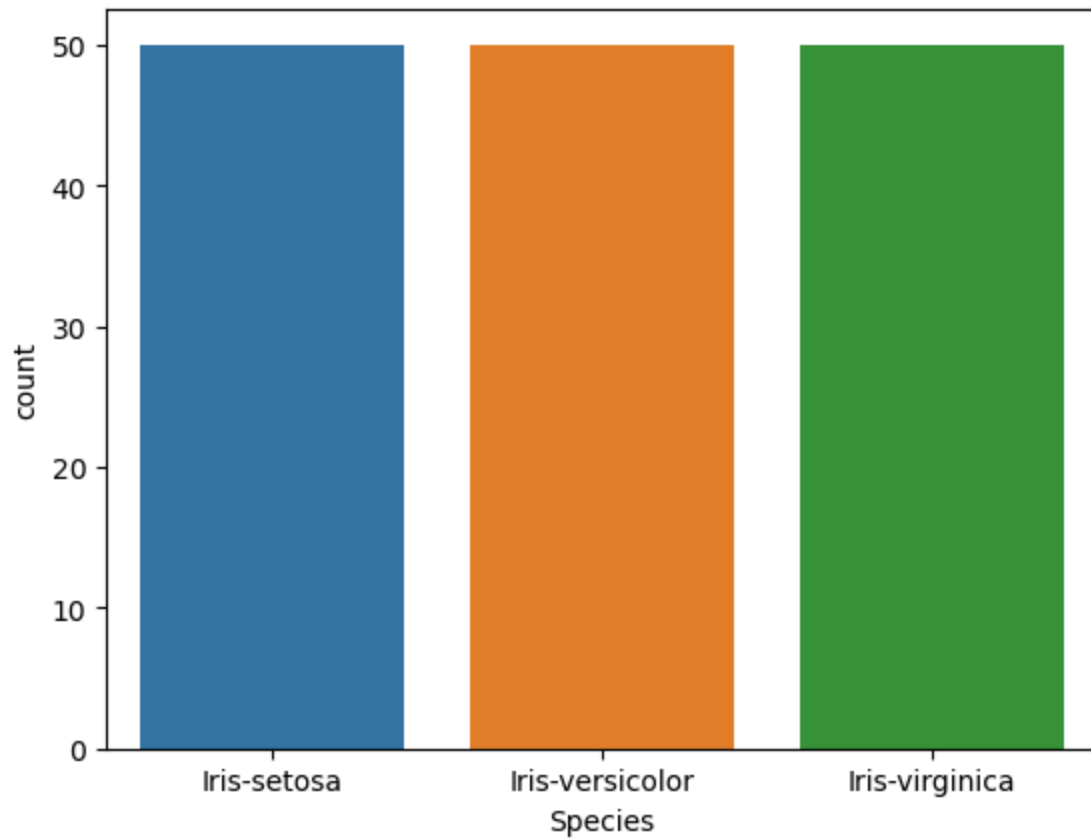
In [78]: `iris.columns`

Out[78]: Index(['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',  
'Species'],  
dtype='object')

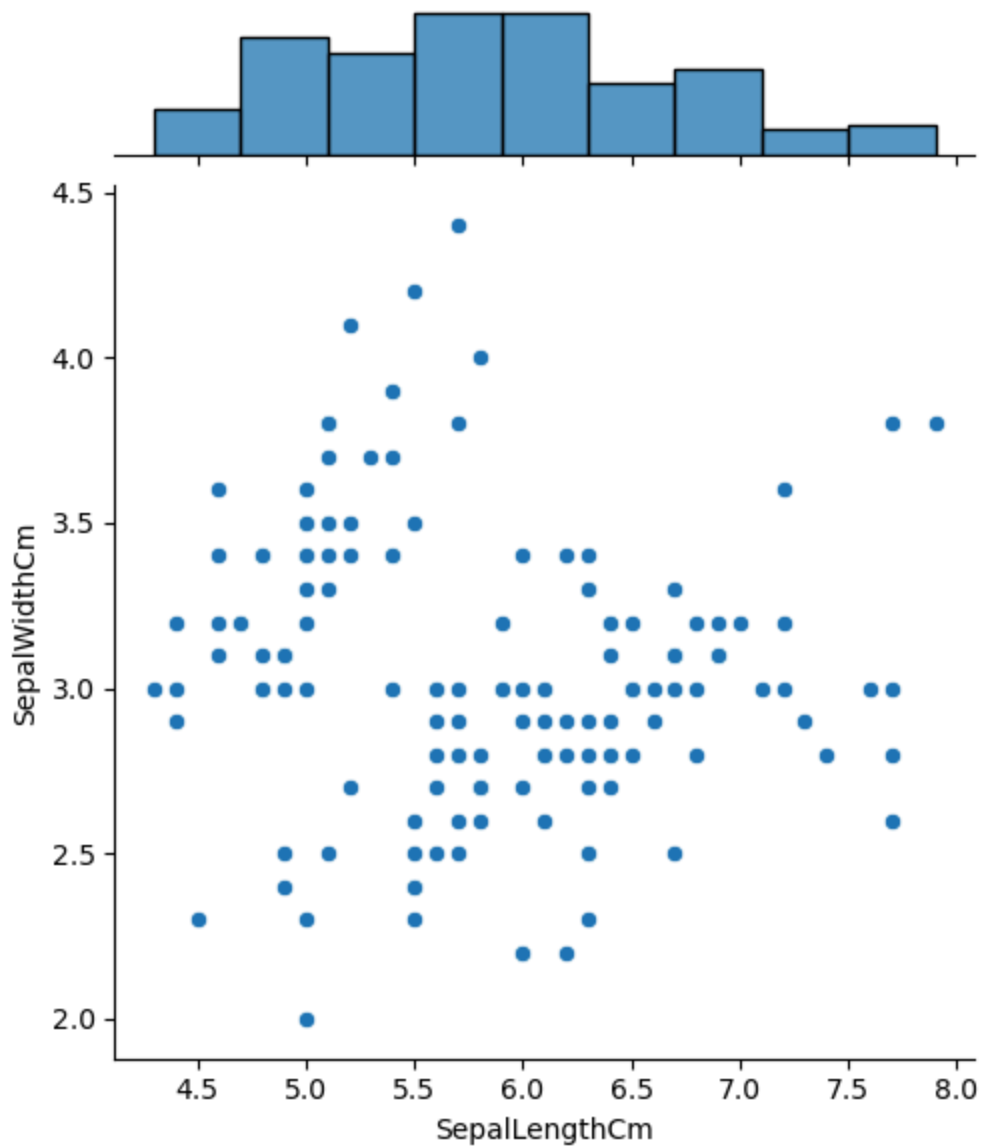
In [79]: `iris[ 'Species' ].value_counts()`

Out[79]: Species  
Iris-setosa 50  
Iris-versicolor 50  
Iris-virginica 50  
Name: count, dtype: int64

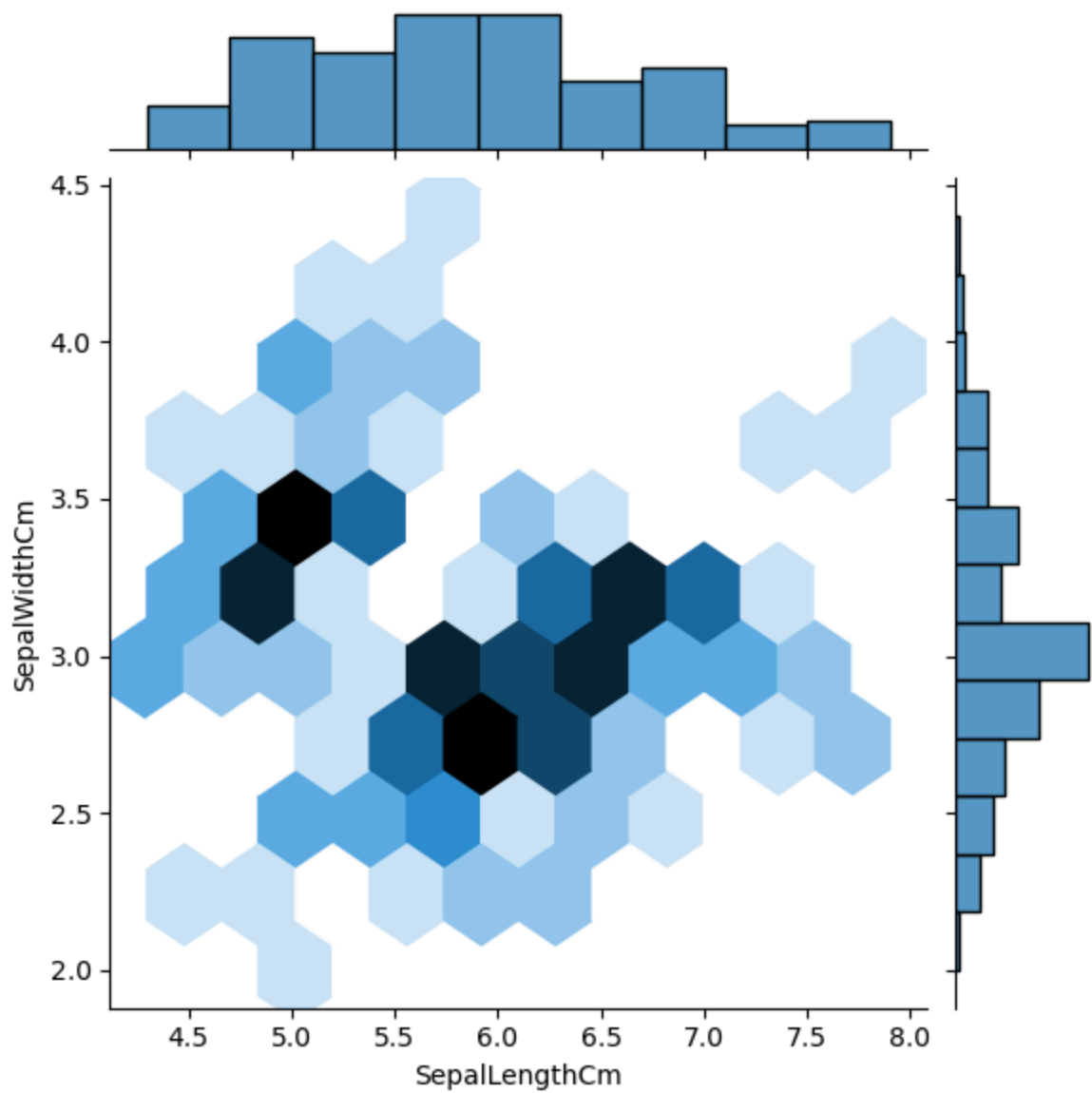
In [80]: `sns.countplot(data=iris,x= 'Species',hue= 'Species')`  
`plt.show()`



