In [1]:
```
import numpy as np
import pandas as pd
```

In [3]:
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [5]:
```
import warnings
warnings.filterwarnings('ignore')
```

In [7]:
```
iris=pd.read_csv(r'C:\Users\DELL\Downloads\Iris.csv')
```

In [9]:
```
iris
```

Out[9]:

	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 [11]:
```
iris.head()
```

Out[11]:

	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 [13]:
```
iris.drop('Id',axis=1,inplace=True)
```

In [15]:
```
iris.head()
```

Out[15]:

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

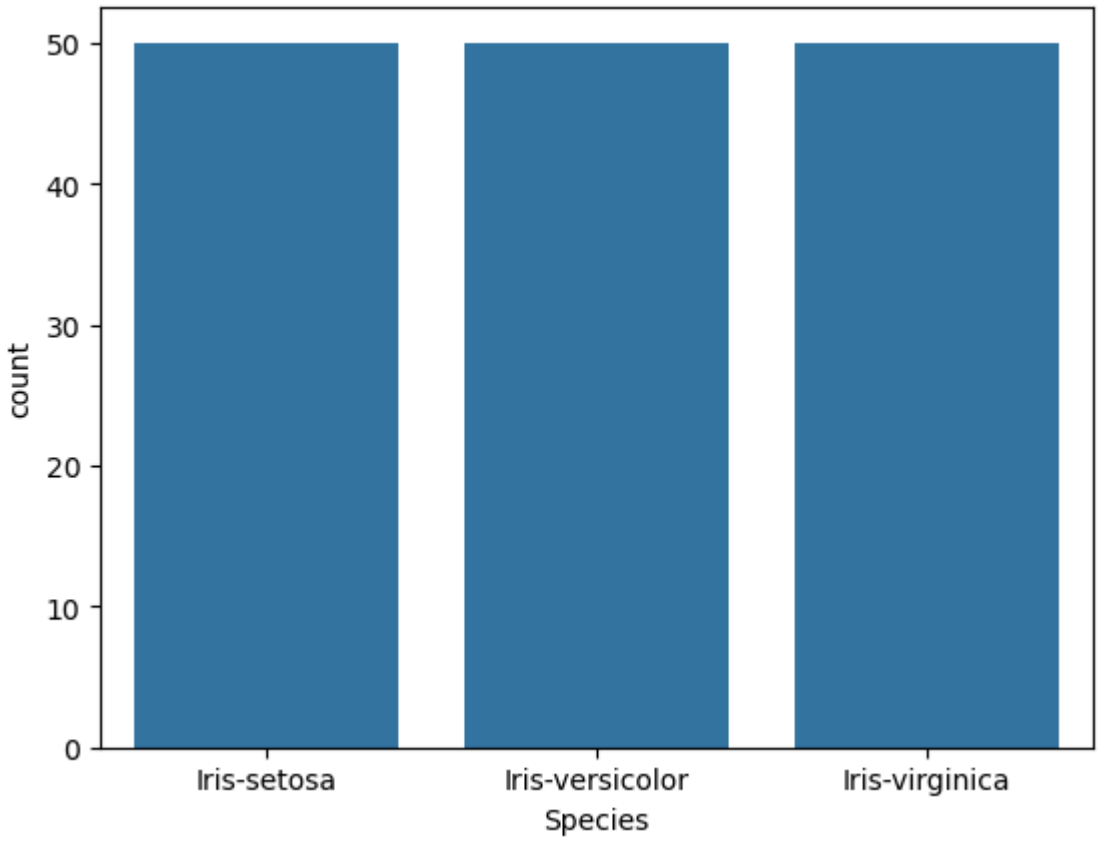
In [17]:
```
iris.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
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: 6.0+ KB
```

In [19]:
```
iris['Species'].value_counts()
```

Out[19]:
```
Species
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: count, dtype: int64
```

In [31]:
```
sns.countplot(data= iris,x='Species')
plt.show()
```

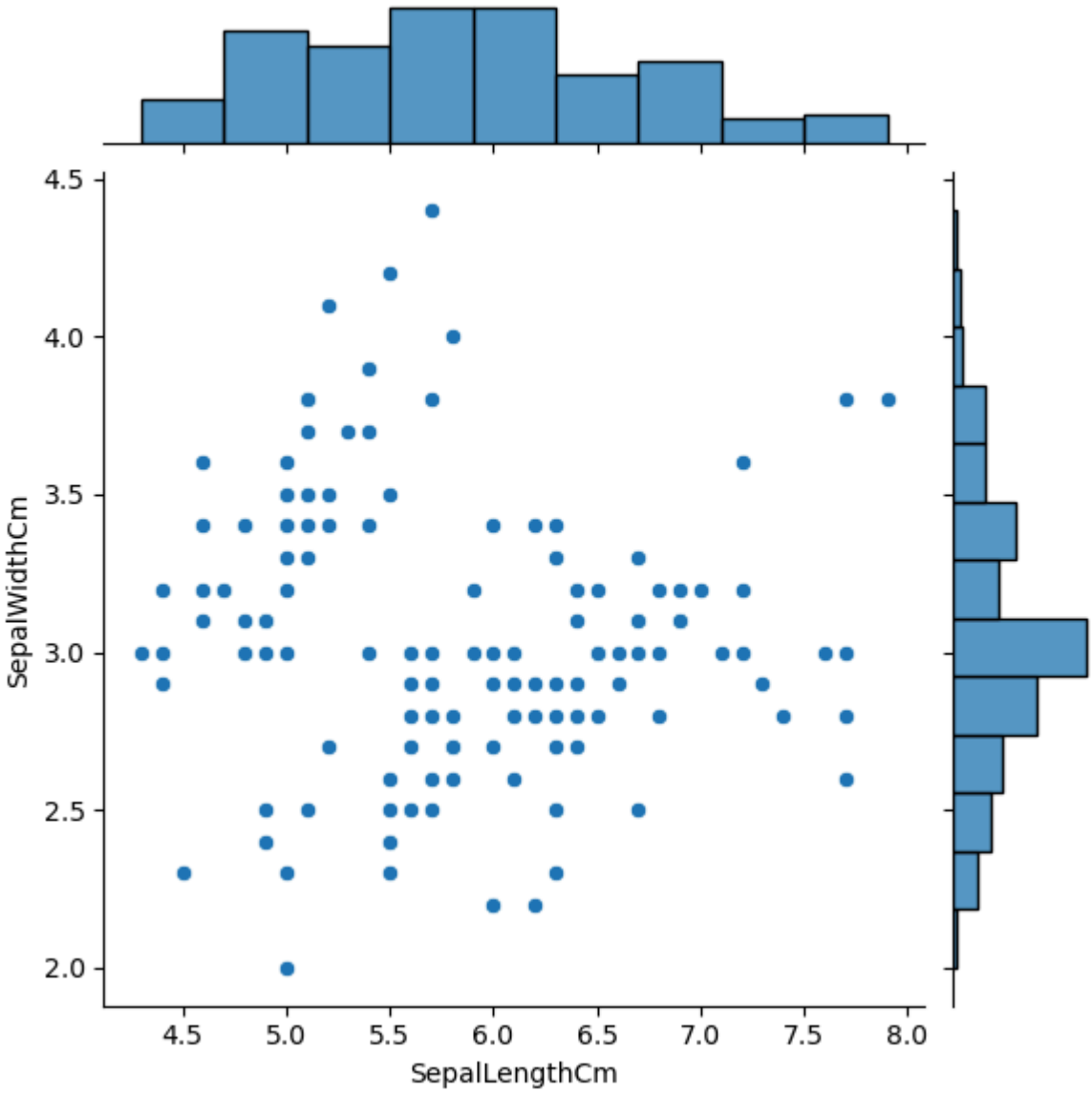


In [33]:
```
iris.head()
```

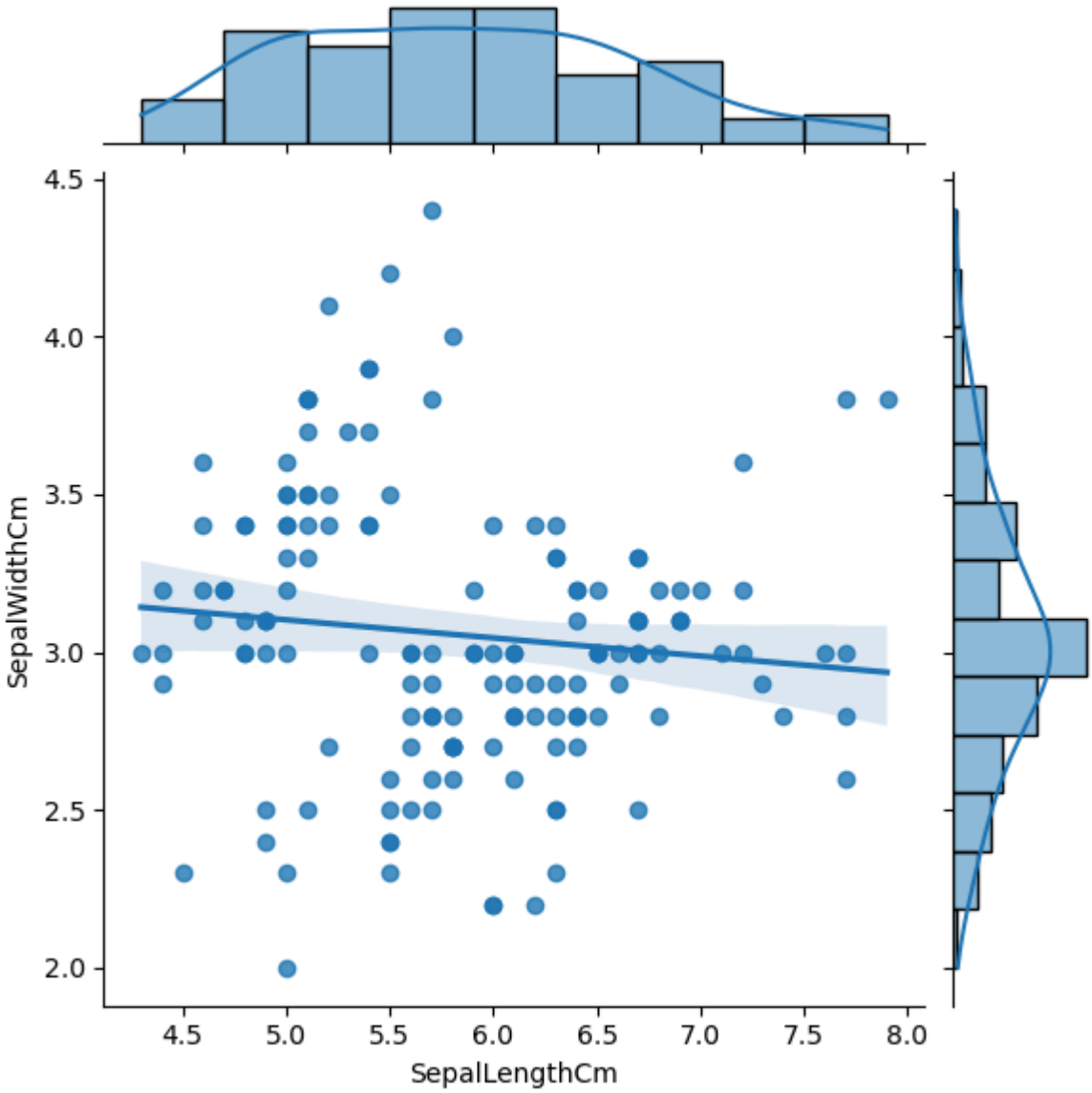
Out[33]:

