**# assignment 4**

**#import the package numpy**

import numpy as np

**#import the package pandas**

import pandas as pd

**#import the package datasets from sklearn**

from sklearn import datasets

**#import the package KMeans from sklearn.cluster**

from sklearn.cluster import KMeans

**#import matplotlib.pyplot as plt**

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**#import matplotlib.patches as mpatches**

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**#import confusion\_matrix from sklearn.metrics**

from sklearn.metrics import confusion\_matrix

**# read the data set**

iris = datasets.load\_iris()

X = iris.data

y = iris.target

**#applying Kmeans(cluster=3) to iris data set**

kmeans = KMeans(n\_clusters=3).fit(X)

labels = kmeans.labels\_

conf = confusion\_matrix(y, labels)

**#print out confusion matrix**

print(conf)

**#plot 2D data set with 3 different clusters**

colormap = np.array(['pink', 'Black', 'brown'])

plt.xlabel('Sepal Length')

plt.ylabel('Petal Length')

plt.colors()

plt.scatter(X[:, 3], X[:, 0], c=colormap[labels], s=100)

pink = mpatches.Patch(color='pink', label='The Petal Width')

black = mpatches.Patch(color='black', label='The Sepal Length')

brown = mpatches.Patch(color='brown', label='True Values')

plt.legend(handles=[pink,black,brown])

plt.show()

**output:**