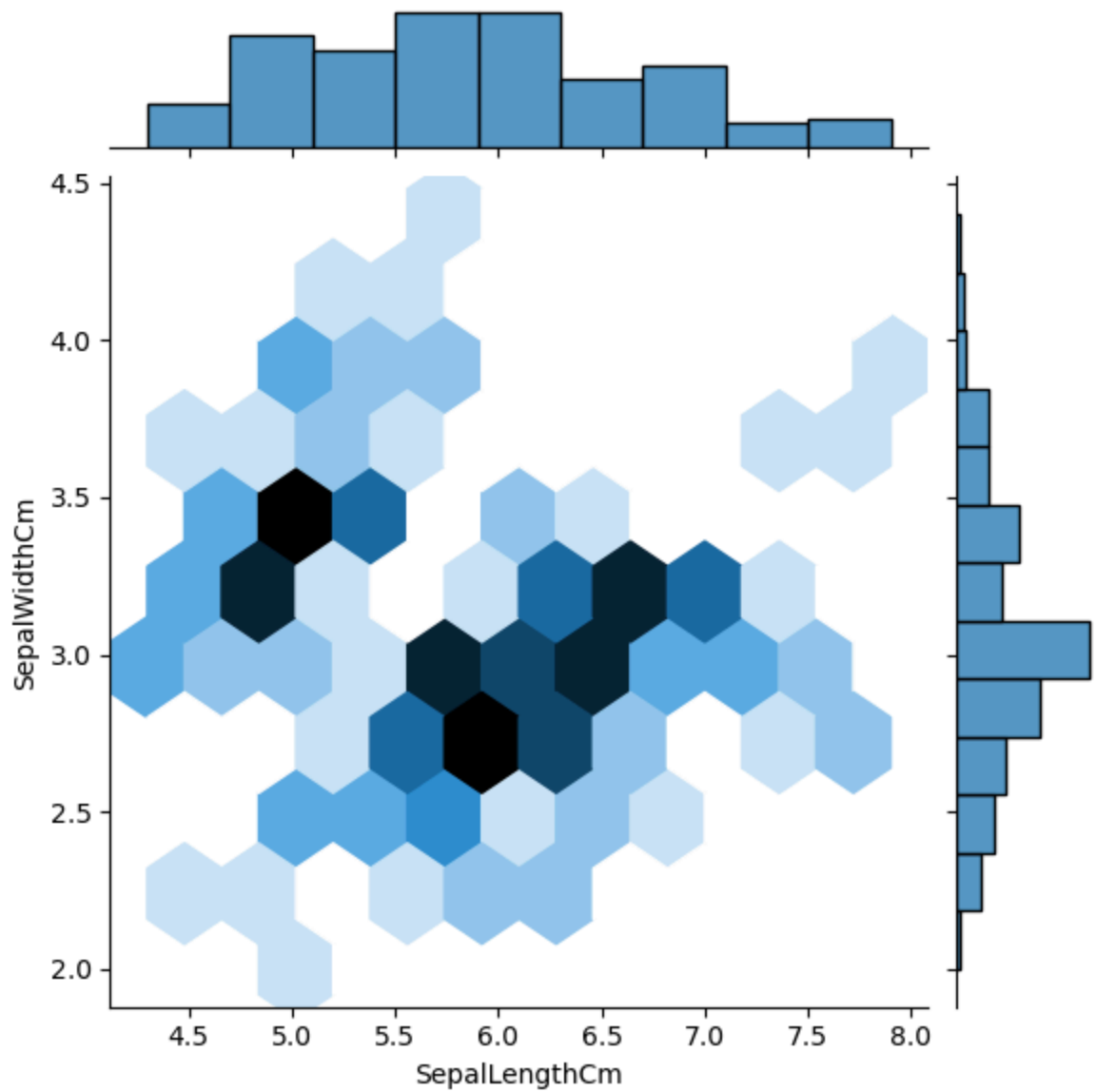
```
In [99]: sns.jointplot(iris,x='SepalLengthCm',y= 'SepalWidthCm' )  
plt.show()
```



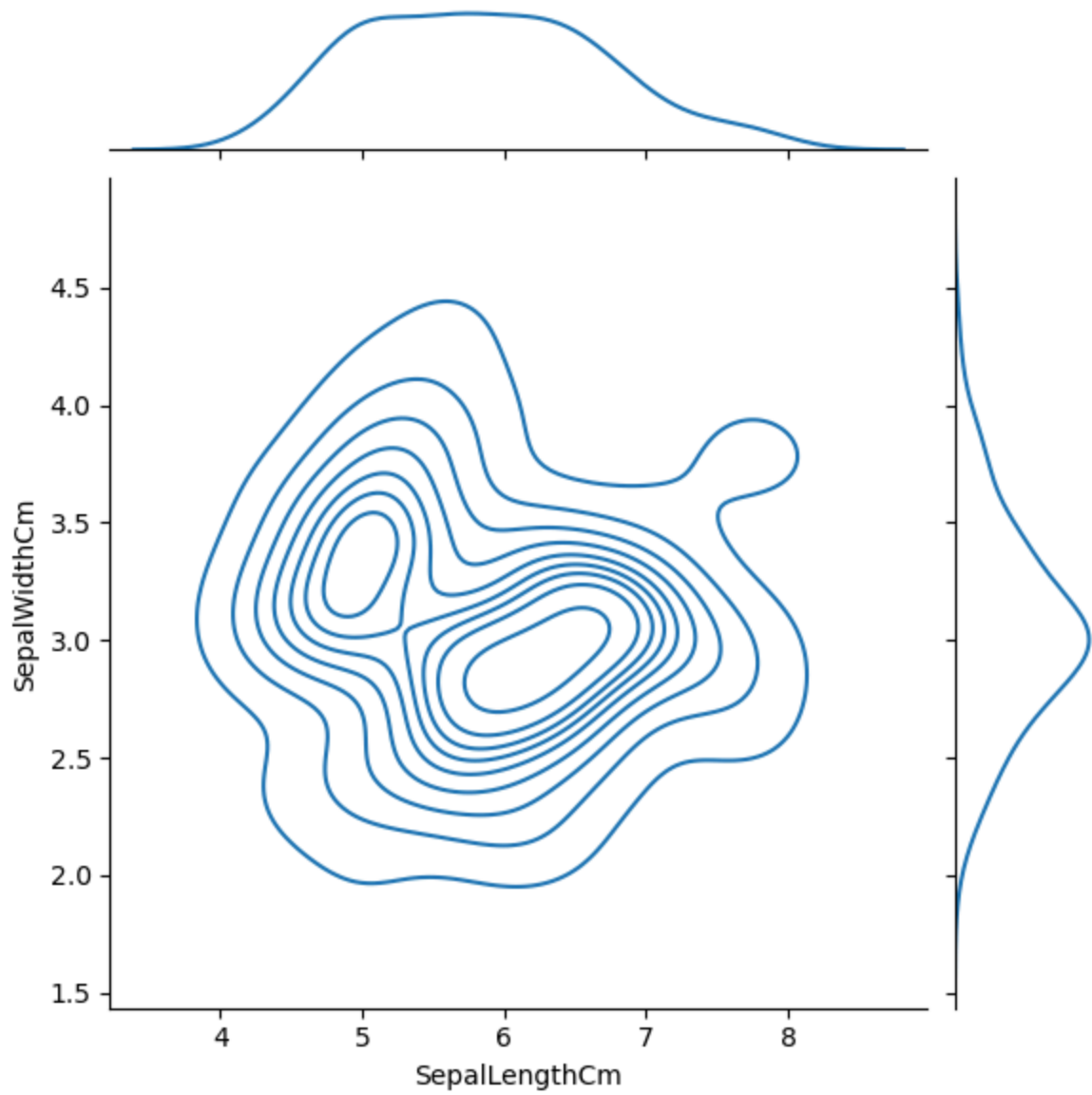
```
In [101... #kind can be ['scatter', 'hist', 'hex', 'kde', 'reg', 'resid']
sns.jointplot(iris,x='SepalLengthCm',y= 'SepalWidthCm',kind='hex')
plt.show()
```



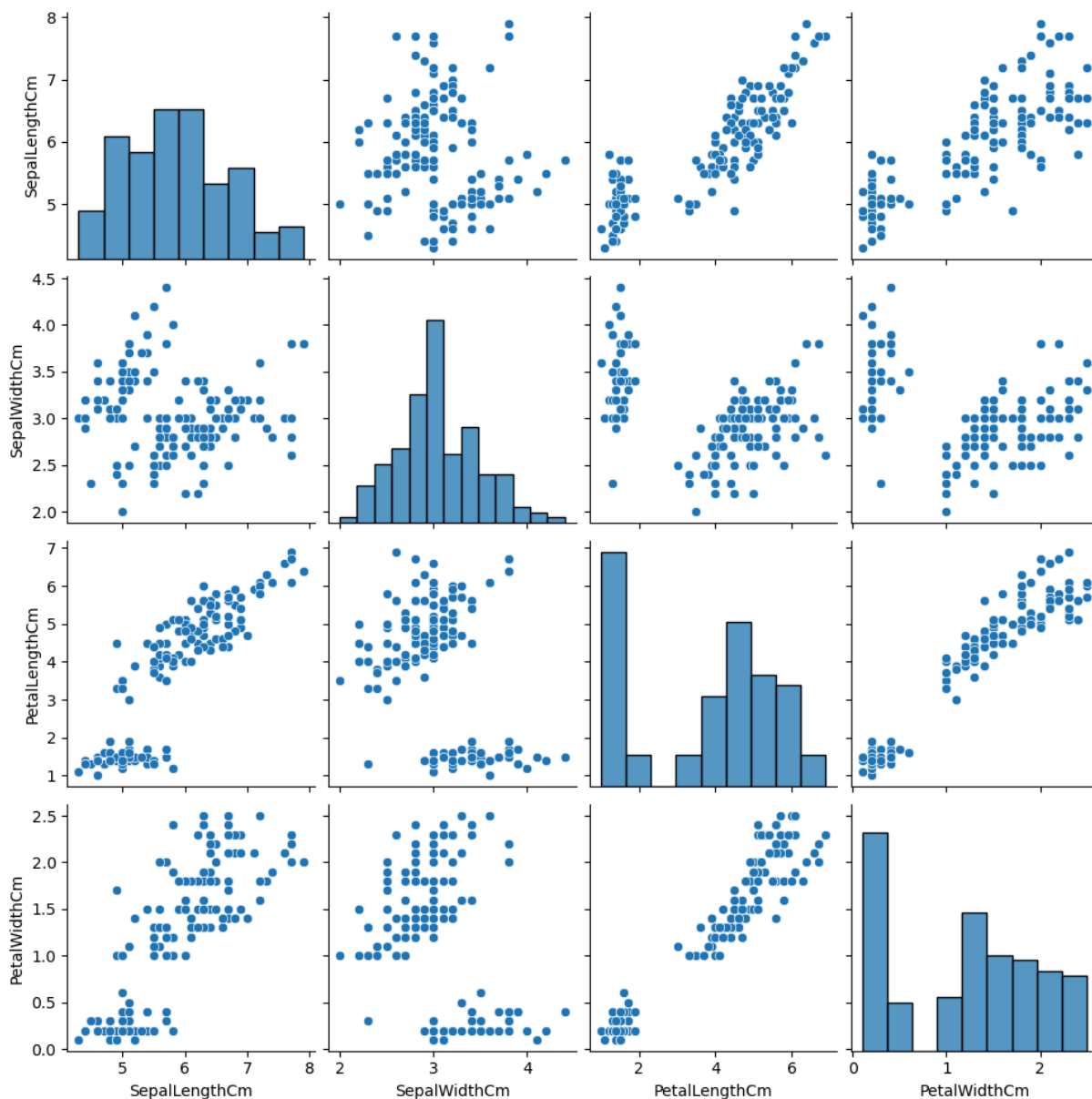




```
In [102... sns.jointplot(iris,x='SepalLengthCm',y= 'SepalWidthCm',kind='kde')  
plt.show()
```