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

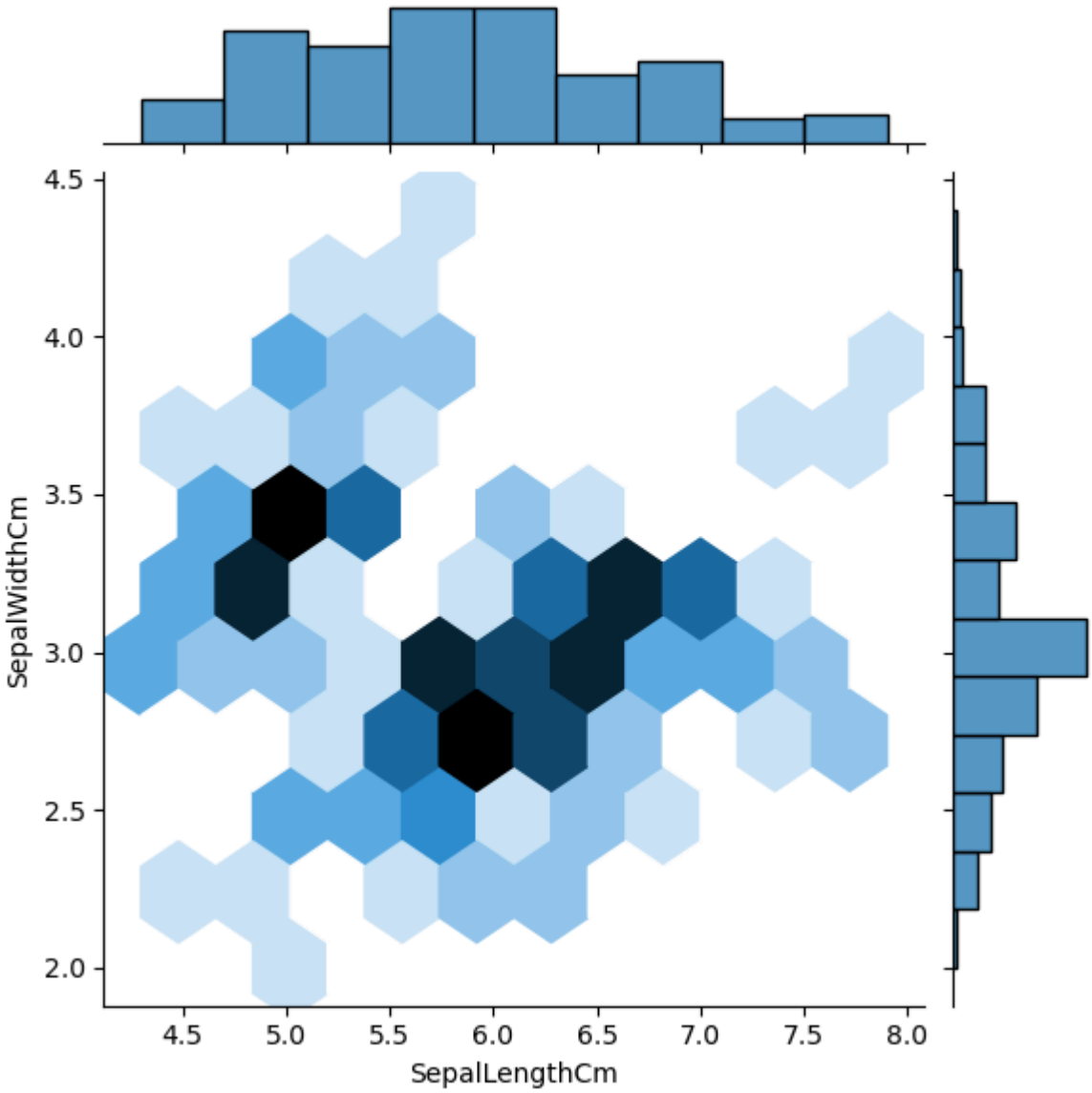
In [35]:
```
fig=sns.jointplot(x='SepalLengthCm',y='SepalWidthCm',data=iris)
plt.show()
```



In [47]:
```
sns.jointplot(x=iris["SepalLengthCm"], y=iris["SepalWidthCm"], data=iris, kind="
plt.show()
```

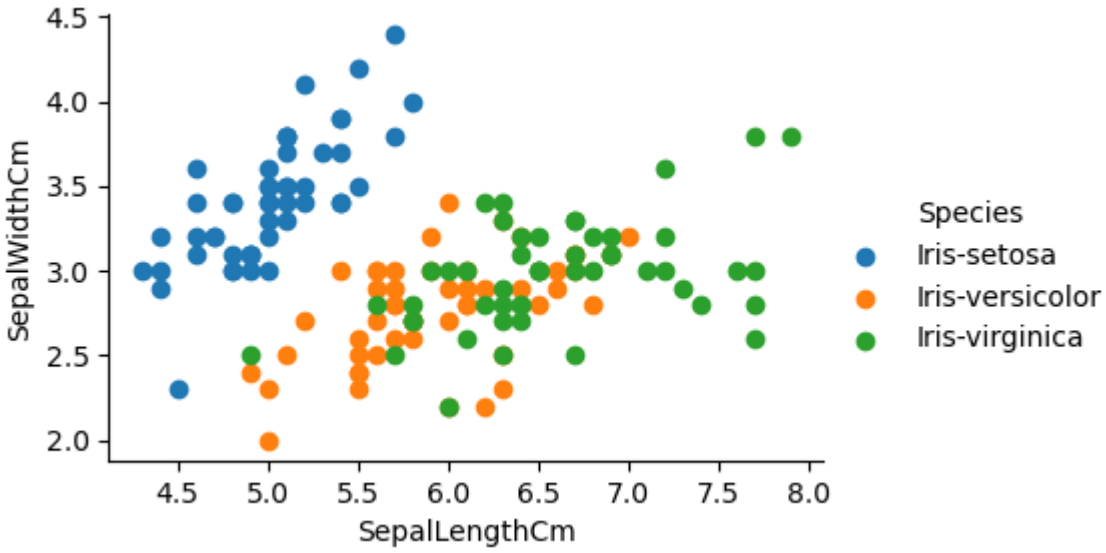


In [49]:
```
fig=sns.jointplot(x='SepalLengthCm',y='SepalWidthCm',kind='hex',data=iris)
plt.show()
```



In [53]:
```
import matplotlib.pyplot as plt
%matplotlib inline

sns.FacetGrid(iris,hue='Species',aspect=1.5)\
.map(plt.scatter,'SepalLengthCm','SepalWidthCm')\
.add_legend()
plt.show()
```

