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In [1]: import pandas as pd
          import seaborn as sns
          import matplotlib.pyplot as plt
          import numpy as np
          matplotlib inline
          import sklearn
          from IPython.display import Image, display
          file to open=r'C:\Users\dell\Desktop\data sets\iris.csv'
          iris=pd.read_csv(file_to_open)
 In [2]: iris.shape
 Out[2]: (150, 5)
 In [3]: iris.head()
 Out[3]:
             | 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
                                                     0.2
                                        1.4
                                                                 setosa
 In [4]: iris.columns #to get info about columns
 Out[4]: Index(['sepal_length', 'sepal_width', 'petal_length', 'petal_width',
                  'species'],
                 dtype='object')
 In [5]: iris["species"].value_counts() #to count values
 Out[5]: versicolor
          setosa
                          50
          virginica
                          50
          Name: species, dtype: int64
 In [6]: | iris.plot(kind='scatter', x='sepal_length', y='sepal_width'); #scatter plot sepal_width vs sepal_leng
          plt.show()
             5.0
             4.5
             4.0
        sepal width
             2.5
             2.0
                         5.0
                               5.5
                                    6.0
                                        6.5
                                              7.0
                                                   7.5 8.0
                                   sepal_length
 In [7]: sns.set_style("whitegrid");
          sns.FacetGrid(iris,hue='species',height=4)\
               .map(plt.scatter,'petal_length','petal_width')\
               .add_legend();
          plt.show()
          #using seaborn plot a grph between petal length vs petal width
               2.5
               2.0
           petal_width
              1.5
               1.0
               0.5
               0.0
              -0.5
                 0
                            petal_length
 In [8]: g = sns.pairplot(iris, hue="species", palette="husl") #pair plot
              8.0
              7.5
              7.0
              6.5
              6.0
              5.5
              5.0
               4.5
               4.5
               4.0
            3.5 asbal width 3.0
              2.5
              2.0
              1.5
                                                                                                               versicolor
                                                                                                              virginica
              3.0
              2.5
              2.0
           petal_width
              1.5
              1.0
              0.5
              0.0
                                       1.01.5 2.02.5 3.0 3.54.0 4.5 5.0 5.5
                                              sepal_width
                       sepal_length
                                                                    petal_length
 In [9]: import numpy as np
          iris_setosa=iris.loc[iris["species"]=="setosa"];
          iris_virginica=iris.loc[iris["species"]=="virginica"]
          iris_versicolor=iris.loc[iris["species"]=="versicolor"]
          plt.plot(iris_setosa['petal_length'], np.zeros_like(iris_setosa['petal_length']))
          plt.plot(iris_virginica['petal_length'], np.zeros_like(iris_virginica['petal_length']))
          plt.plot(iris_versicolor['petal_length'], np.zeros_like(iris_versicolor['petal_length']))
          plt.show()
          #1d scatter plot the problem with this is we cannot count how many point
          #we have in a region due toh high overlapping thats why it is hard to read
            0.06
            0.04
            0.02
            0.00
           -0.02
           -0.04
           -0.06
In [10]: #dist plot of petal length
          sns.FacetGrid(iris,hue="species",height=3) \
               .map(sns.distplot,"petal length") \
               .add legend()
          plt.show()
           3.5 -
           3.0
           2.5
           2.0
                                         species
                                         setosa
           1.5
                                      versicolor
           1.0
                                         virginica
           0.5
           0.0
                      petal_length
In [11]: sns.FacetGrid(iris,hue="species",height=3) \
               .map(sns.distplot,"sepal_length") \
               .add_legend()
          plt.show()
           1.6 -
           1.4
           1.2
           1.0
                                         species
           0.8
           0.6
                                      versicolor
           0.4
                                         virginica
           0.2
           0.0
                     5 6
                             7
                                 8
                     sepal_length
In [12]: sns.FacetGrid(iris,hue="species",height=3) \
               .map(sns.distplot, "sepal_width") \
               .add_legend()
          plt.show()
           1.6
           1.4
           1.2
           1.0
                                         species
           0.6
                                      versicolor
           0.4
                                      virginica
           0.2
             1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
                      sepal_width
In [13]: sns.FacetGrid(iris,hue="species",height=3) \
               .map(sns.distplot,'petal_width')\
               .add_legend()
          plt.show()
           12 -
           10
            8
                                         species
            6
                                         setosa
                                           versicolor
            4
                                         virginica
            2 -
            0 -
            -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0
                      petal_width
In [14]: sns.boxplot(x="species", y="petal_length", data=iris)
          plt.show()
           petal_length
             2 -
                     setosa
                                    versicolor
                                                   virginica
                                    species
In [15]: sns.violinplot(x="species", y='petal_length', data=iris)
          plt.show()
             6
           petal_length
                                                   virginica
                     setosa
                                    versicolor
                                    species
```