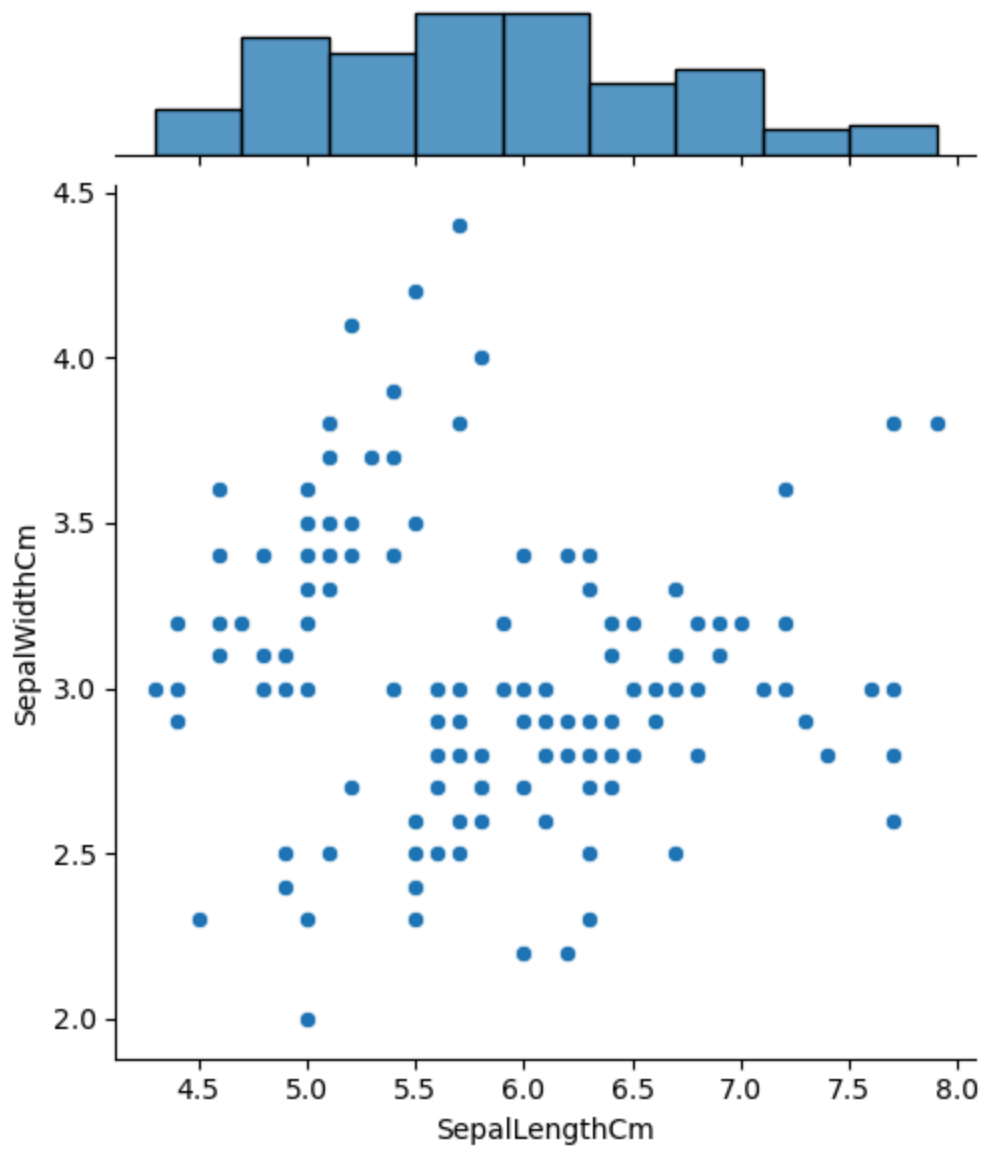


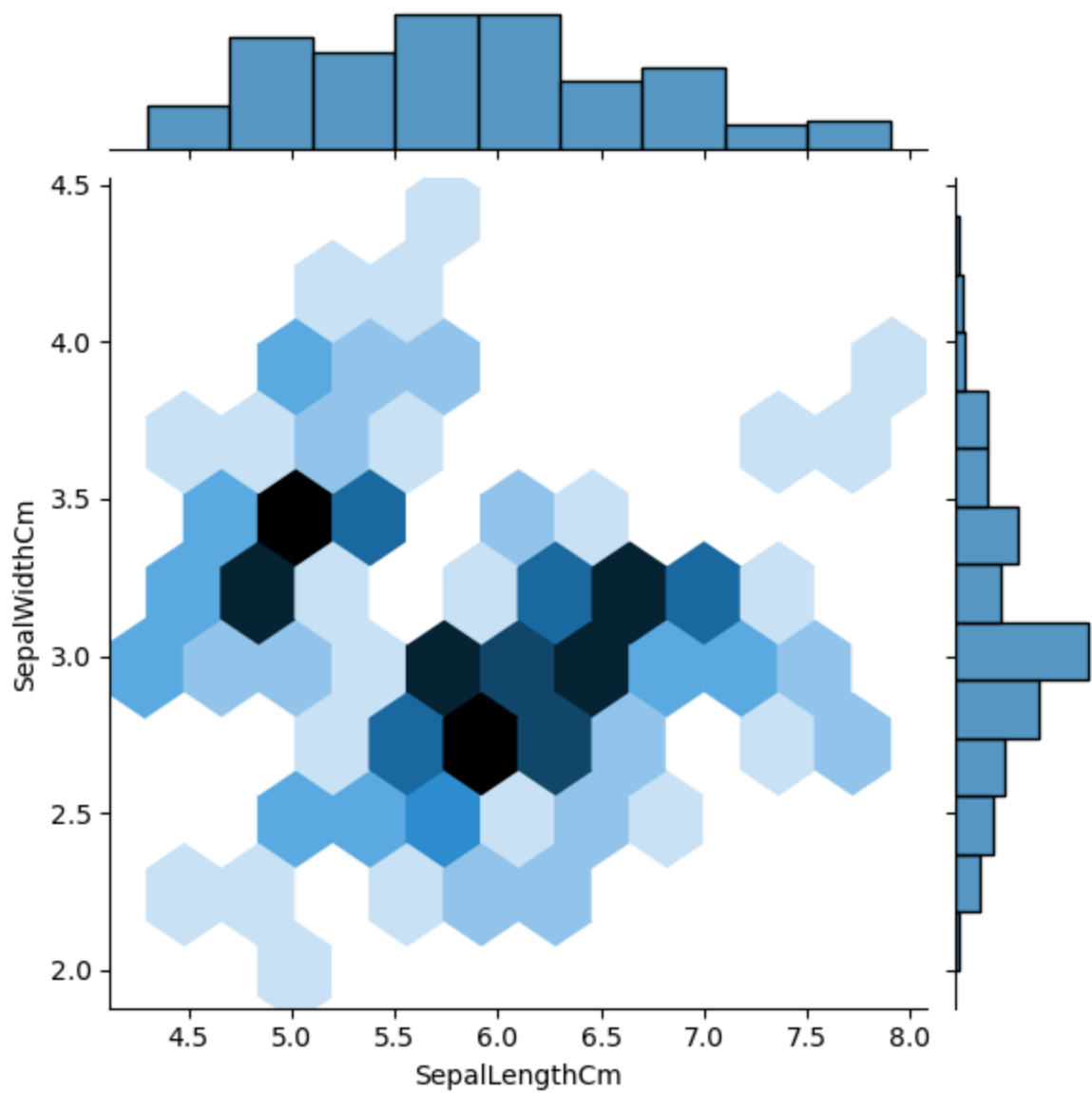
```
In [103... sns.pairplot(data=iris)
plt.show()
```

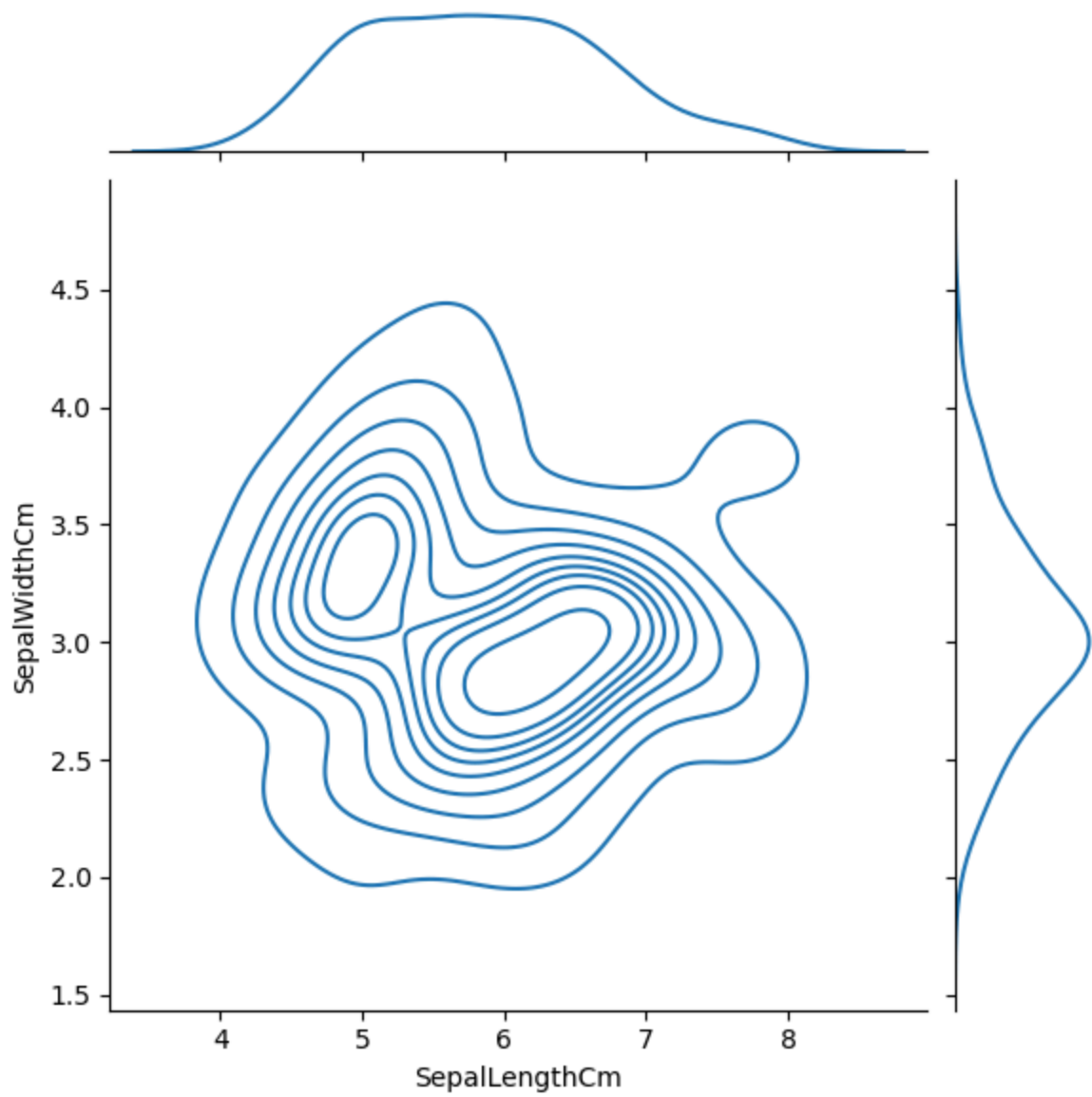


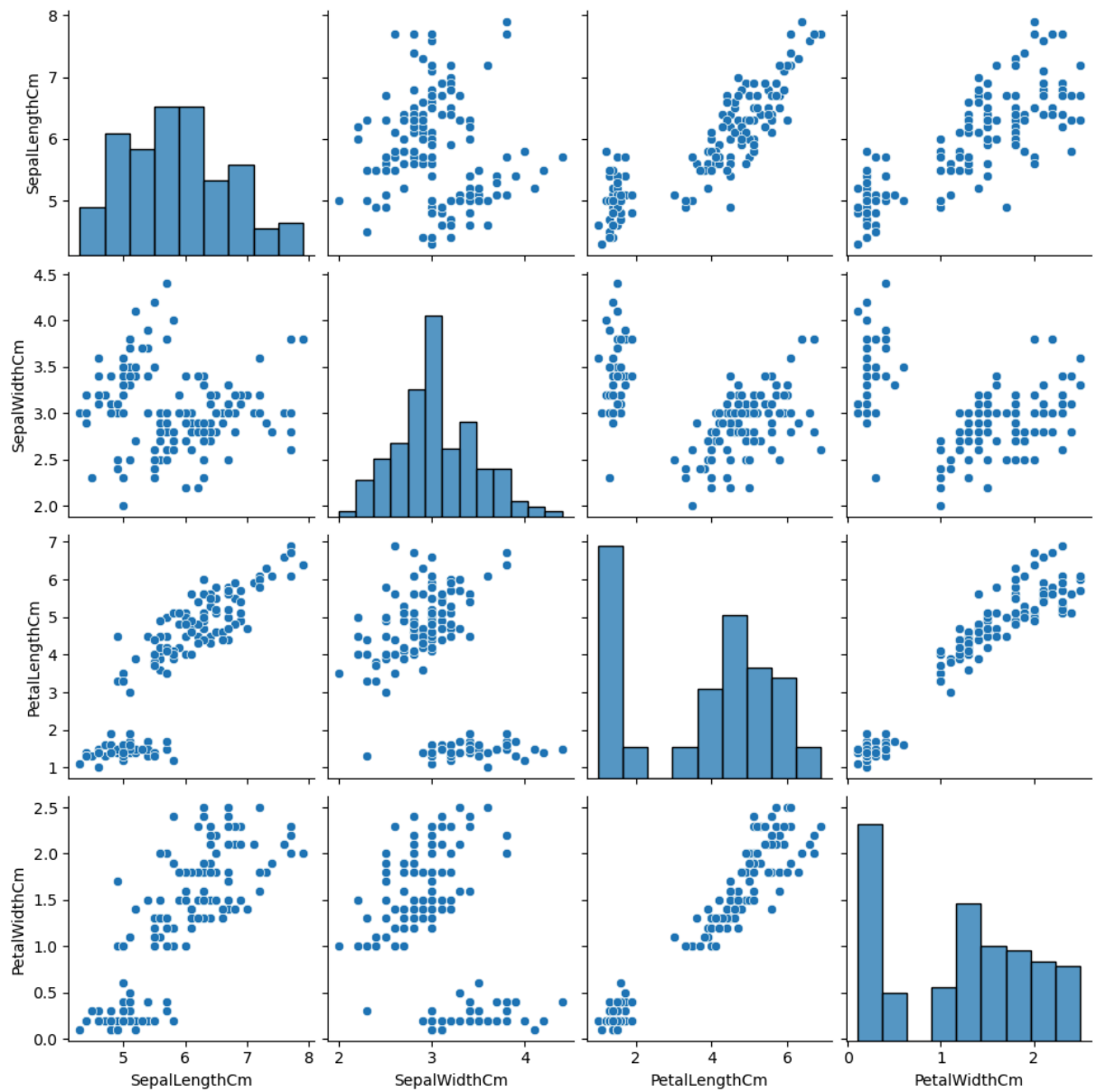
```
In [85]: %matplotlib inline
```

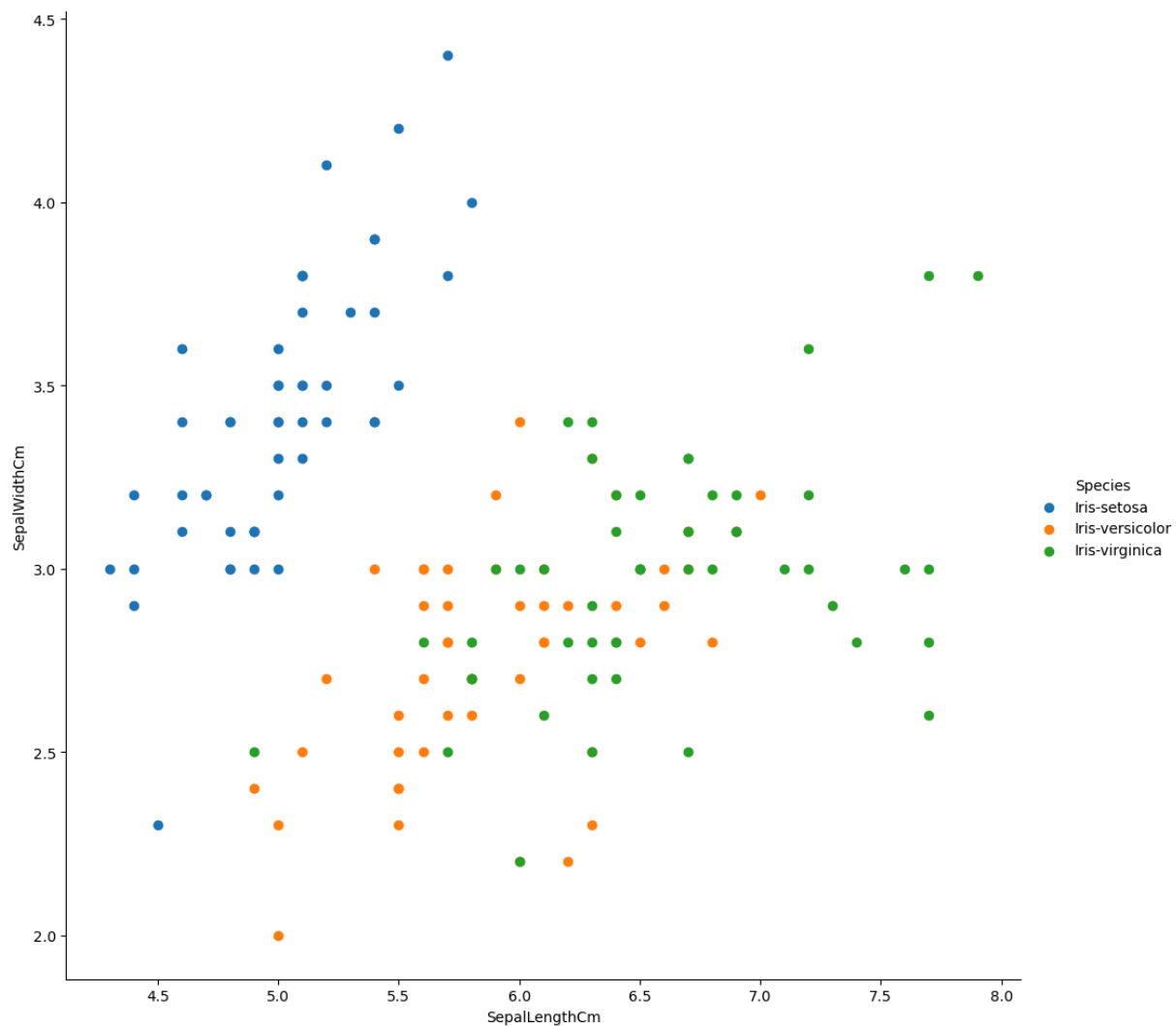
```
In [86]: sns.FacetGrid(data=iris,hue='Species',height=10,legend_out=True)\
        .map(plt.scatter,'SepalLengthCm','SepalWidthCm')\
        .add_legend()\
        plt.show()
```





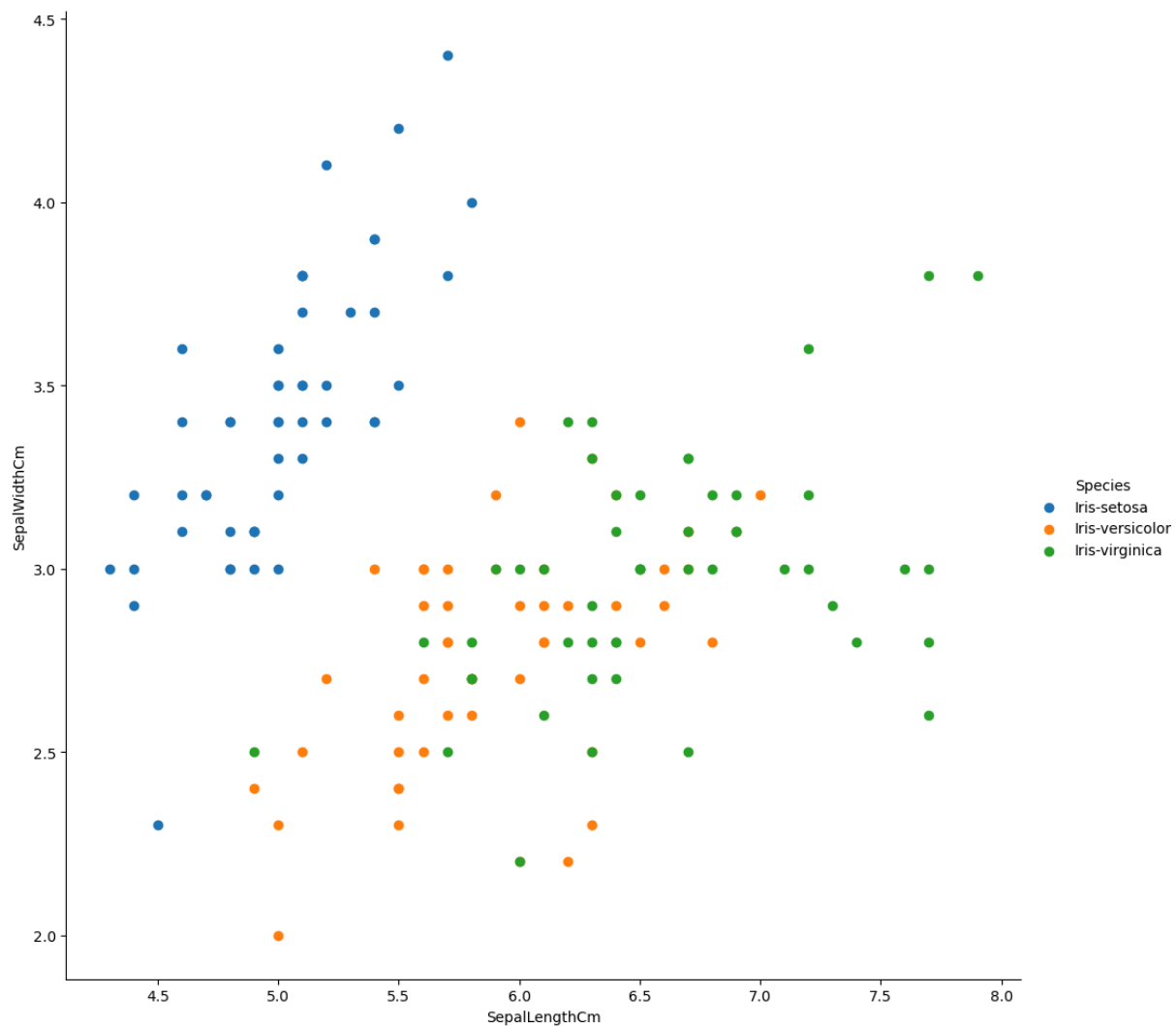




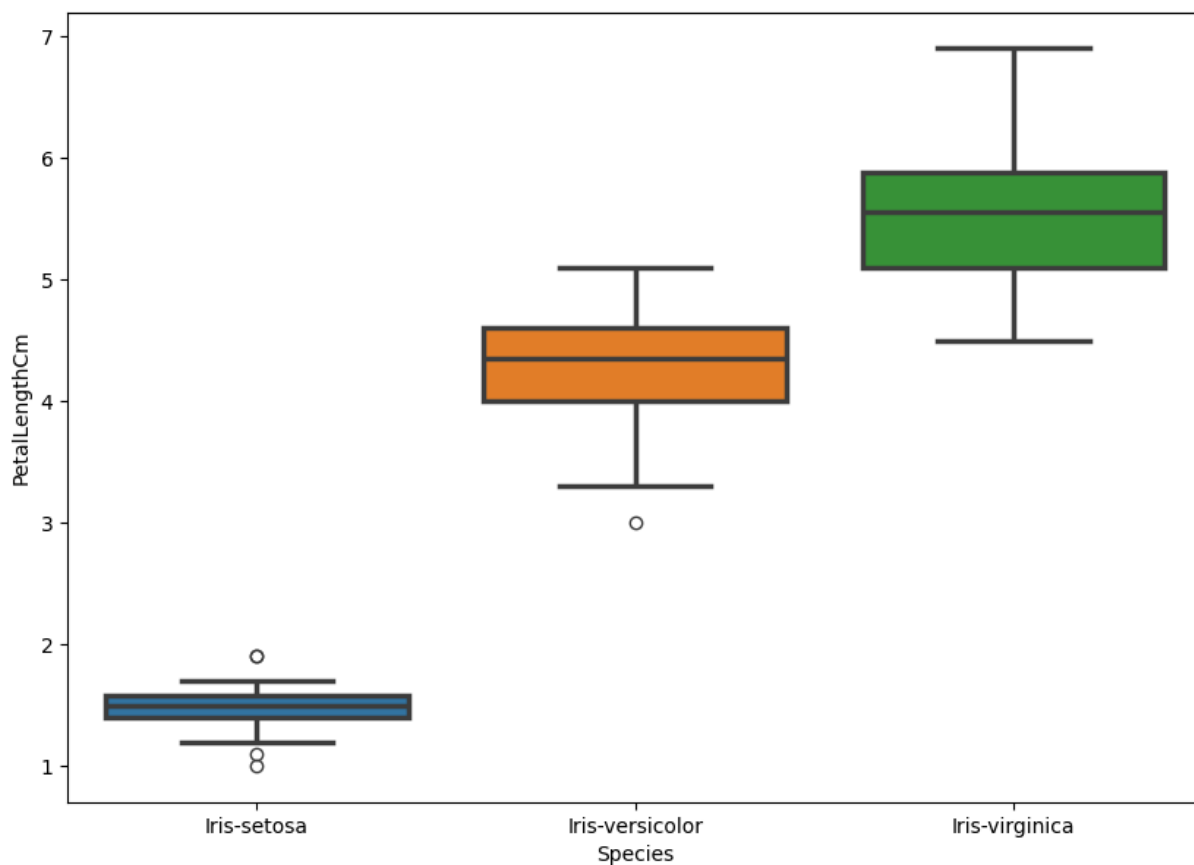


```
In [87]: sns.FacetGrid(iris,hue='Species',height=10,)\n          .map(plt.scatter,'SepalLengthCm','SepalWidthCm')\n          .add_legend()\n          plt.show()
```





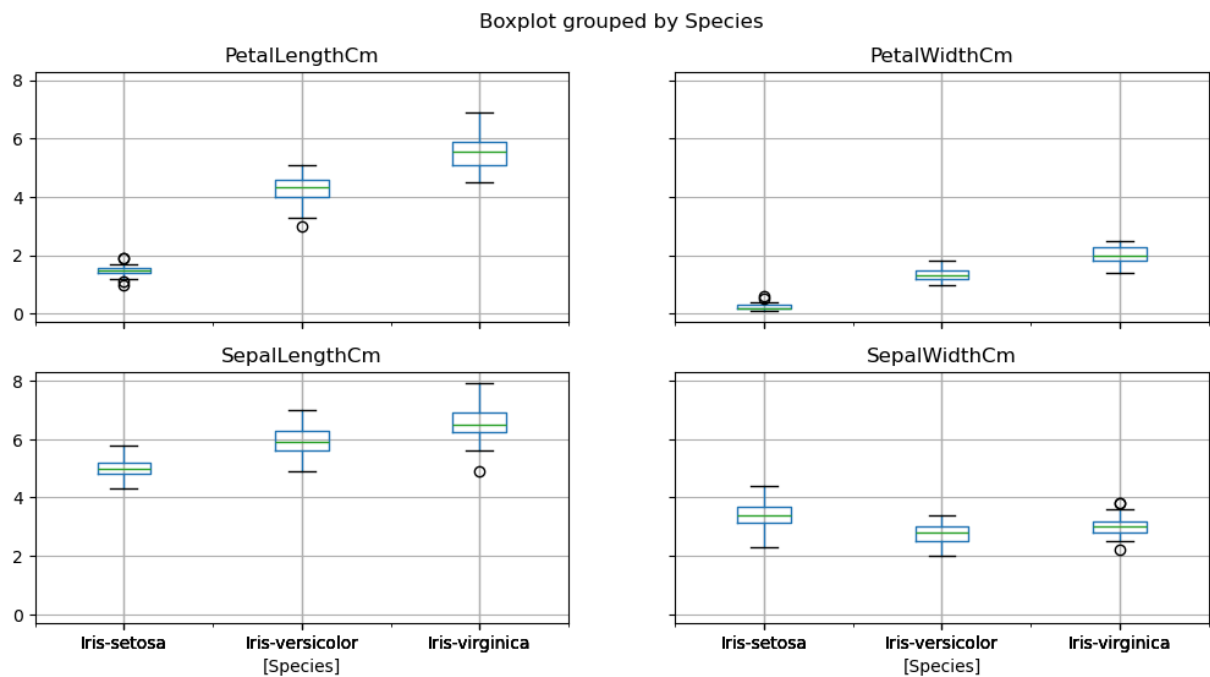
```
In [88]: fig=plt.gcf()
fig.set_size_inches(10,7)
sns.boxplot(data=iris,x='Species',y='PetalLengthCm',hue='Species',order=['Iris-seto
plt.show()
```



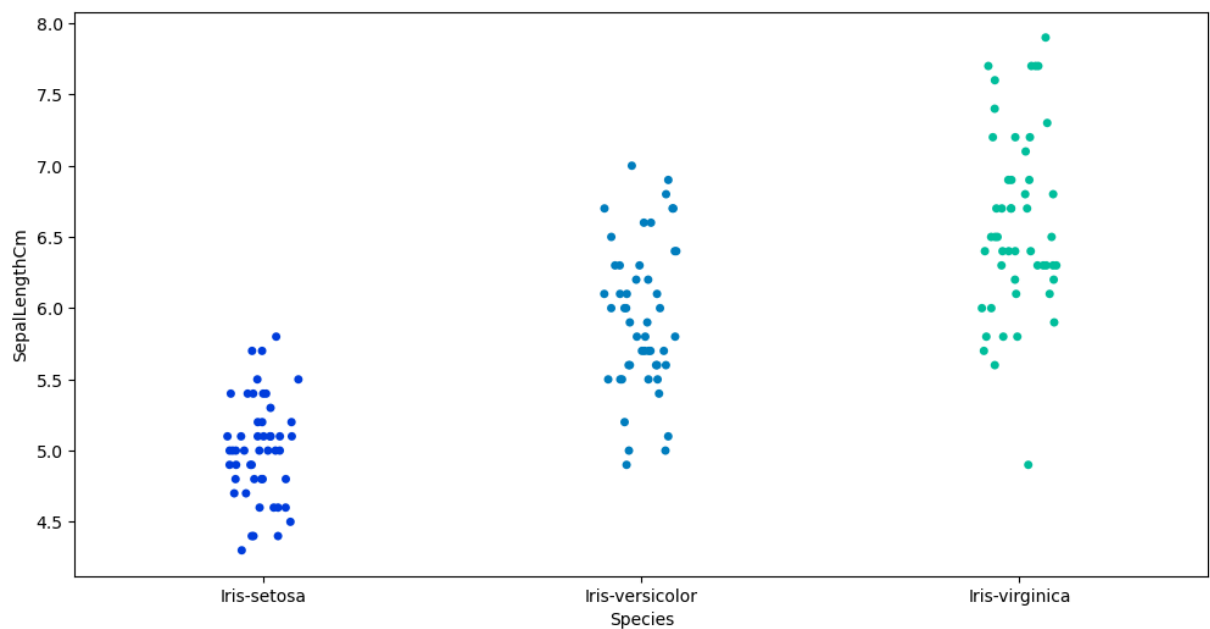
In [89]: `iris['Species'].rpow`

Out[89]: <bound method Series.rpow of 0      Iris-setosa  
 1      Iris-setosa  
 2      Iris-setosa  
 3      Iris-setosa  
 4      Iris-setosa  
 ...  
 145      Iris-virginica  
 146      Iris-virginica  
 147      Iris-virginica  
 148      Iris-virginica  
 149      Iris-virginica  
 Name: Species, Length: 150, dtype: object>

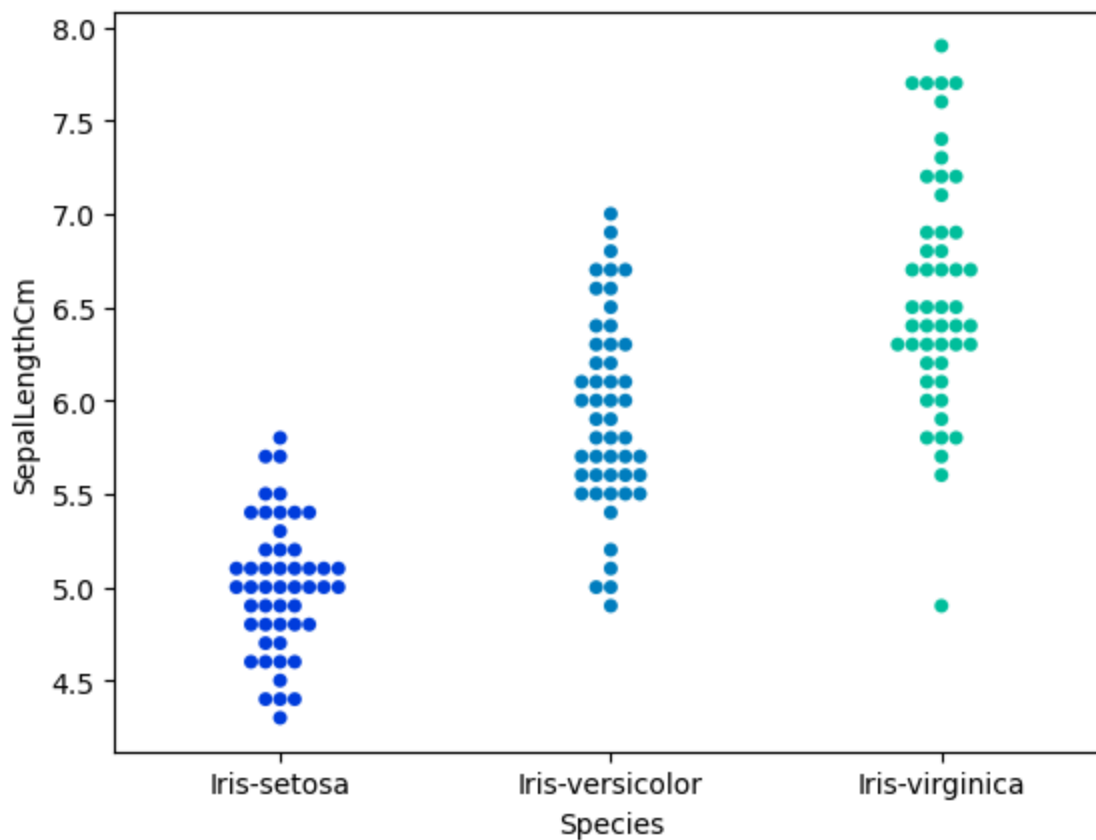
In [90]: `iris.boxplot(by='Species', figsize=(12,6))`  
`plt.show()`



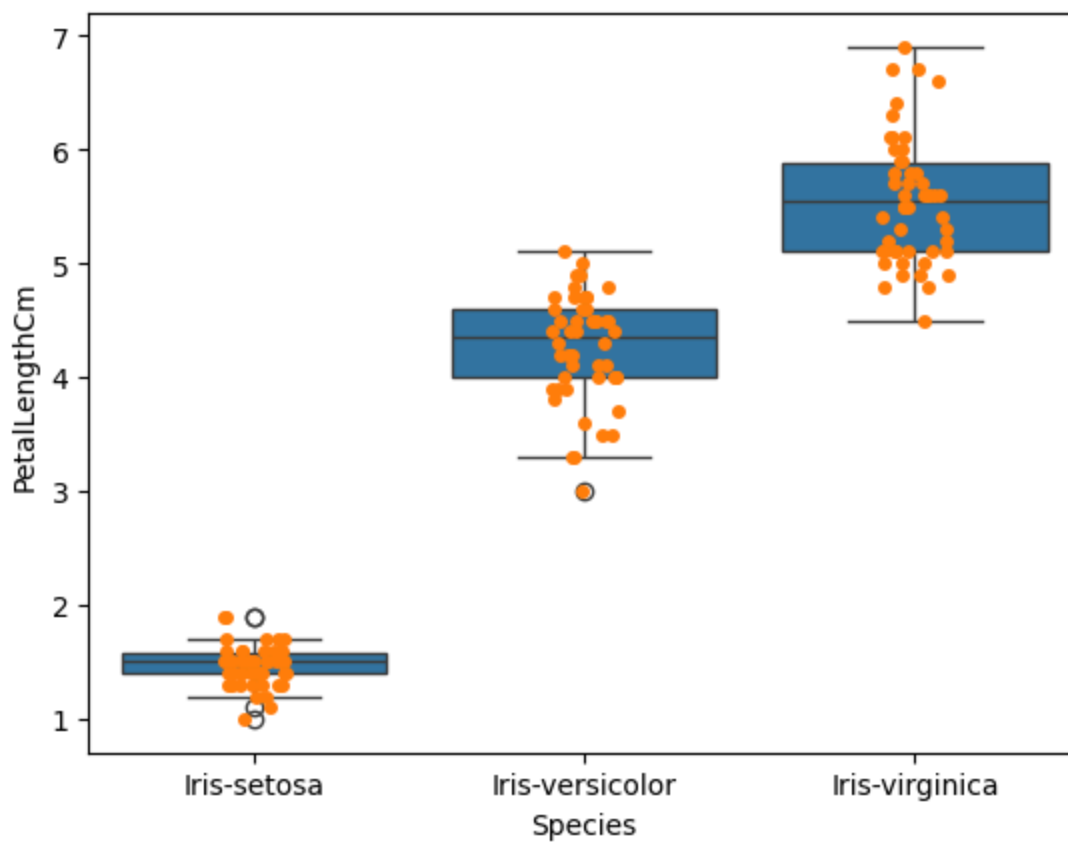
```
In [91]: fig=plt.gcf()
fig.set_size_inches(12,6)
sns.stripplot(data=iris,x='Species',y='SepalLengthCm',jitter=True,orient='v',palette=
plt.show()
```



