**Assignment no : 5.**

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**Title: Create a machine learning model using k means clustering algorithm.**

Solution:

import numpy as np

import pandas as pi

import matplotlib.pyplot as plt

from sklearn import datasets

iris = datasets.load\_iris()

iris=pi.DataFrame(data=np.c\_[iris['data'],iris['target']],columns=iris['feature\_names']+['species'])

x = iris.ix[:,:4]

y = iris.ix[:,4]

x.head()

y.head()

from sklearn.cluster import KMeans

model= KMeans(n\_clusters=3,random\_state=11)

model.fit(x)

print model.labels\_

iris['pred\_species']= np.choose(model.labels\_,[1,0,2]).astype(np.int64)

print iris

from sklearn.metrics import accuracy\_score, classification\_report

print "Accuracy :", accuracy\_score(iris.species,iris.pred\_species)\*100

print "classification report : ",classification\_report(iris.species,iris.pred\_species)

filter = iris['pred\_species']==1

ndata = iris[filter]

ndata.to\_csv('1.csv')

filter = iris['pred\_species']==0

ndata = iris[filter]

ndata.to\_csv('0.csv')

filter = iris['pred\_species']==2

ndata=iris[filter]

plt.plot(x,y)

plt.show()

x=iris['sepal length (cm)']

y=iris['sepal width (cm)']

plt.plot(x,y,"o")

plt.show()

col =['red','blue','green']

marker = ['o','v','s']

for i,l in enumerate(model.labels\_):

plt.plot(x[i],y[i],color=col[l],marker=marker[l])

plt.show()

x =iris['petal length (cm)']

y =iris['petal width (cm)']

for i,l in enumerate(model.labels\_):

plt.plot(x[i],y[i],color=col[l],marker=marker[l])

plt.xlabel('petal length (cm)')

plt.ylabel('petal width (cm)')

plt.title('petal (Actual)')

plt.show()

Output:



