Pandas Libraries

```
import pandas as pd
```

Installing the dataset from url

```
# URL of the dataset
url = 'https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data'

# Column names for the dataset (since the dataset does not include headers)
column_names = ['sepal_length', 'sepal_width', 'petal_length', 'petal_width', 'class']

# Read the dataset into a DataFrame
df = pd.read_csv(url, header=None, names=column_names)

# Save the DataFrame to a CSV file
df.to_csv('iris_dataset.csv', index=False)

print("Dataset saved as 'iris_dataset.csv'")
```

```
Dataset saved as 'iris_dataset.csv'
```

First 5 rows are display

```
df.head()
```

| | sepal_length | sepal_width | petal_length | petal_width | class |
|---|---|---|---|---|---|
| **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 |

Next steps: Generate code with df | View recommended plots

lasts 5 rows are display

```
df.tail()
```

| | sepal_length | sepal_width | petal_length | petal_width | class |
|---|---|---|---|---|---|
| **145** | 6.7 | 3.0 | 5.2 | 2.3 | Iris-virginica |
| **146** | 6.3 | 2.5 | 5.0 | 1.9 | Iris-virginica |
| **147** | 6.5 | 3.0 | 5.2 | 2.0 | Iris-virginica |
| **148** | 6.2 | 3.4 | 5.4 | 2.3 | Iris-virginica |
| **149** | 5.9 | 3.0 | 5.1 | 1.8 | Iris-virginica |

This is information of dataset what are the datatypes and Non-null Count and Column names

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   sepal_length  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
```

```
 4   class         150 non-null    object
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

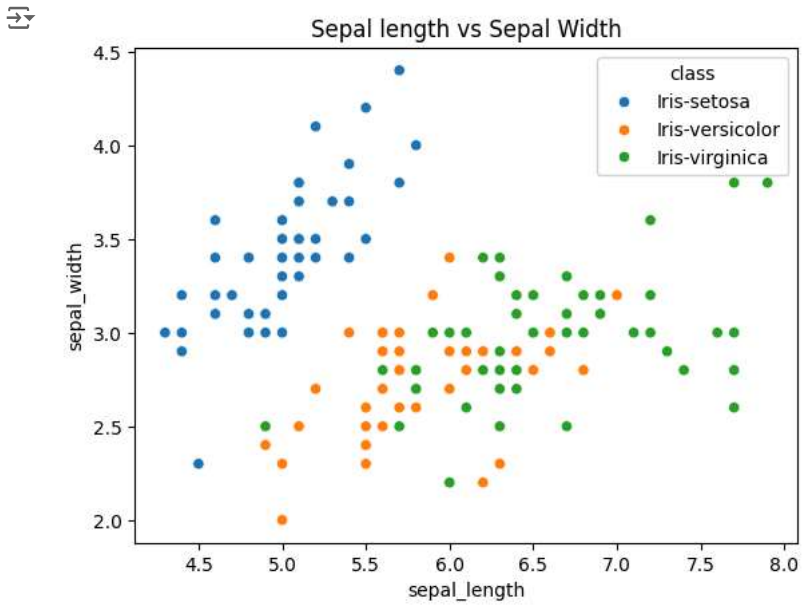
Libraries of seaborn and matplotlib

```
import seaborn as sns
import matplotlib.pyplot as plt
```

Double-click (or enter) to edit

Scatter Plot as a Graph it show the analysis of sepal_length and sepal_width

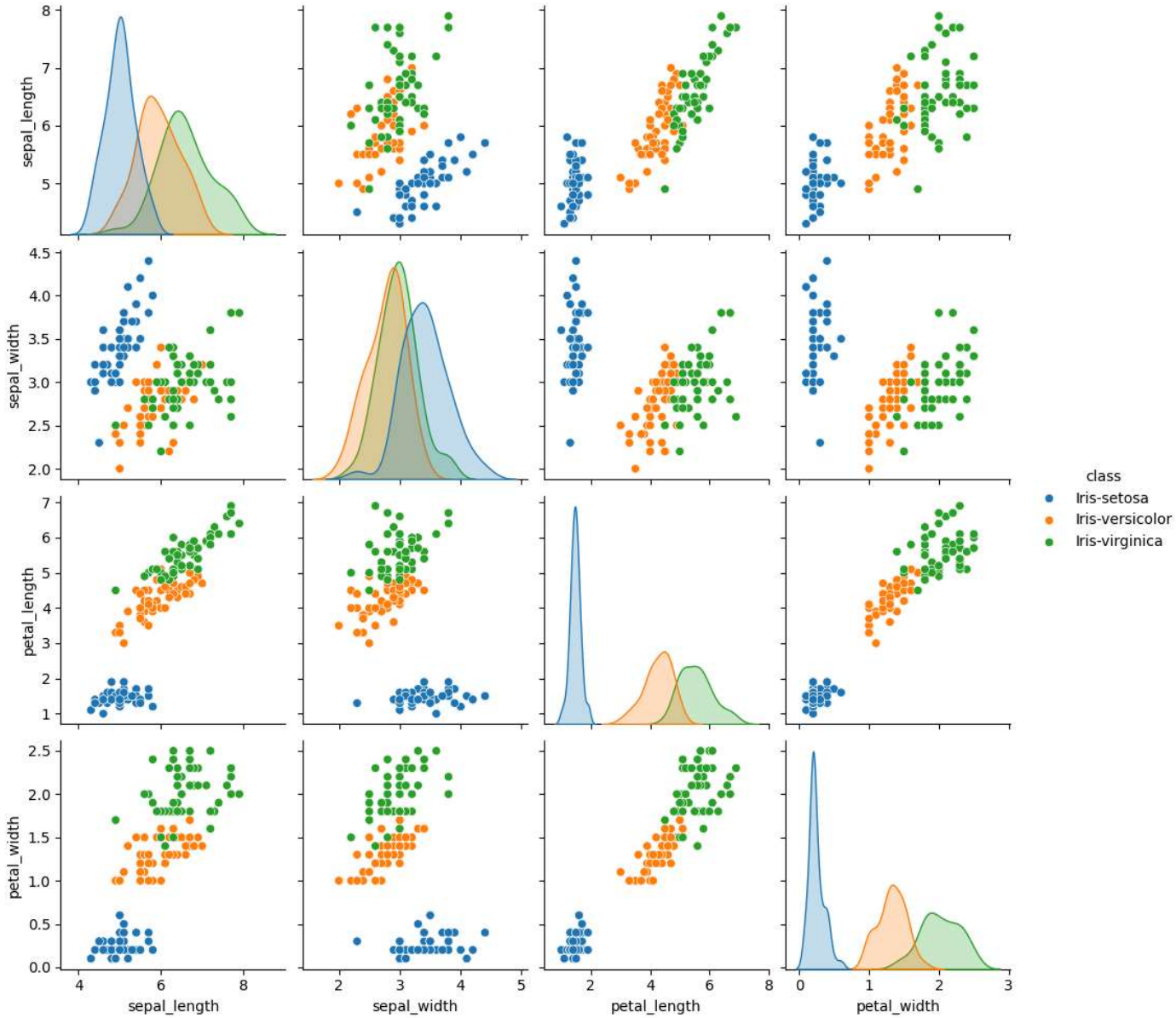
```
sns.scatterplot(data=df,x='sepal_length',y='sepal_width',hue='class')
plt.title("Sepal length vs Sepal Width")
plt.show()
```




Pair Plot

```
#pair plot all features
sns.pairplot(df,hue="class")
```

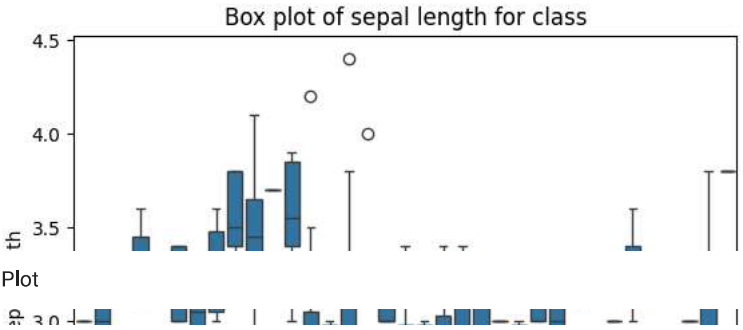
<seaborn.axisgrid.PairGrid at 0x78a632ddb7f0>




Box Plot

```
#Box plot of sepal length for class
sns.boxplot(data=df,x="sepal_length",y="sepal_width")
plt.title("Box plot of sepal length for class")
```

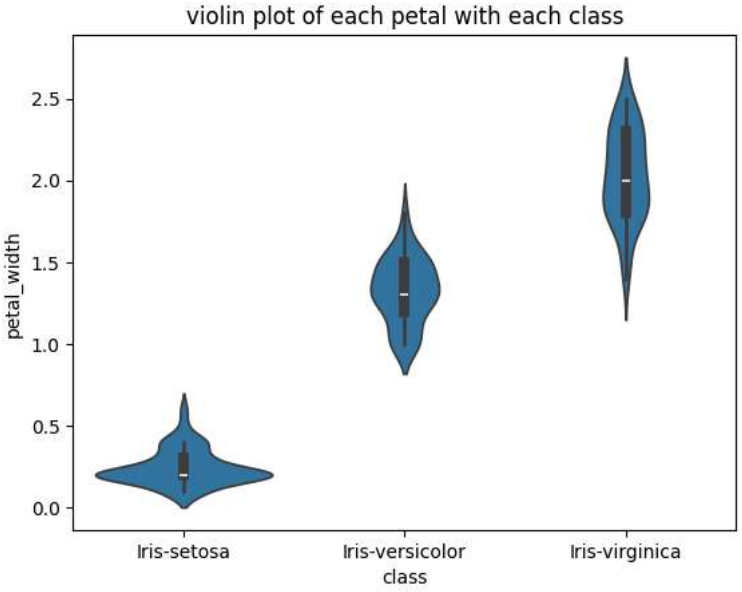
```
Text(0.5, 1.0, 'Box plot of sepal length for class')
```




Violin Plot

```
#violin plot of each petal with each class
sns.violinplot(data=df,x='class',y='petal_width')
plt.title("violin plot of each petal with each class")
```

```
Text(0.5, 1.0, 'violin plot of each petal with each class')
```




Heatmap of correlation matrix

```
corr_matrix = df.drop(columns='class').corr()
sns.heatmap(corr_matrix, annot=True, cmap='coolwarm')
plt.title('Correlation Matrix of Iris Features')
plt.show()
```