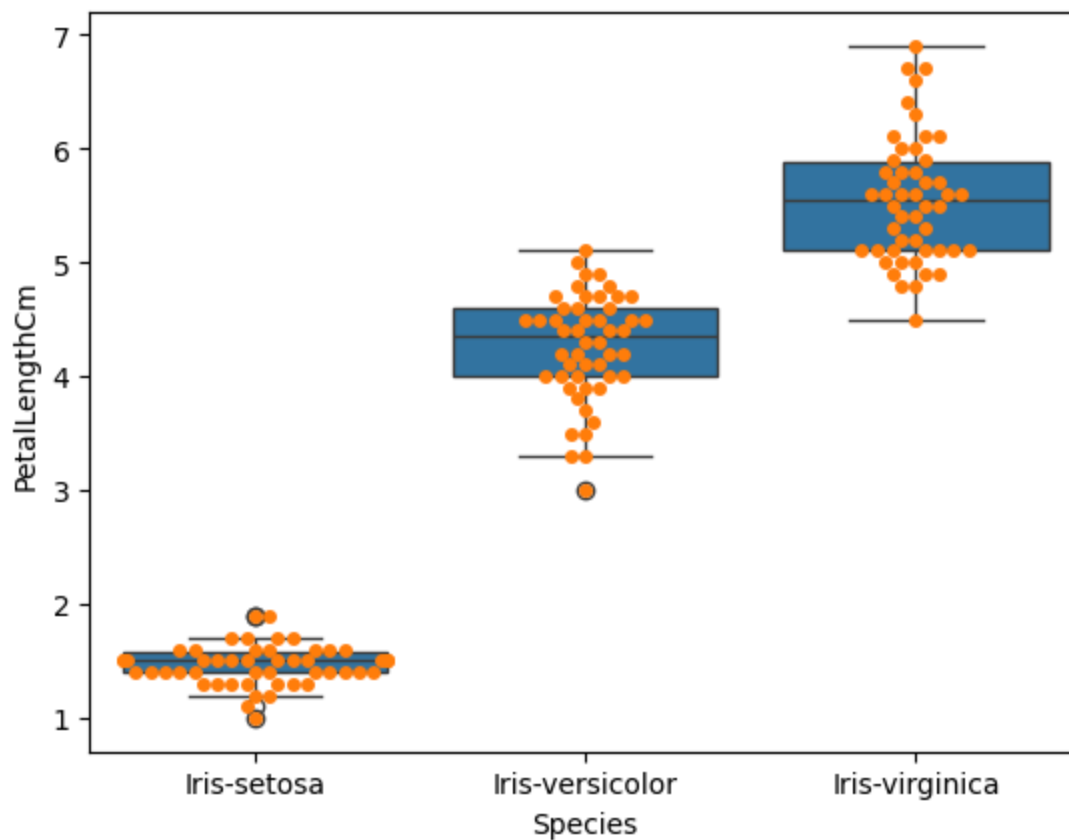
```
In [92]: sns.swarmplot(data=iris,x='Species',y='SepalLengthCm',orient='v',palette='winter')
plt.show()
```



```
In [93]: sns.boxplot(data=iris,x='Species',y='PetalLengthCm')
sns.stripplot(data=iris,x='Species',y='PetalLengthCm')
plt.show()
```

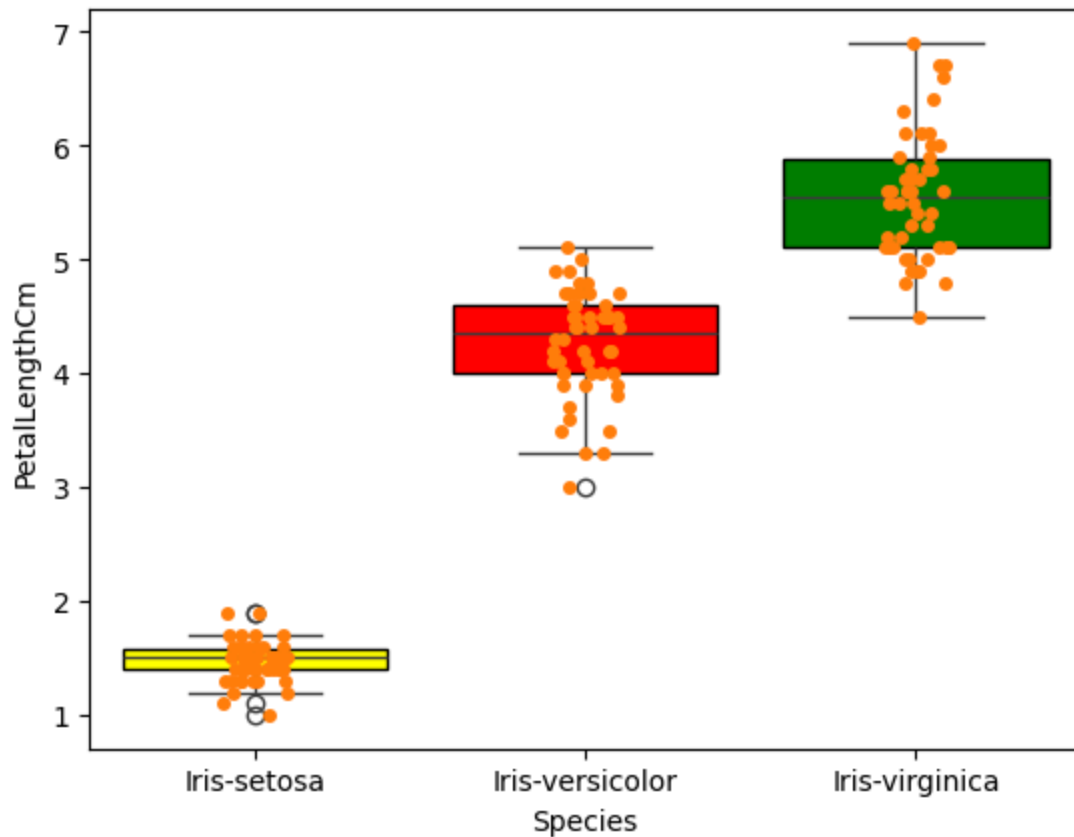


```
In [94]: sns.boxplot(data=iris,x='Species',y='PetalLengthCm')
sns.swarmplot(data=iris,x='Species',y='PetalLengthCm')
plt.show()
```



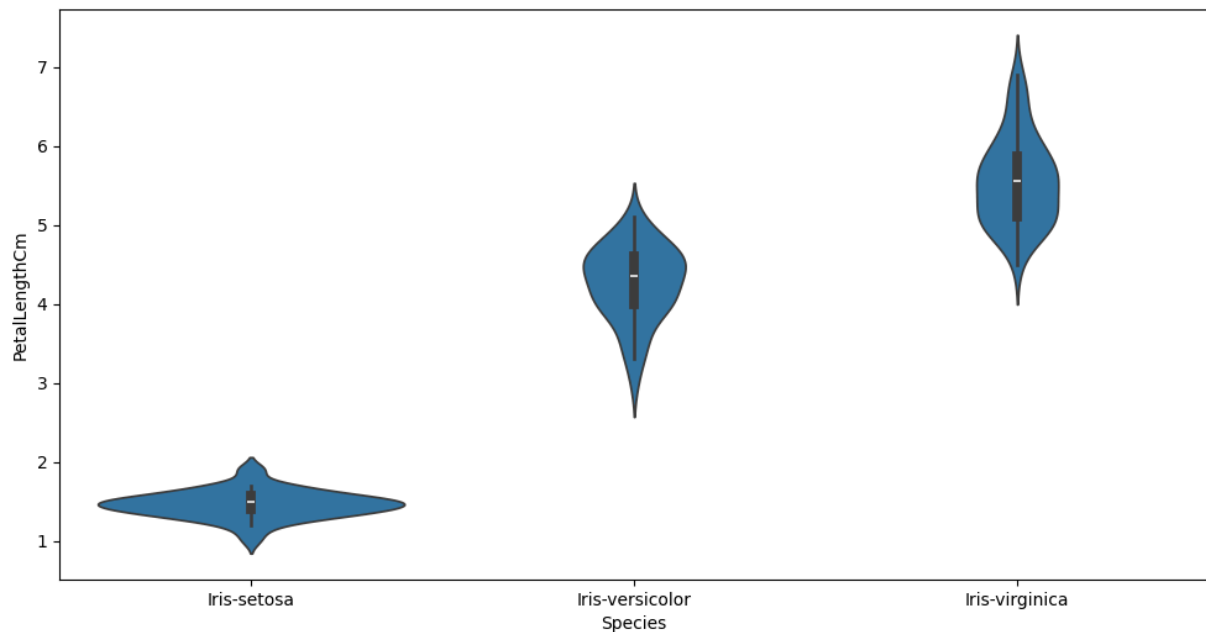
```
In [95]: ax= sns.boxplot(x="Species", y="PetalLengthCm", data=iris)
ax= sns.stripplot(x="Species", y="PetalLengthCm", data=iris, jitter=True, edgecolor=

boxtwo = ax.patches[0]
boxtwo.set_facecolor('yellow')
boxtwo.set_edgecolor('black')
boxthree=ax.patches[1]
boxthree.set_facecolor('red')
boxthree.set_edgecolor('black')
boxthree=ax.patches[2]
boxthree.set_facecolor('green')
boxthree.set_edgecolor('black')
plt.show()
```



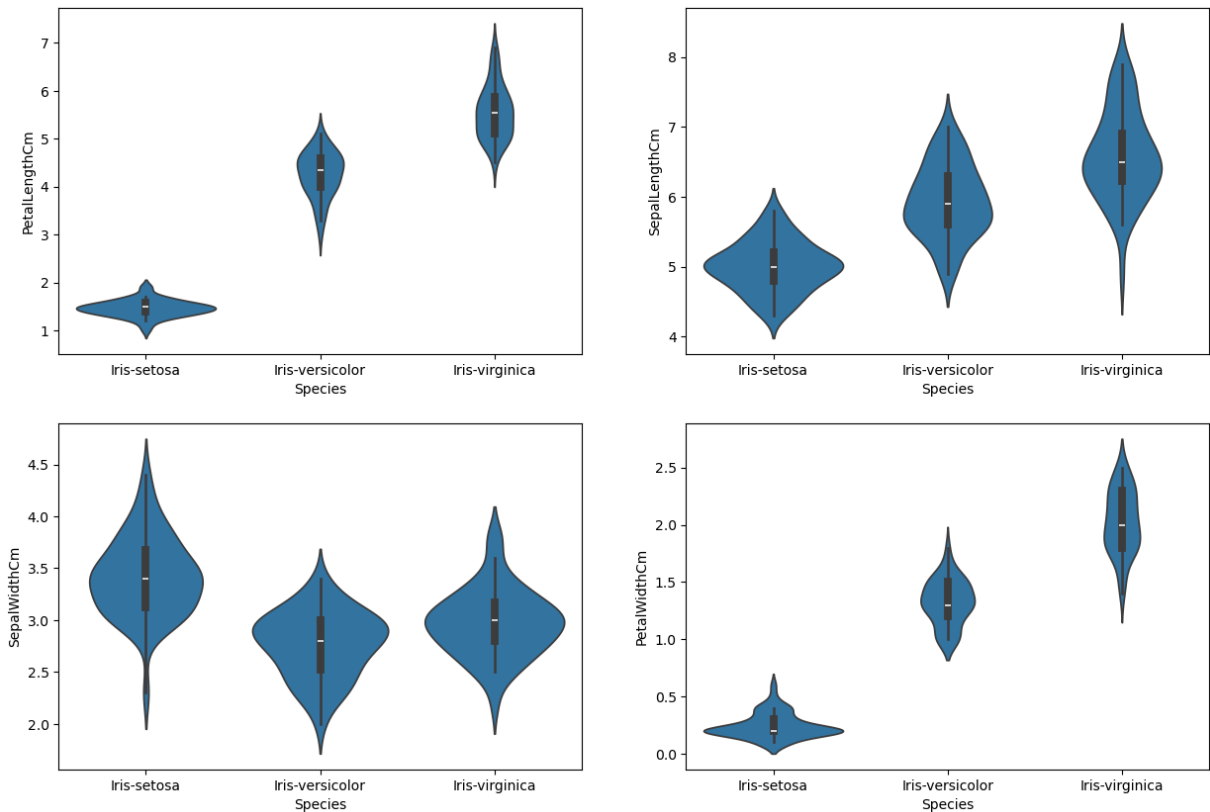
In [96]: `# vilionplot`

In [97]: `fig=plt.gcf()  
fig.set_size_inches(12,6)  
fig=sns.violinplot(data=iris,x='Species',y='PetalLengthCm')  
plt.show()`

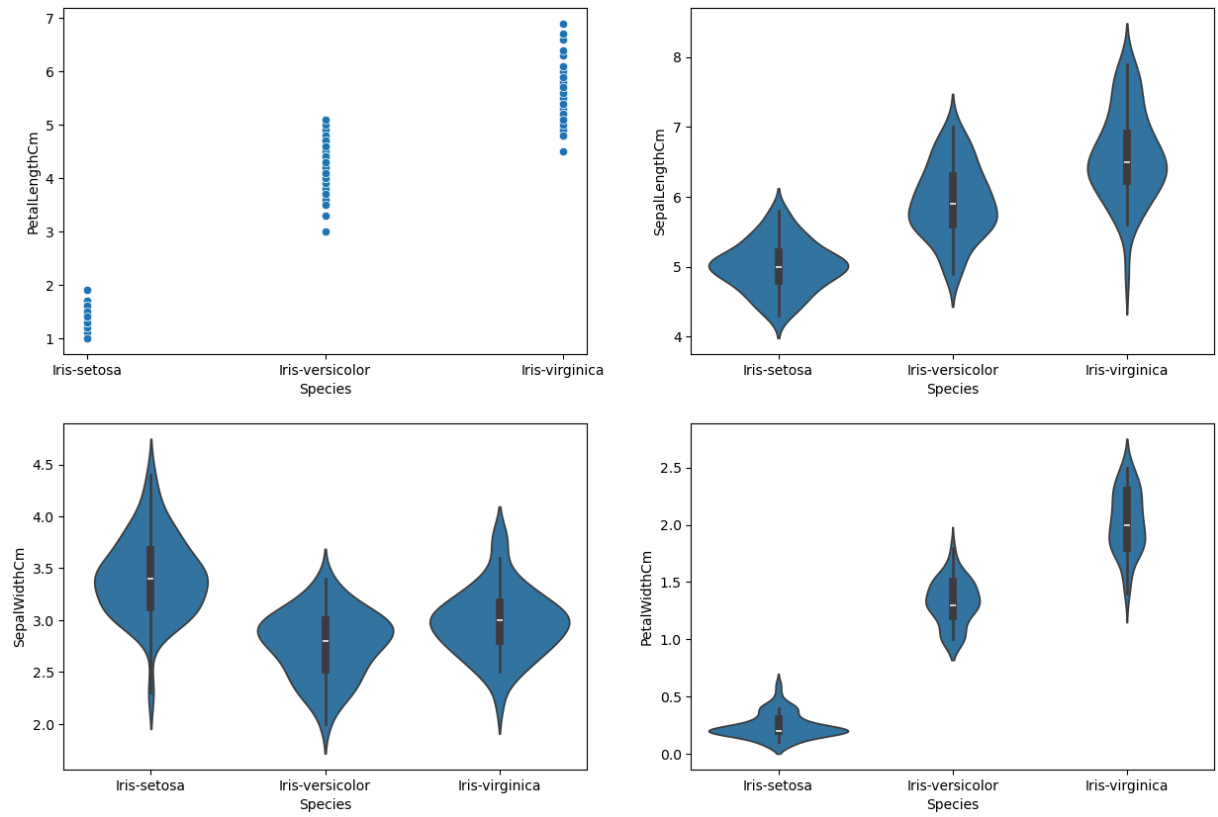


In [44]: `plt.figure(figsize=(15,10))  
plt.subplot(2,2,1)`

```
sns.violinplot(data=iris,x='Species',y='PetalLengthCm')
plt.subplot(2,2,2)
sns.violinplot(data=iris,x='Species',y='SepalLengthCm')
plt.subplot(2,2,3)
sns.violinplot(data=iris,x='Species',y='SepalWidthCm')
plt.subplot(2,2,4)
sns.violinplot(data=iris,x='Species',y='PetalWidthCm')
plt.show()
```

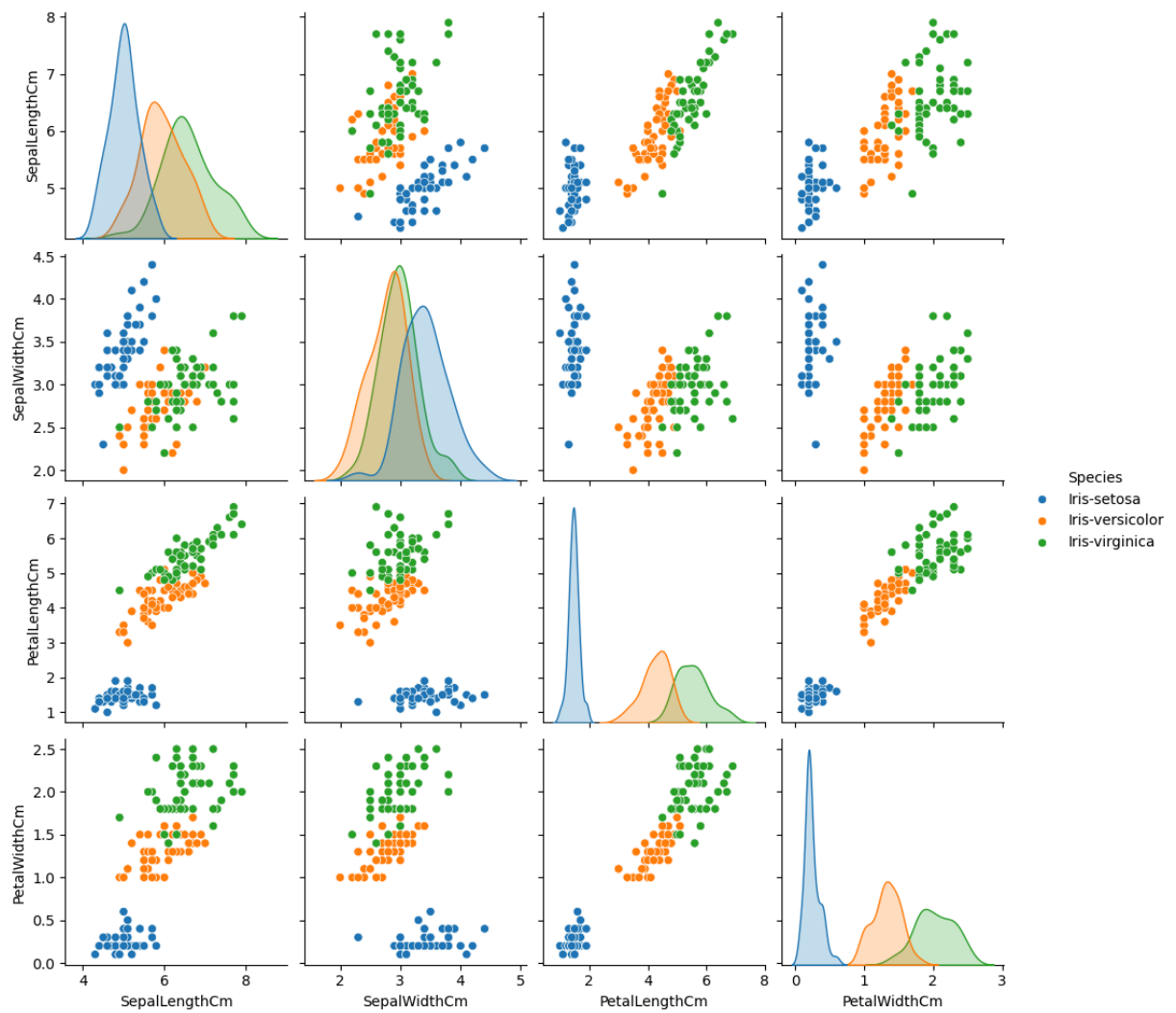


```
In [45]: %matplotlib inline
plt.figure(figsize=(15,10))
plt.subplot(2,2,1)
sns.scatterplot(data=iris,x='Species',y='PetalLengthCm')
plt.subplot(2,2,2)
sns.violinplot(data=iris,x='Species',y='SepalLengthCm')
plt.subplot(2,2,3)
sns.violinplot(data=iris,x='Species',y='SepalWidthCm')
plt.subplot(2,2,4)
sns.violinplot(data=iris,x='Species',y='PetalWidthCm')
plt.show()
```

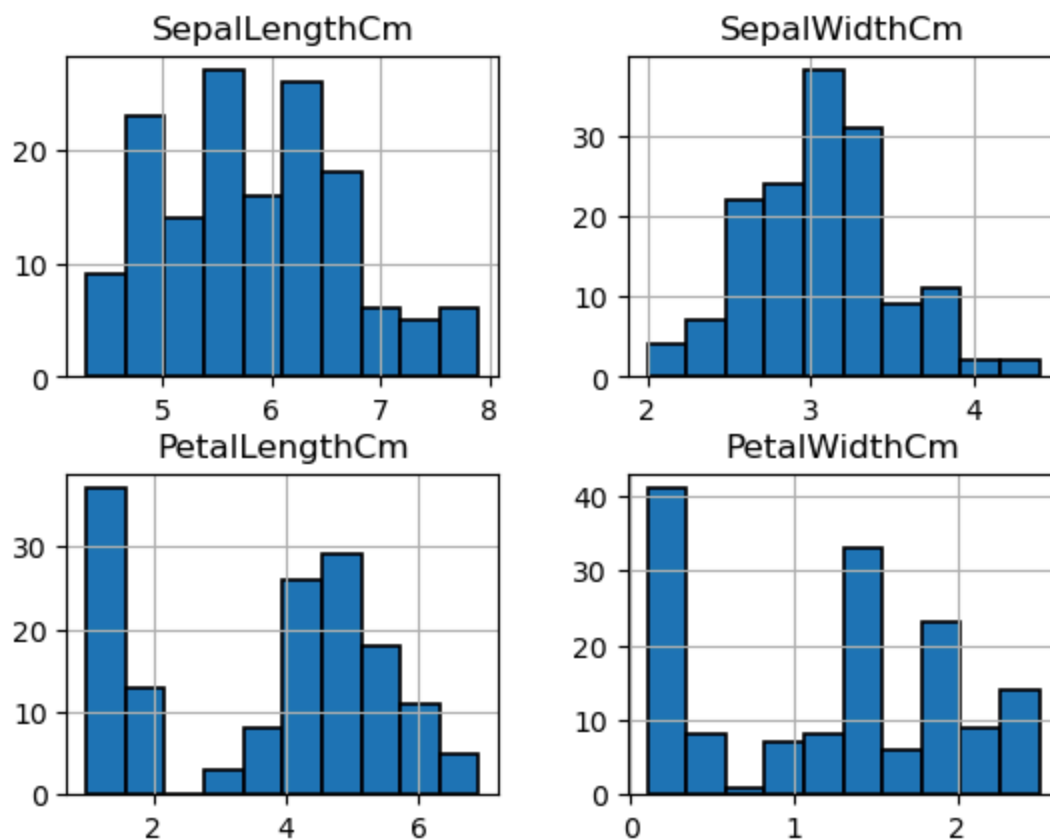


```
In [46]: sns.pairplot(data=iris,hue='Species')  
plt.show()
```





```
In [47]: iris.hist(edgecolor='black',linewidth=1.2)
plt.show()
```

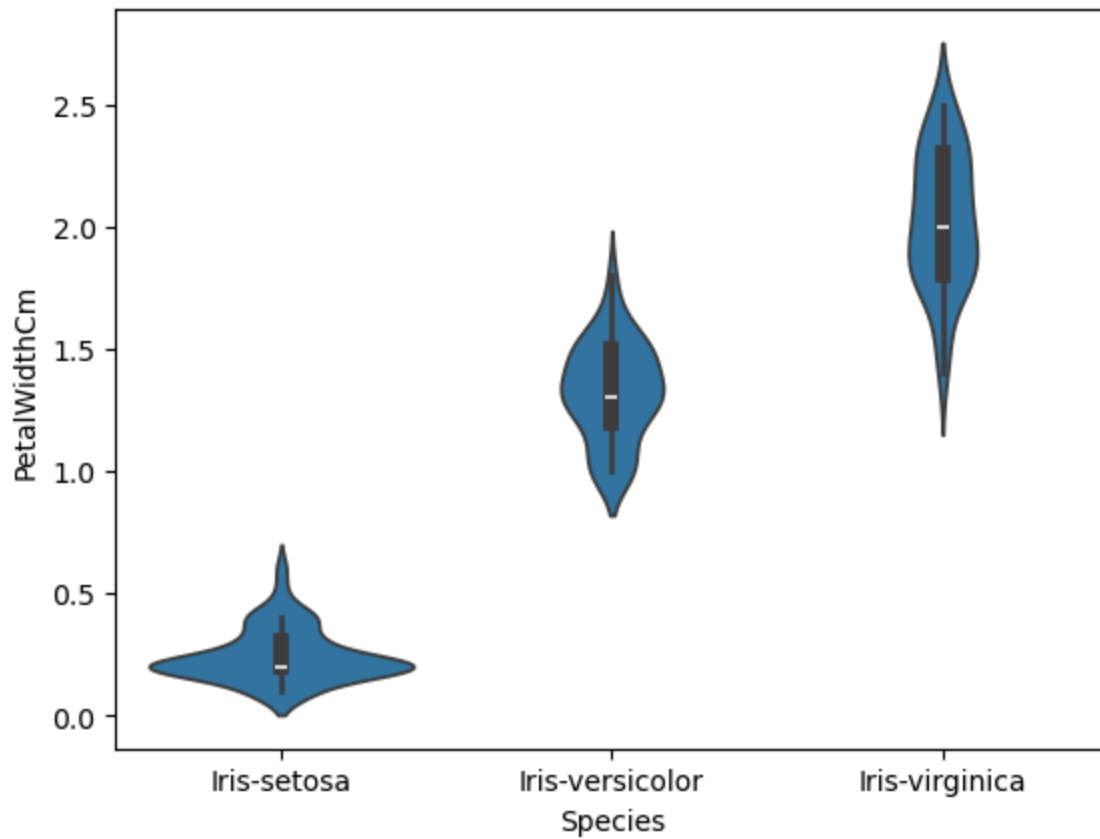


```
In [48]: fig=plt.gcf()
fig.set_size_inches(12,6)

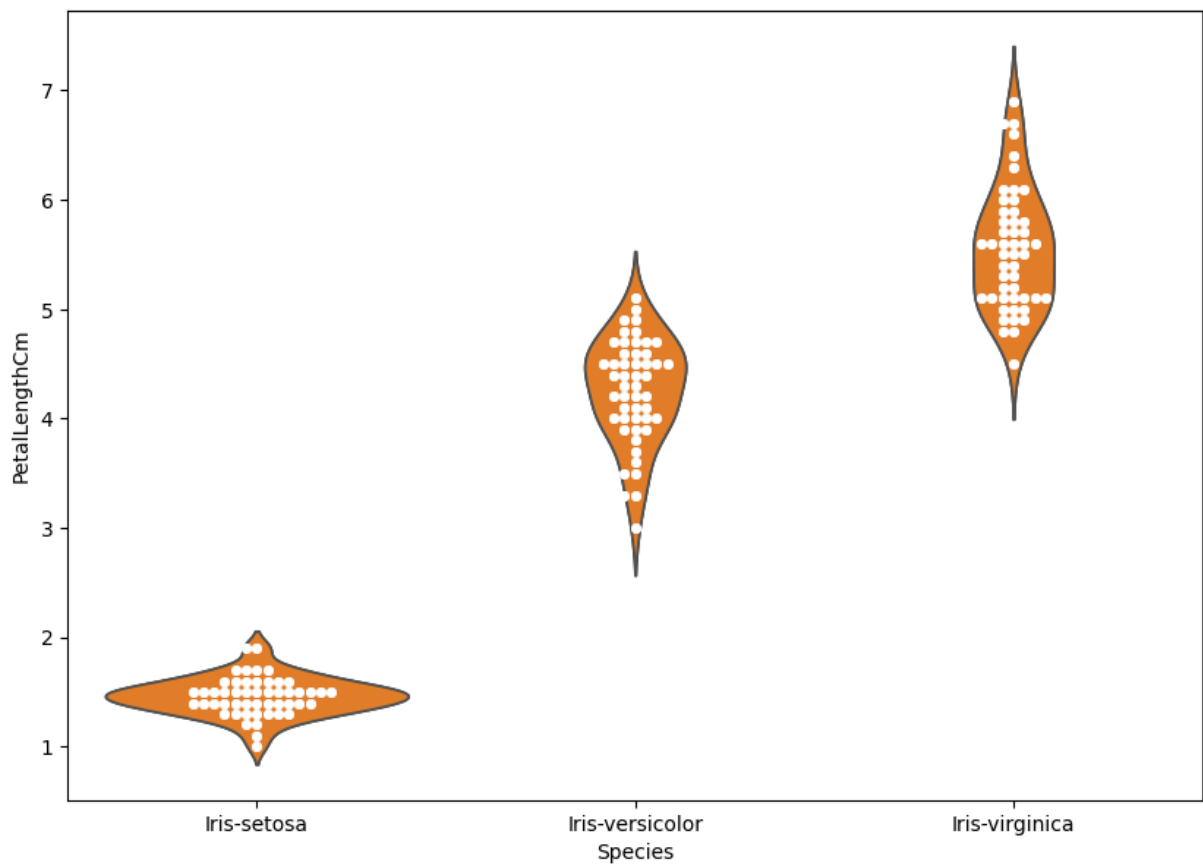
plt.show()
```

<Figure size 1200x600 with 0 Axes>

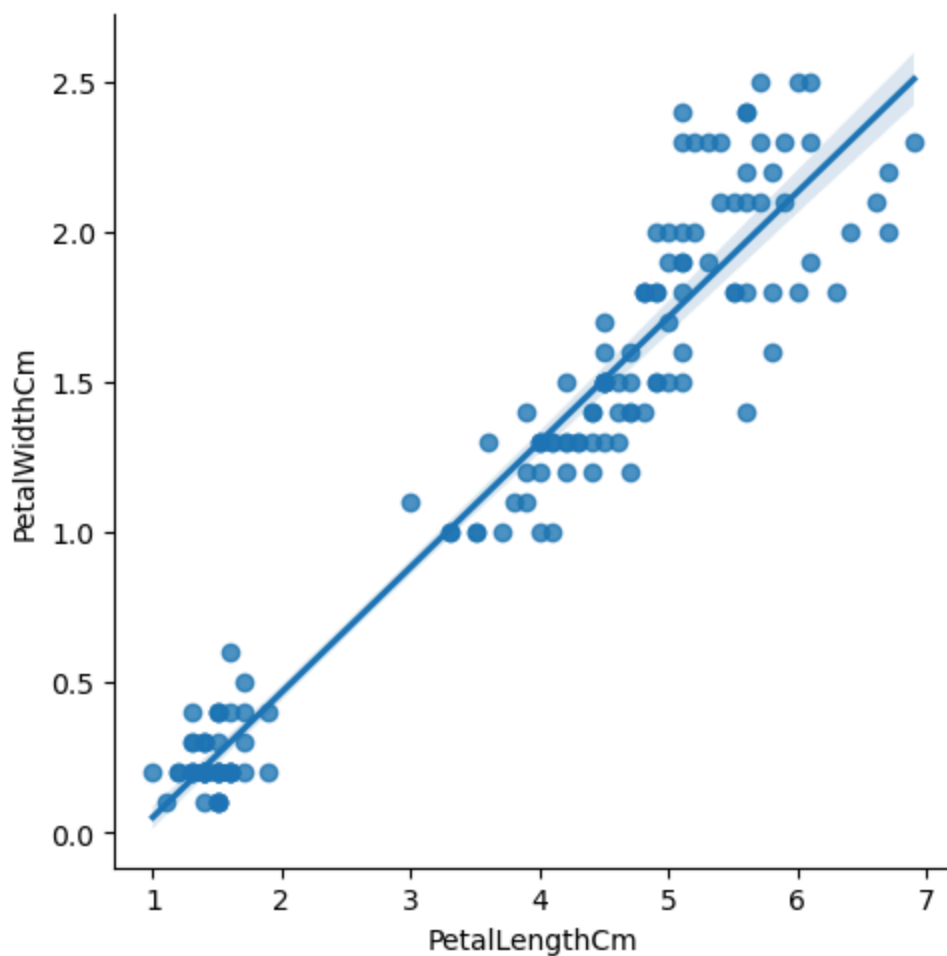
```
In [98]: sns.violinplot(data=iris,x='Species',y='PetalWidthCm')
plt.show()
```



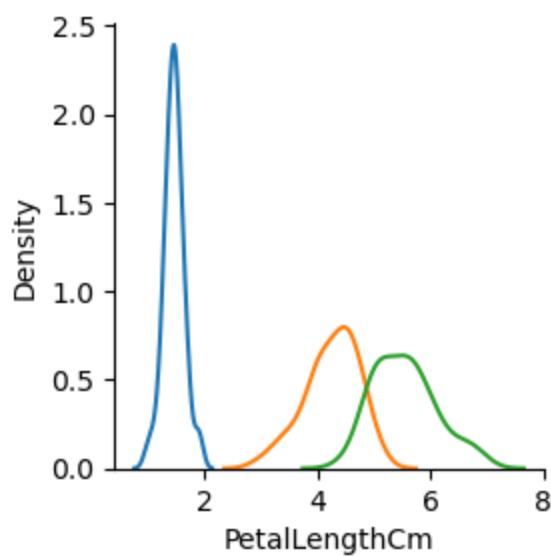
```
In [105... fig=plt.gcf()
fig.set_size_inches(10,7)
ax = sns.violinplot(x="Species", y="PetalLengthCm", data=iris, inner=None)
ax = sns.swarmplot(x="Species", y="PetalLengthCm", data=iris,color="white", edgecol
plt.show()
```



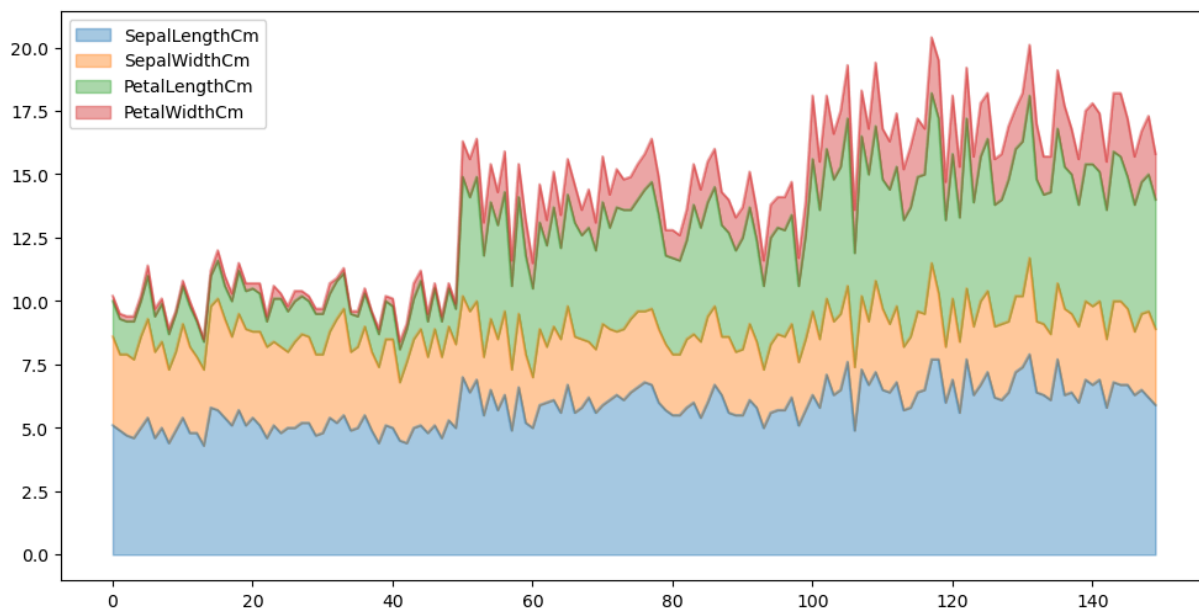
```
In [108... fig=sns.lmplot(data=iris,x='PetalLengthCm',y='PetalWidthCm')  
plt.show()
```



```
In [115... sns.FacetGrid(data=iris,hue='Species')\
.map(sns.kdeplot,'PetalLengthCm')\
.add_legend
plt.show()
```



```
In [120... iris.plot.area(y=['SepalLengthCm','SepalWidthCm','PetalLengthCm','PetalWidthCm'],al
plt.show())
```



In [ ]: