import pandas as pd

import numpy as np

import seaborn as sns

import matplotlib.pyplot as plt

df = pd.read\_csv('iris.csv')

print('iris dataset is successfully loaded....\n')

print('Information of dataset:\n',df.info)

print('Shape of dataset (row \* column):',df.shape)

print('Columns name:',df.columns)

print('Total emlements in dataset:',df.size)

print('Datatype of attributes (columns):',df.dtypes)

print('First 5 rows:\n',df.head().T)

print('last 5 rows:\n',df.tail().T)

print('Any 5 rows:\n',df.sample(5).T)

print ('missing values')

print(df.isnull().sum())

print('null values are:\n',df.isnull().sum())

fig,axes=plt.subplots(2,2)

fig.suptitle('Histogram of 1 variable')

sns.histplot(data=df,x='sepal.length',ax=axes[0,0])

sns.histplot(data=df,x='sepal.width',ax=axes[0,1])

sns.histplot(data=df,x='petal.length',ax=axes[1,0])

sns.histplot(data=df,x='petal.width',ax=axes[1,1])

plt.show()

fig,axes=plt.subplots(2,2)

fig.suptitle('Histogram of 2 variable')

sns.histplot(data=df,x='sepal.length',hue='variety',multiple='dodge',ax=axes[0,0])

sns.histplot(data=df,x='sepal.width',hue='variety',multiple='dodge',ax=axes[0,1])

sns.histplot(data=df,x='petal.length',hue='variety',multiple='dodge',ax=axes[1,0])

sns.histplot(data=df,x='petal.width',hue='variety',multiple='dodge',ax=axes[1,1])

plt.show()

fig,axes=plt.subplots(2,2)

fig.suptitle('Boxplot of 1 variable')

sns.boxplot(data=df,x='sepal.length',ax=axes[0,0])

sns.boxplot(data=df,x='sepal.width',ax=axes[0,1])

sns.boxplot(data=df,x='petal.length',ax=axes[1,0])

sns.boxplot(data=df,x='petal.width',ax=axes[1,1])

plt.show()

fig,axes=plt.subplots(2,2)

fig.suptitle('Histogram of 1 variable')

sns.boxplot(data=df,x='sepal.length',y='variety',hue='variety',ax=axes[0,0])

sns.boxplot(data=df,x='sepal.width',y='variety',hue='variety',ax=axes[0,1])

sns.boxplot(data=df,x='petal.length',y='variety',hue='variety',ax=axes[1,0])

sns.boxplot(data=df,x='petal.width',y='variety',hue='variety',ax=axes[1,1])

plt.show()