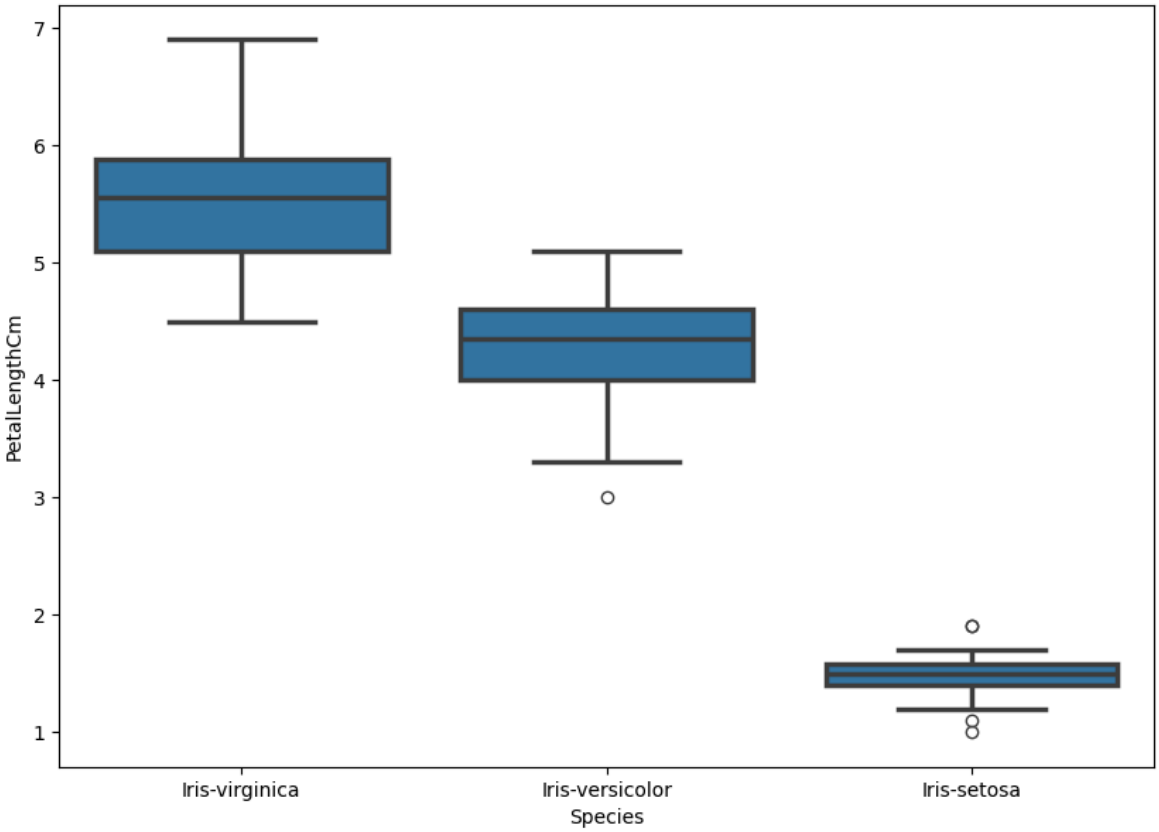


In [55]:
```
iris.head()
```

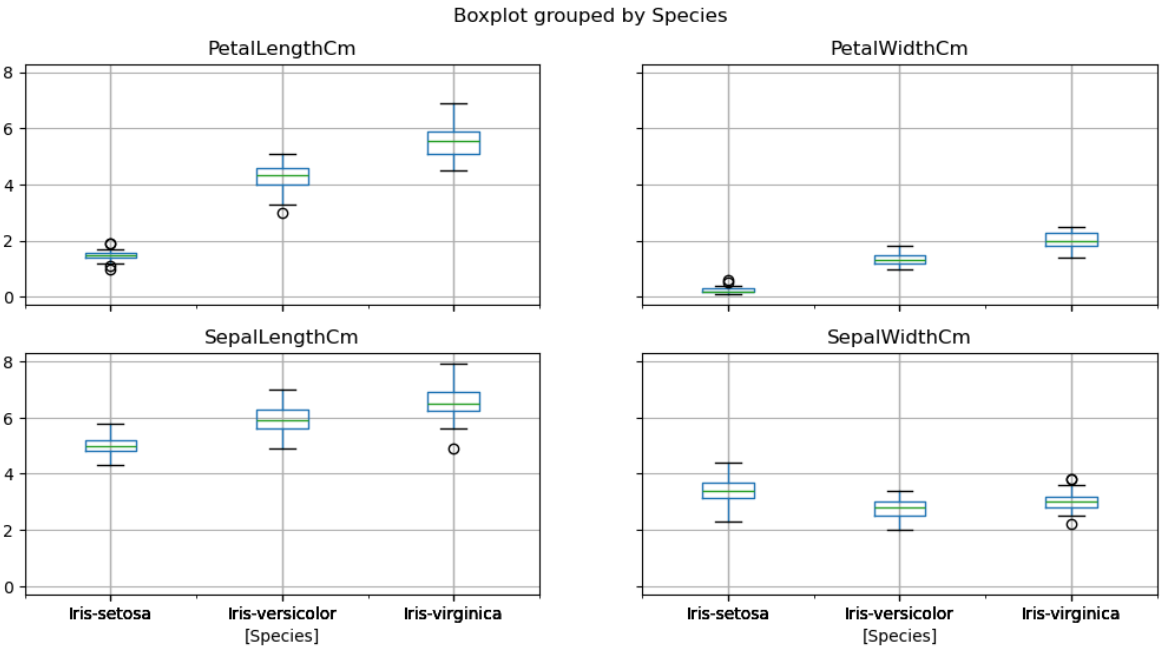
Out[55]:

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

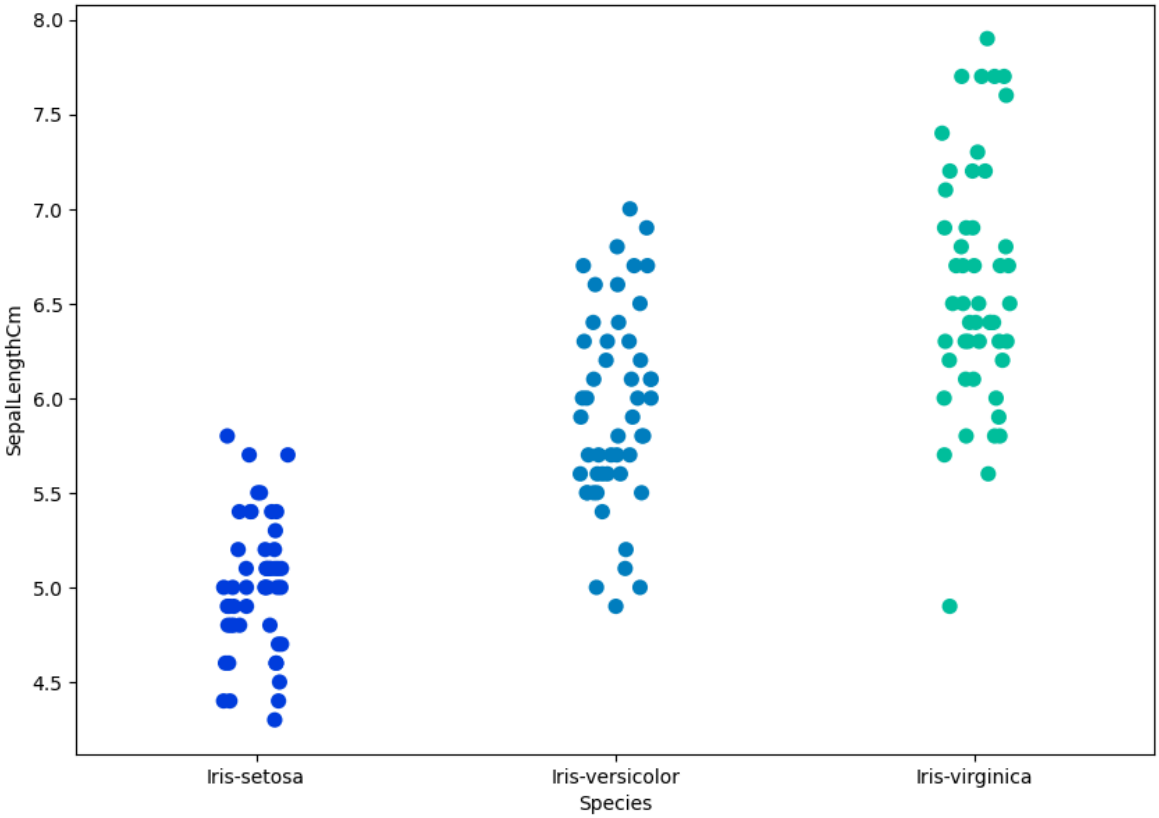
In [57]:
```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.boxplot(x='Species',y='PetalLengthCm',data=iris,order=['Iris-virginica',
plt.show()
```



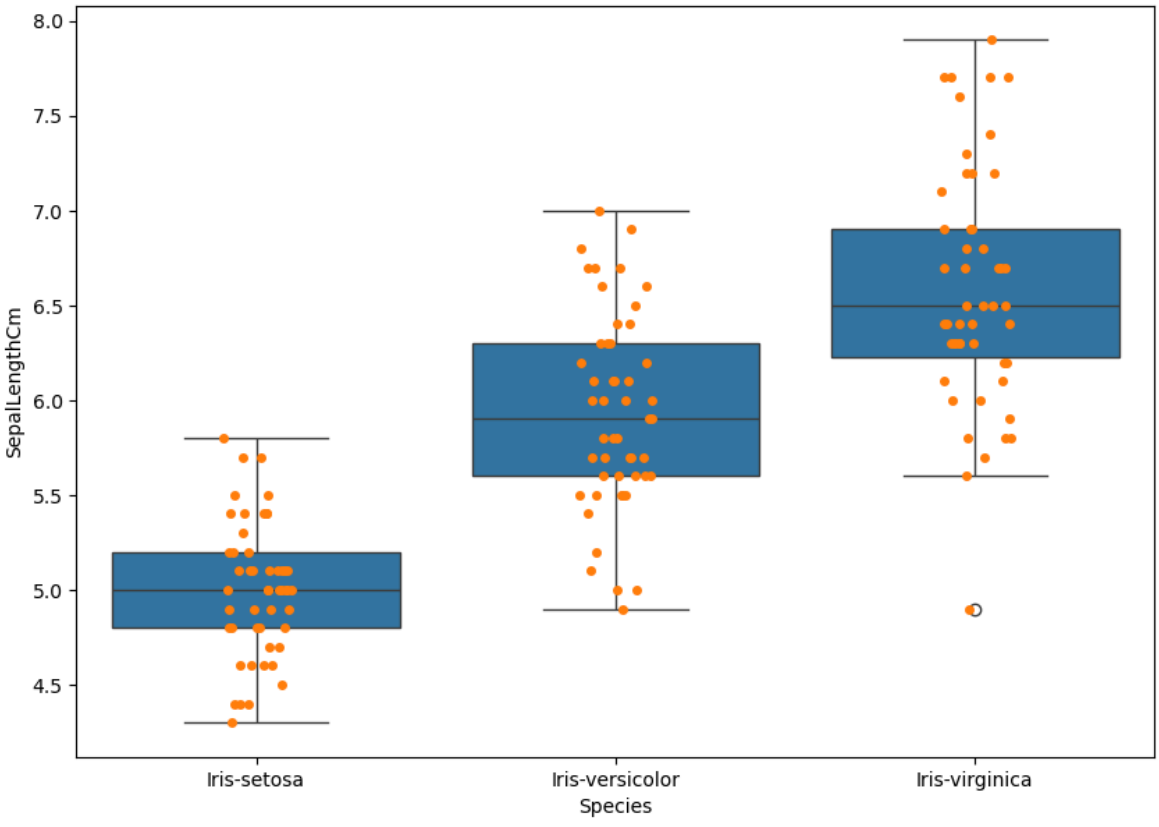
In [59]:
```
iris.boxplot(by="Species", figsize=(12, 6))
plt.show()
```



In [61]:
```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.stripplot(x='Species',y='SepalLengthCm',data=iris,jitter=True,edgecolor=
plt.show()
```



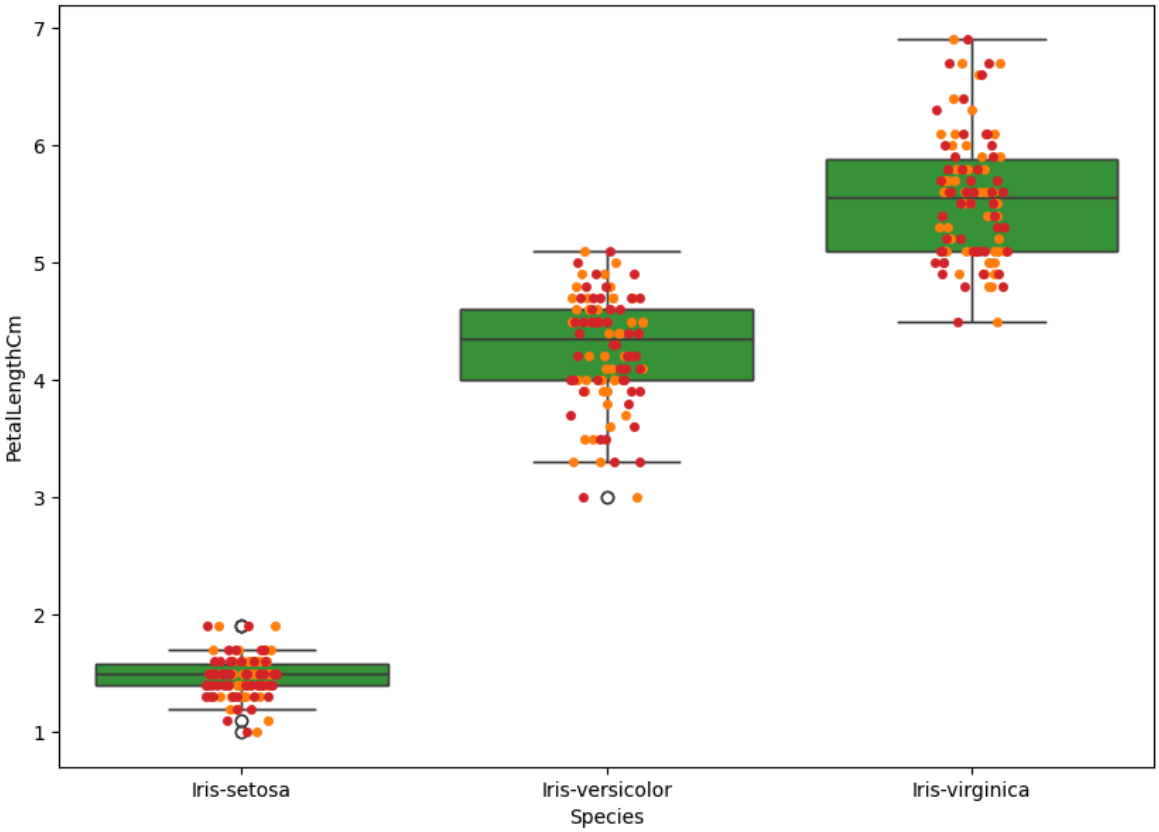
In [63]:
```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.boxplot(x='Species',y='SepalLengthCm',data=iris)
fig=sns.stripplot(x='Species',y='SepalLengthCm',data=iris,jitter=True,edgecolor=
plt.show()
```



In [83]:
```
ax= sns.boxplot(x="Species", y="PetalLengthCm", data=iris)
ax= sns.stripplot(x="Species", y="PetalLengthCm", data=iris, jitter=True, edgeco
boxes=ax.patches
```

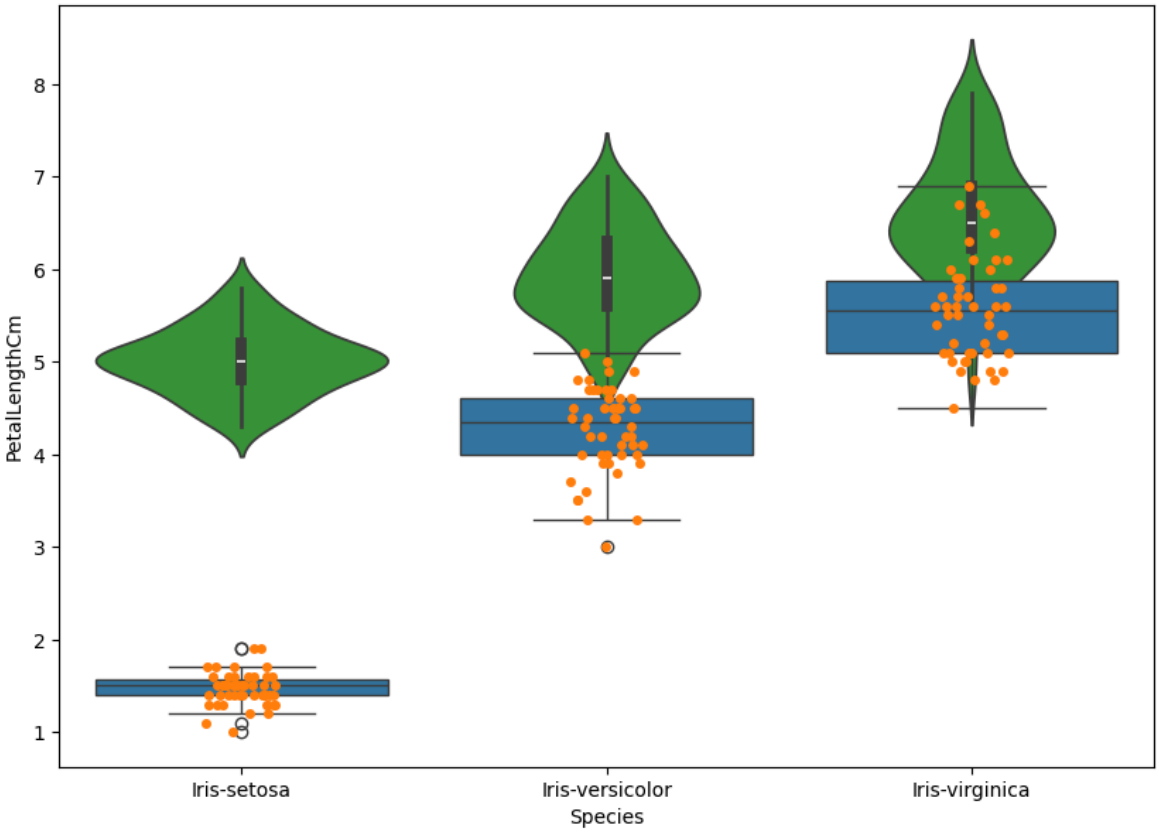
```
boxes[0].set_facecolor('green')
boxes[0].set_edgecolor('black')
boxes[1].set_facecolor('red')
boxes[1].set_edgecolor('black')
boxes[2].set_facecolor('yellow')
boxes[2].set_edgecolor('black')

plt.show()
```

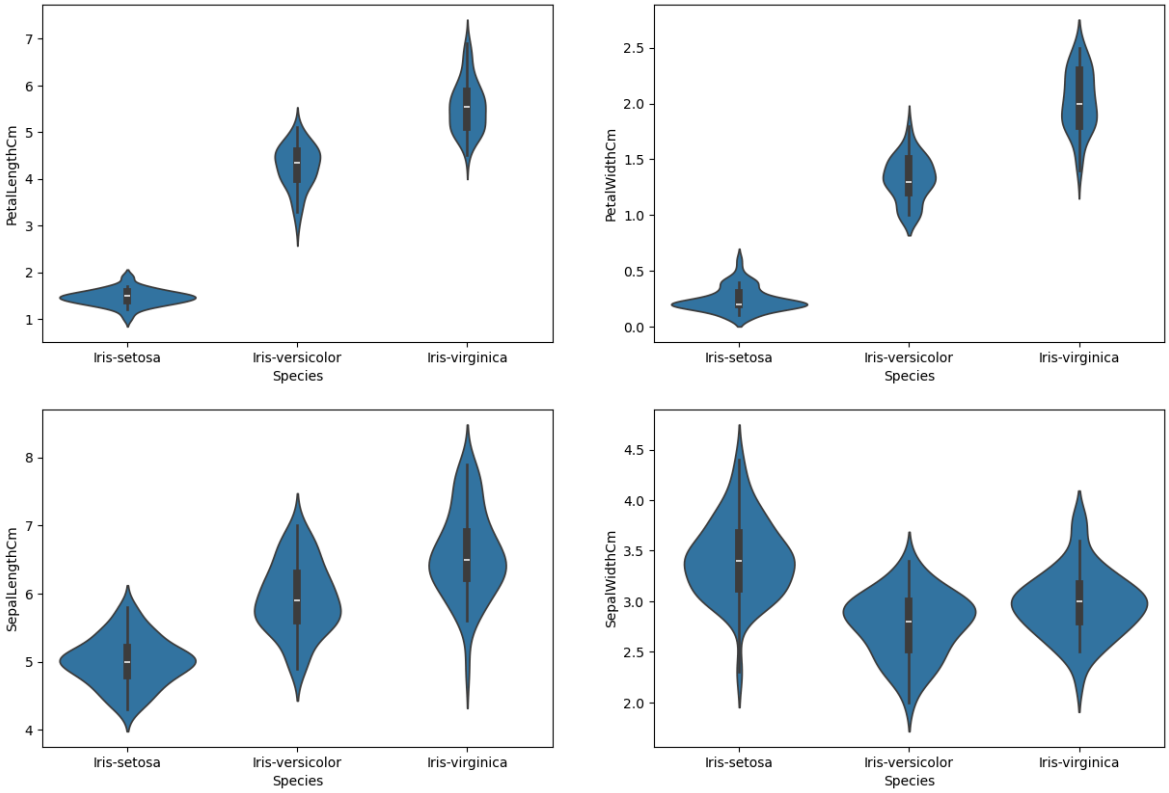


In [67]:

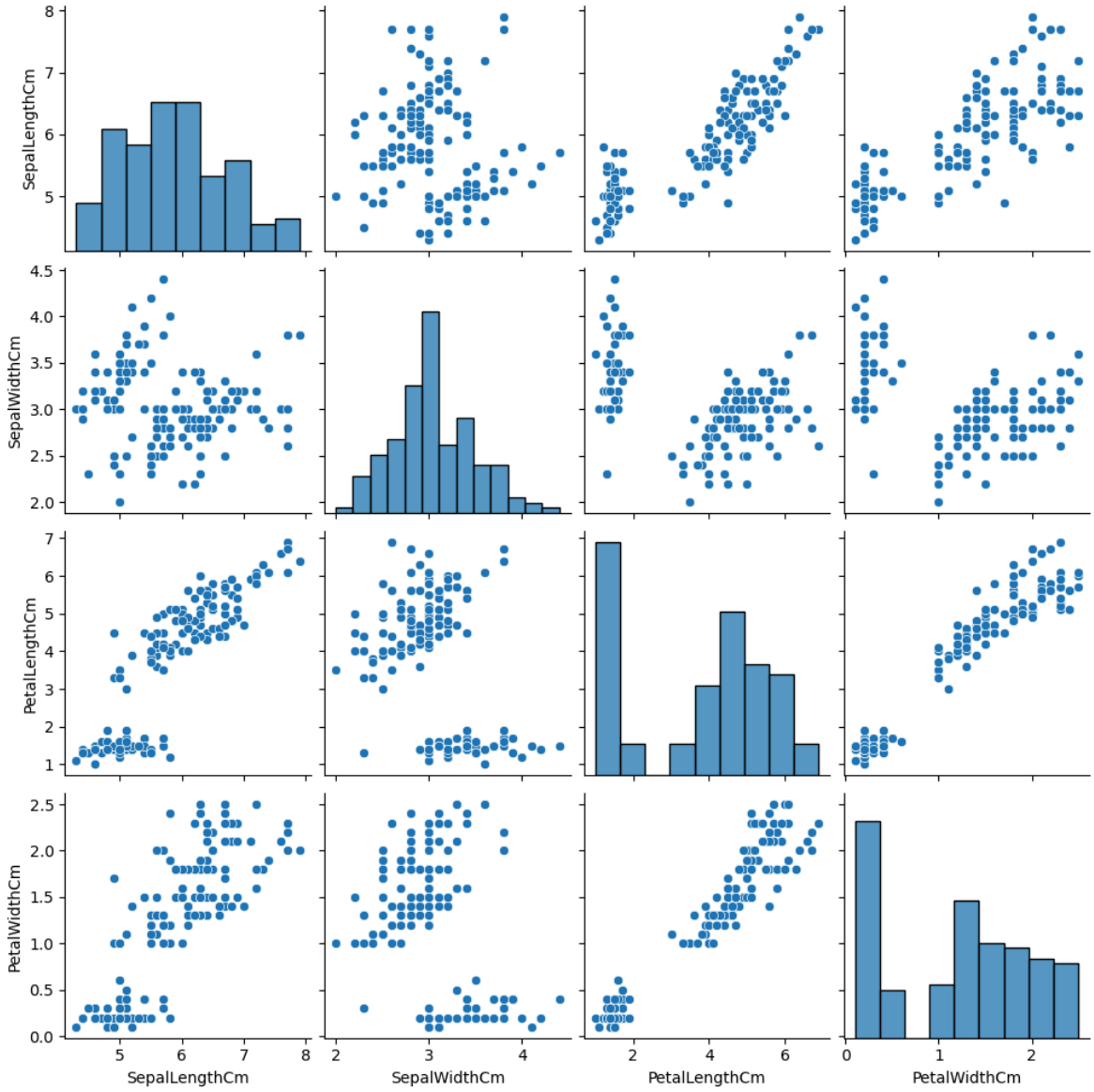
```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.violinplot(x='Species',y='SepalLengthCm',data=iris)
plt.show()
```



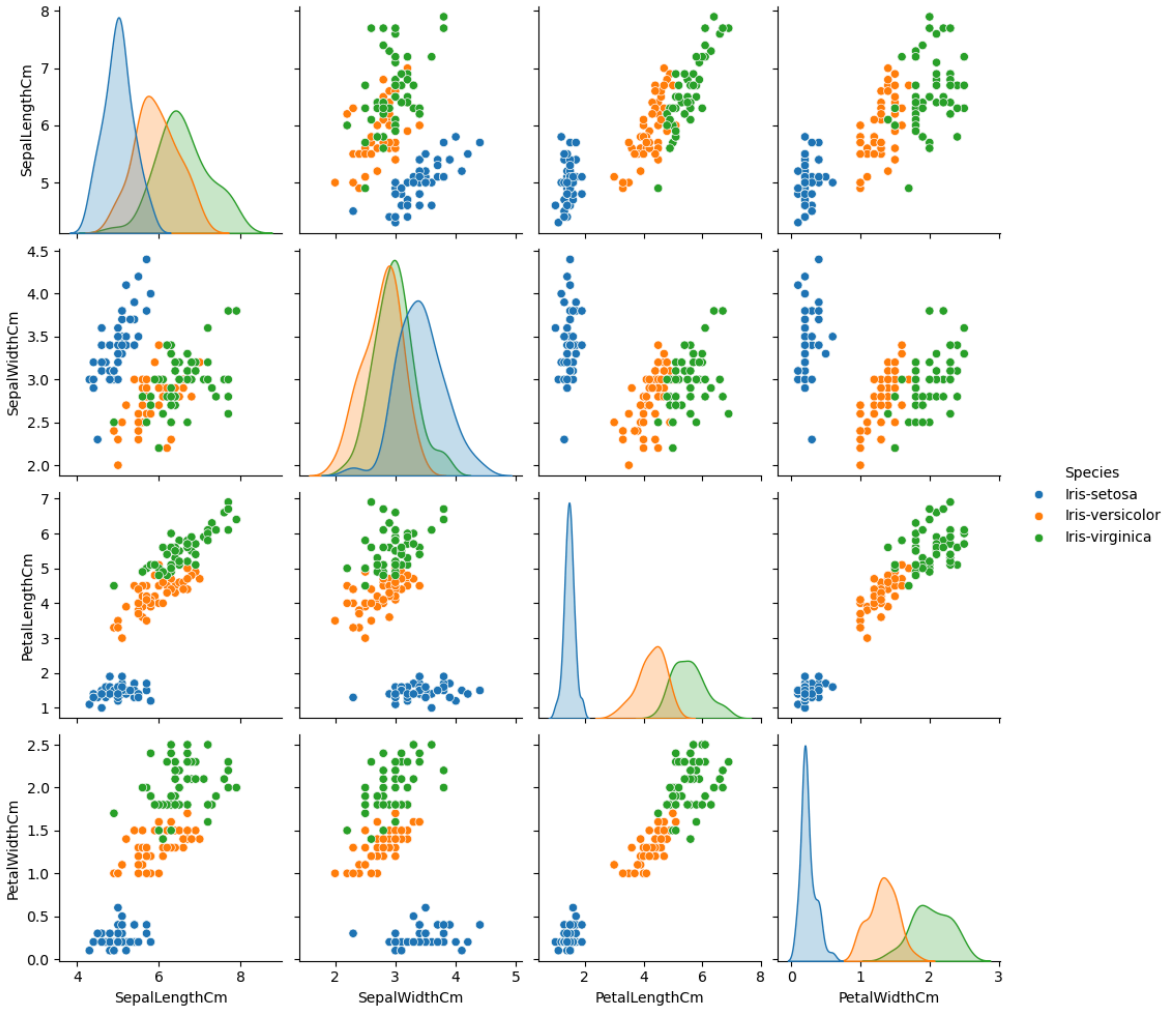
In [69]:
```
plt.figure(figsize=(15,10))
plt.subplot(2,2,1)
sns.violinplot(x='Species',y='PetalLengthCm',data=iris)
plt.subplot(2,2,2)
sns.violinplot(x='Species',y='PetalWidthCm',data=iris)
plt.subplot(2,2,3)
sns.violinplot(x='Species',y='SepalLengthCm',data=iris)
plt.subplot(2,2,4)
sns.violinplot(x='Species',y='SepalWidthCm',data=iris)
plt.show()
```



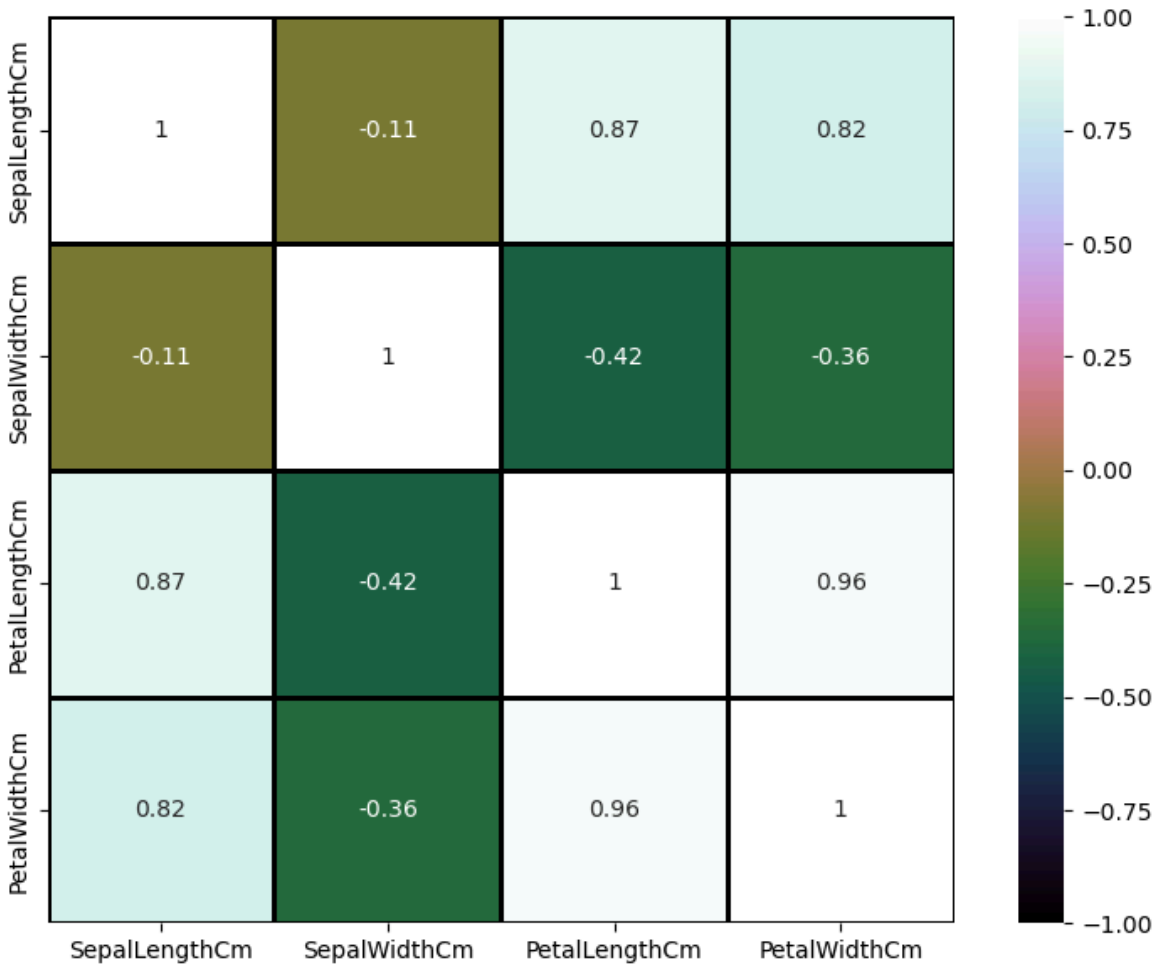
In [71]:
```
sns.pairplot(data=iris,kind='scatter')
plt.show()
```



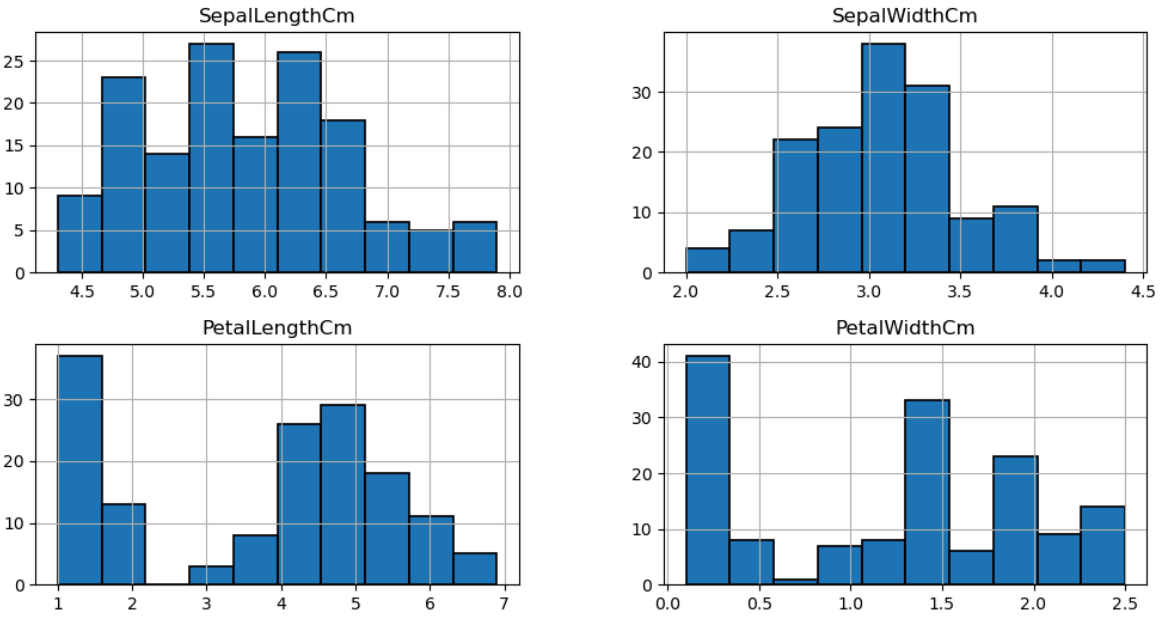
In [73]:
```
sns.pairplot(iris,hue='Species');
plt.show()
```



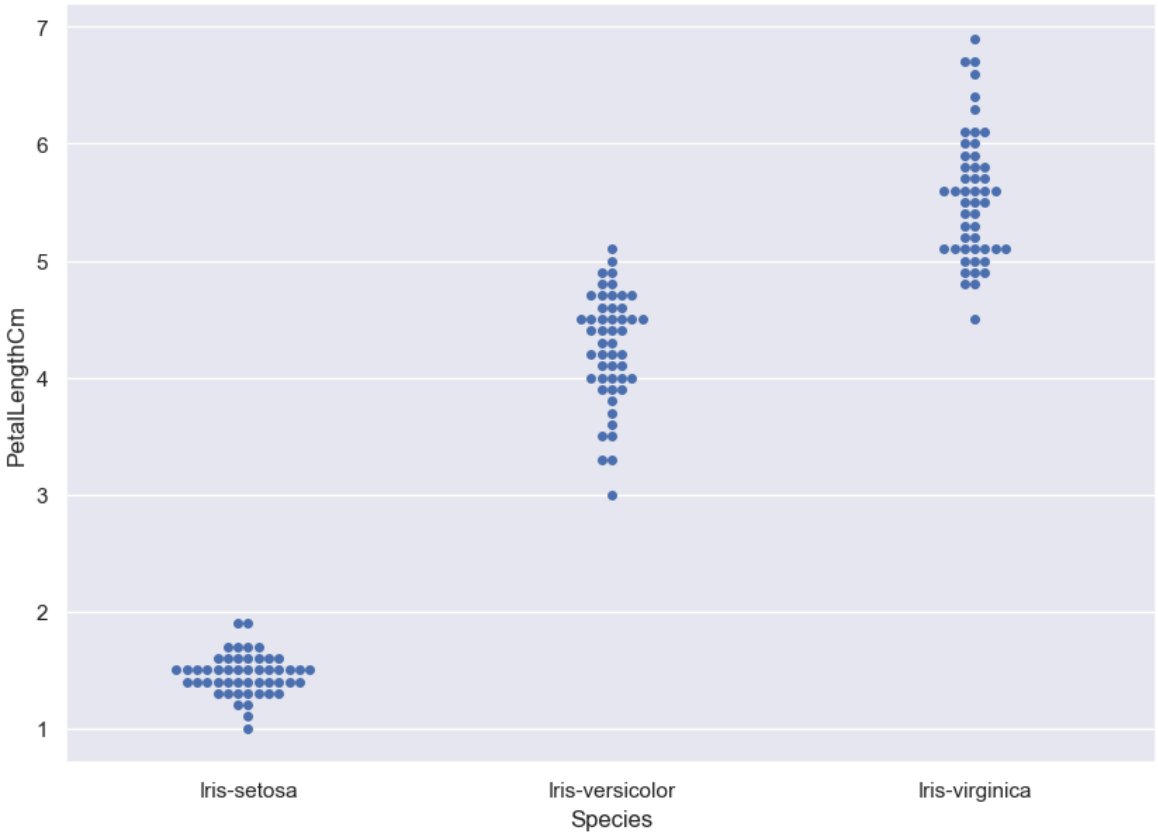
In [87]:
```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.heatmap(iris.corr(numeric_only=True),annot=True,cmap='cubehelix',linewid
plt.show()
```



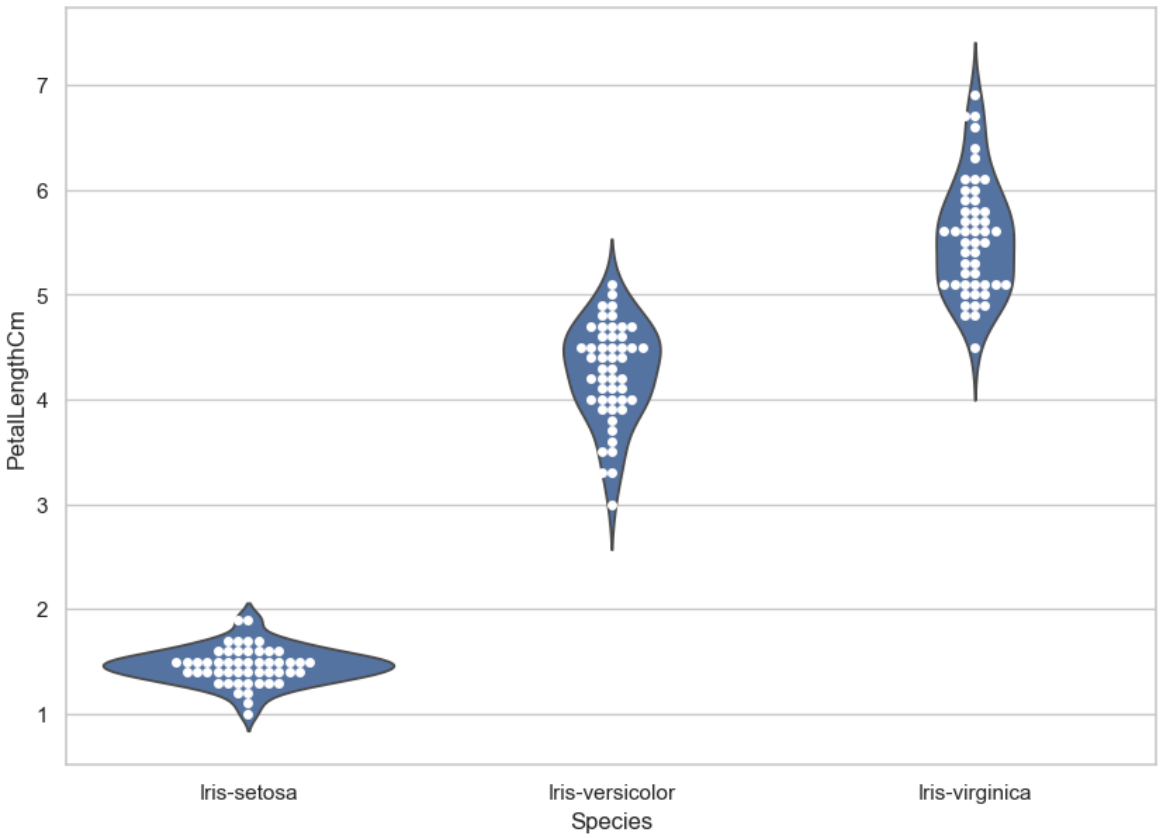
In [89]:
```
iris.hist(edgecolor='black', linewidth=1.2)
fig=plt.gcf()
fig.set_size_inches(12,6)
plt.show()
```



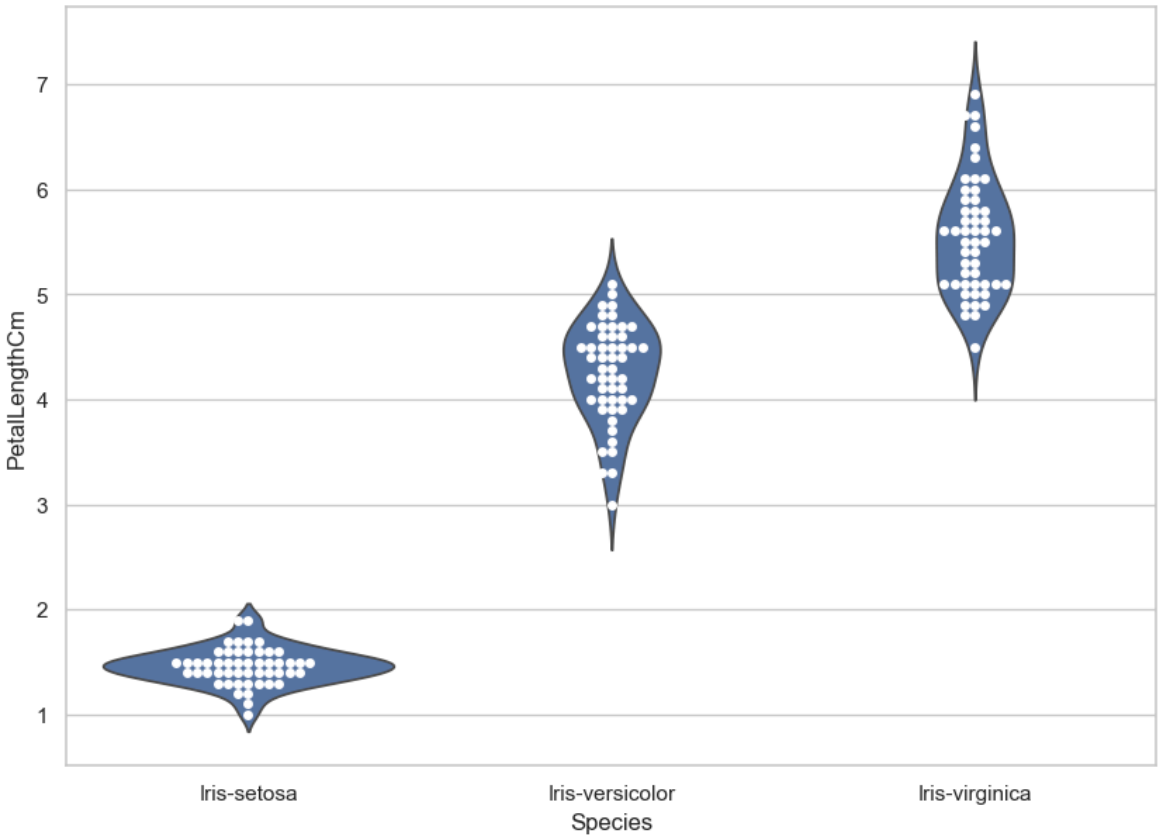
In [91]:
```
sns.set(style="darkgrid")
fig=plt.gcf()
fig.set_size_inches(10,7)
fig = sns.swarmplot(x="Species", y="PetalLengthCm", data=iris)
plt.show()
```



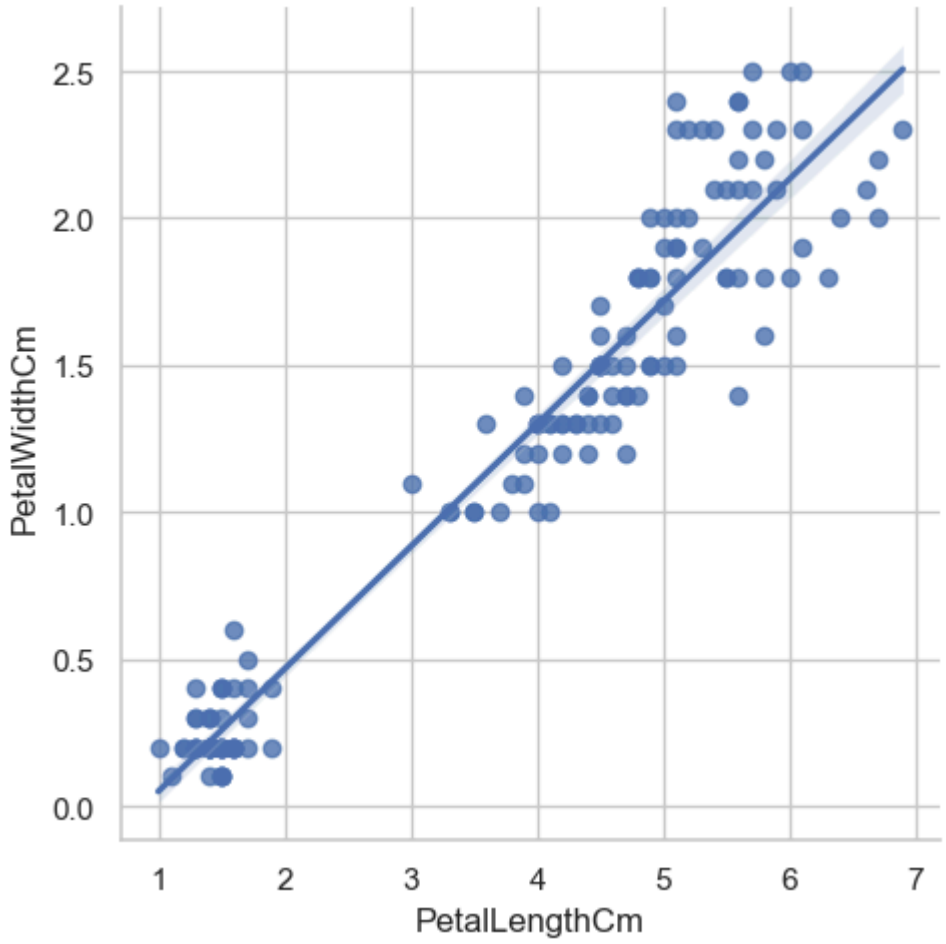
In [93]:
```
sns.set(style="whitegrid")
fig=plt.gcf()
fig.set_size_inches(10,7)
ax = sns.violinplot(x="Species", y="PetalLengthCm", data=iris, inner=None)
ax = sns.swarmplot(x="Species", y="PetalLengthCm", data=iris,color="white", edge
plt.show()
```



In [95]:
```
sns.set(style="whitegrid")
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", edge
plt.show()
```

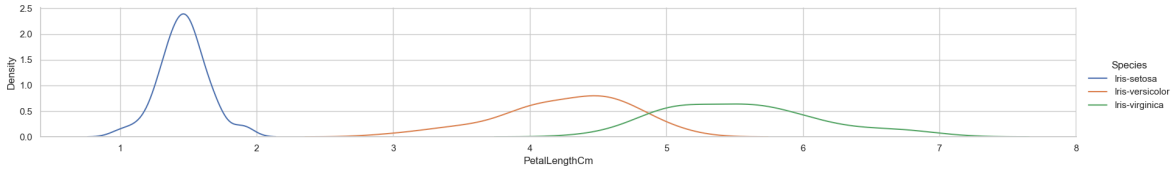


In [97]:
```
fig=sns.lmplot(x="PetalLengthCm", y="PetalWidthCm",data=iris)
plt.show()
```



In [103…

```
sns.FacetGrid(iris, hue="Species", aspect=6) \
   .map(sns.kdeplot, "PetalLengthCm") \
   .add_legend()
plt.ioff()
plt.show()
```



In [105…

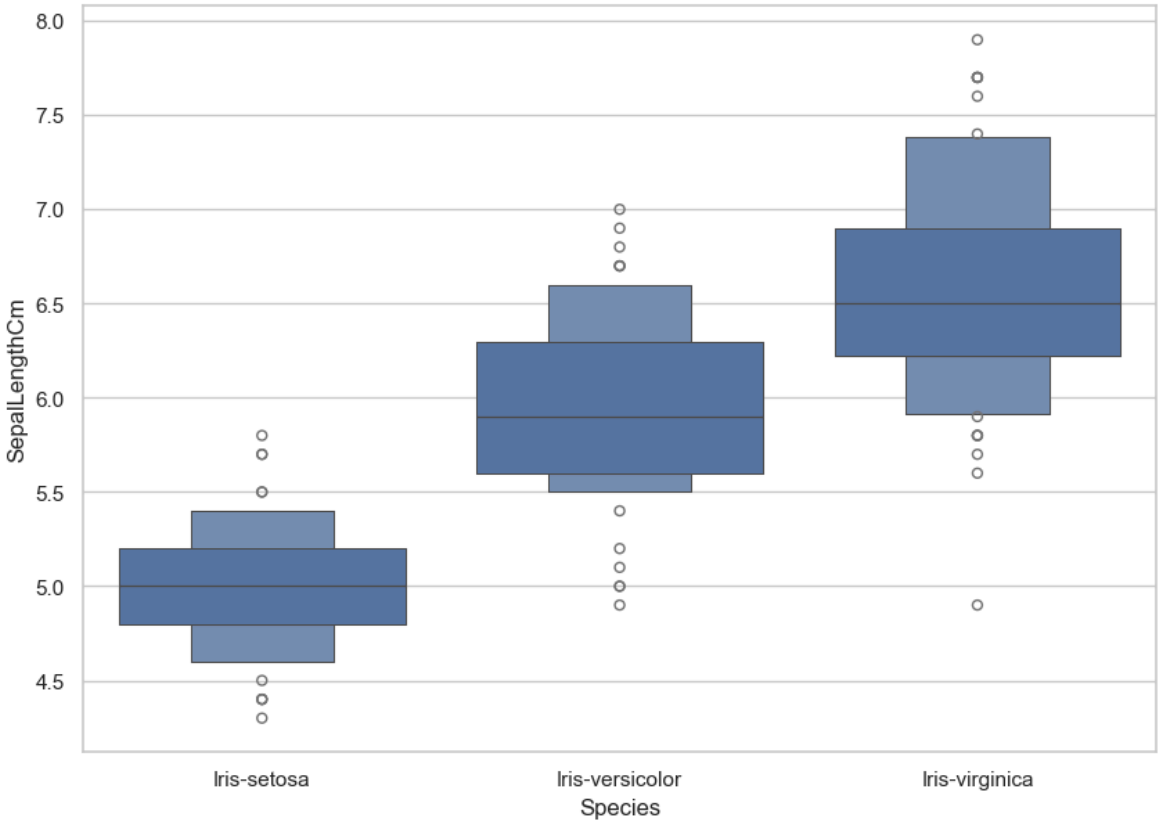
```
sns.factorplot('Species','SepalLengthCm',data=iris)
plt.ioff()
plt.show()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[105], line 1
----> 1 sns.factorplot('Species','SepalLengthCm',data=iris)
      2 plt.ioff()
      3 plt.show()

AttributeError: module 'seaborn' has no attribute 'factorplot'
```

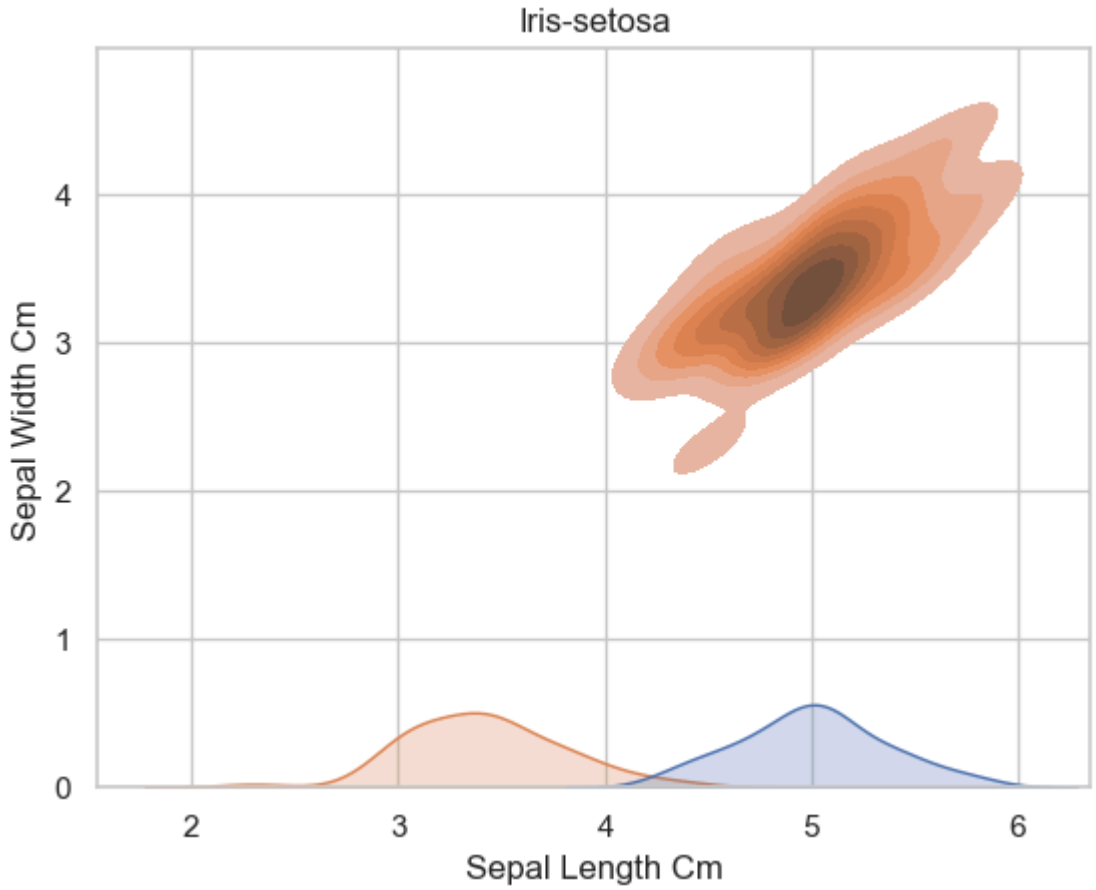
In [111…

```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.boxenplot(x='Species',y='SepalLengthCm',data=iris)
plt.show()
```



In [115…

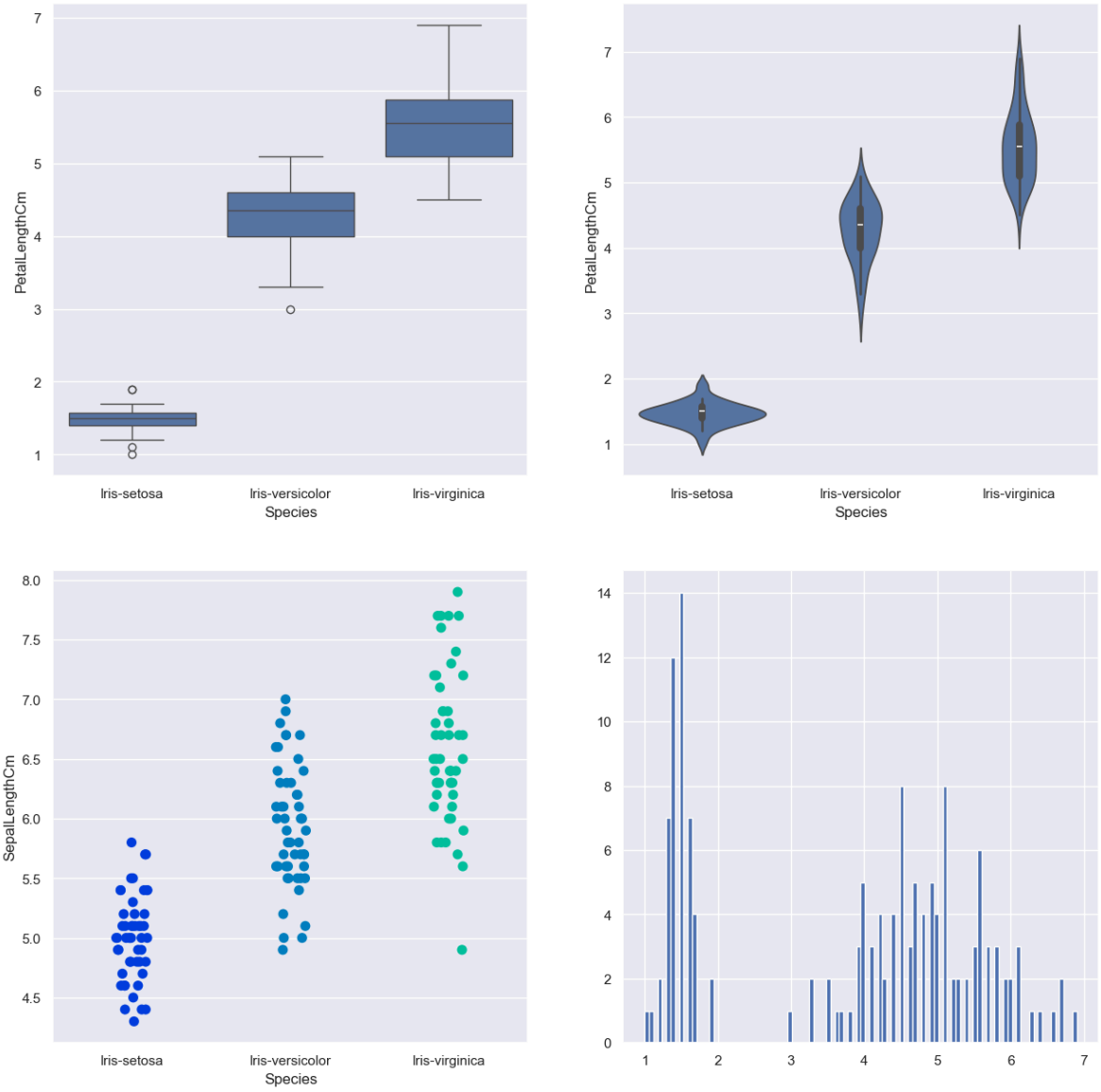
```
sub=iris[iris['Species']=='Iris-setosa']
sns.kdeplot(x='SepalLengthCm', y='SepalWidthCm', data=sub,fill=True)
plt.title('Iris-setosa')
plt.xlabel('Sepal Length Cm')
plt.ylabel('Sepal Width Cm')
plt.show()
```



In [119…

```
sns.set_style('darkgrid')
f,axes=plt.subplots(2,2,figsize=(15,15))

k1=sns.boxplot(x="Species", y="PetalLengthCm", data=iris,ax=axes[0,0])
k2=sns.violinplot(x='Species',y='PetalLengthCm',data=iris,ax=axes[0,1])
k3=sns.stripplot(x='Species',y='SepalLengthCm',data=iris,jitter=True,edgecolor='
#axes[1,1].hist(iris.hist,bin=10)
axes[1,1].hist(iris.PetalLengthCm,bins=100)
#k2.set(xlim=(-1,0.8))
plt.show()
```



In [121…

```
iris['Species'] = iris['Species'].astype('category')
iris.head()
```

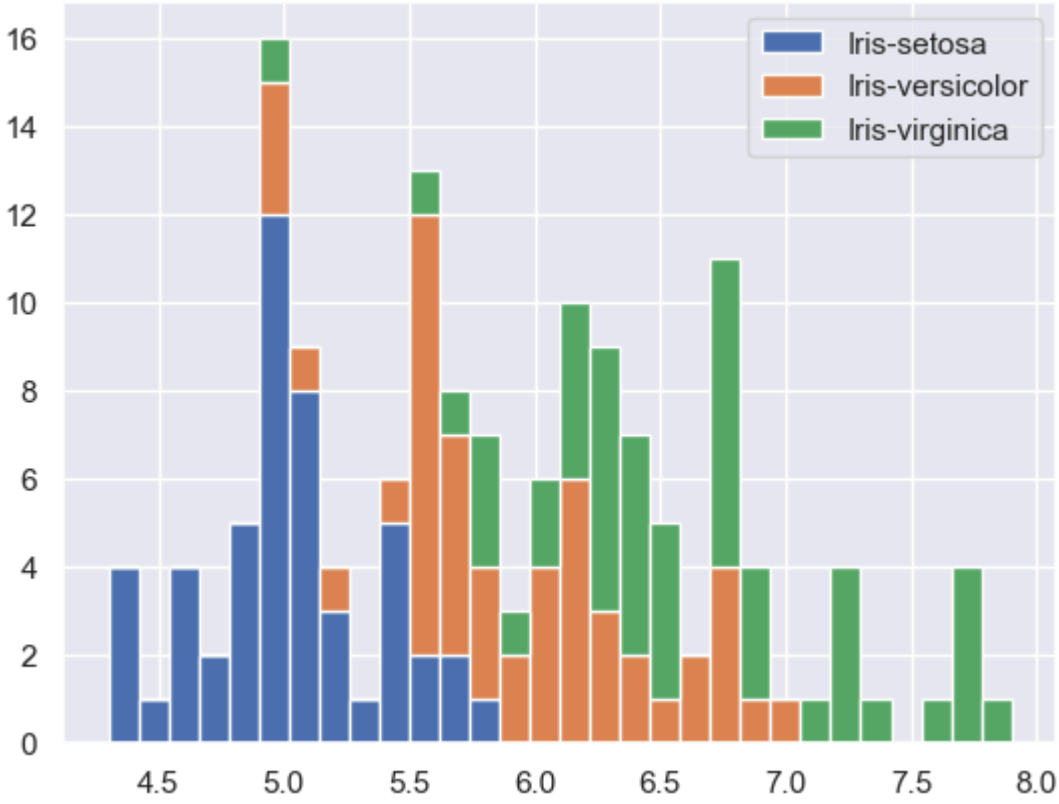
Out[121…

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

In [123…

```
list1=list()
mylabels=list()
for gen in iris.Species.cat.categories:
    list1.append(iris[iris.Species==gen].SepalLengthCm)
    mylabels.append(gen)

h=plt.hist(list1,bins=30,stacked=True,rwidth=1,label=mylabels)
plt.legend()
plt.show()
```

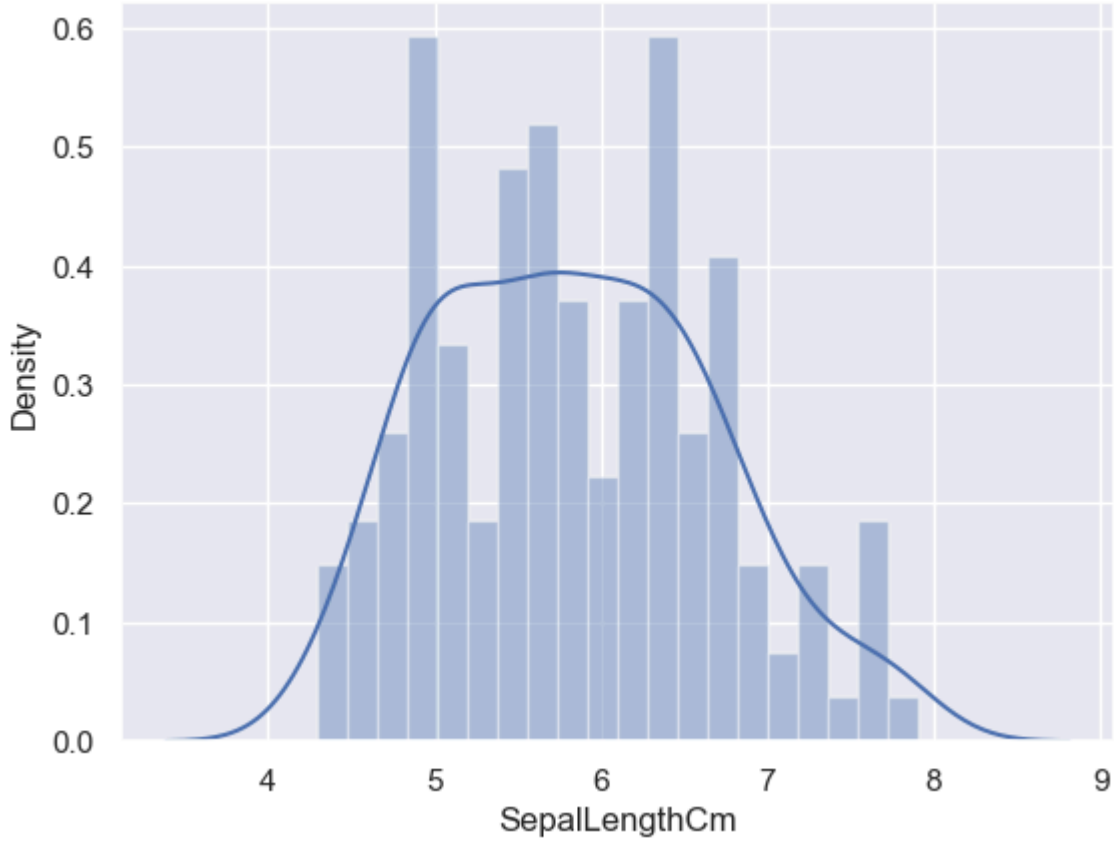


In [125…

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

In [127…

```
sns.distplot(iris['SepalLengthCm'],kde=True,bins=20);
plt.show()
```



In [ ]: