

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:

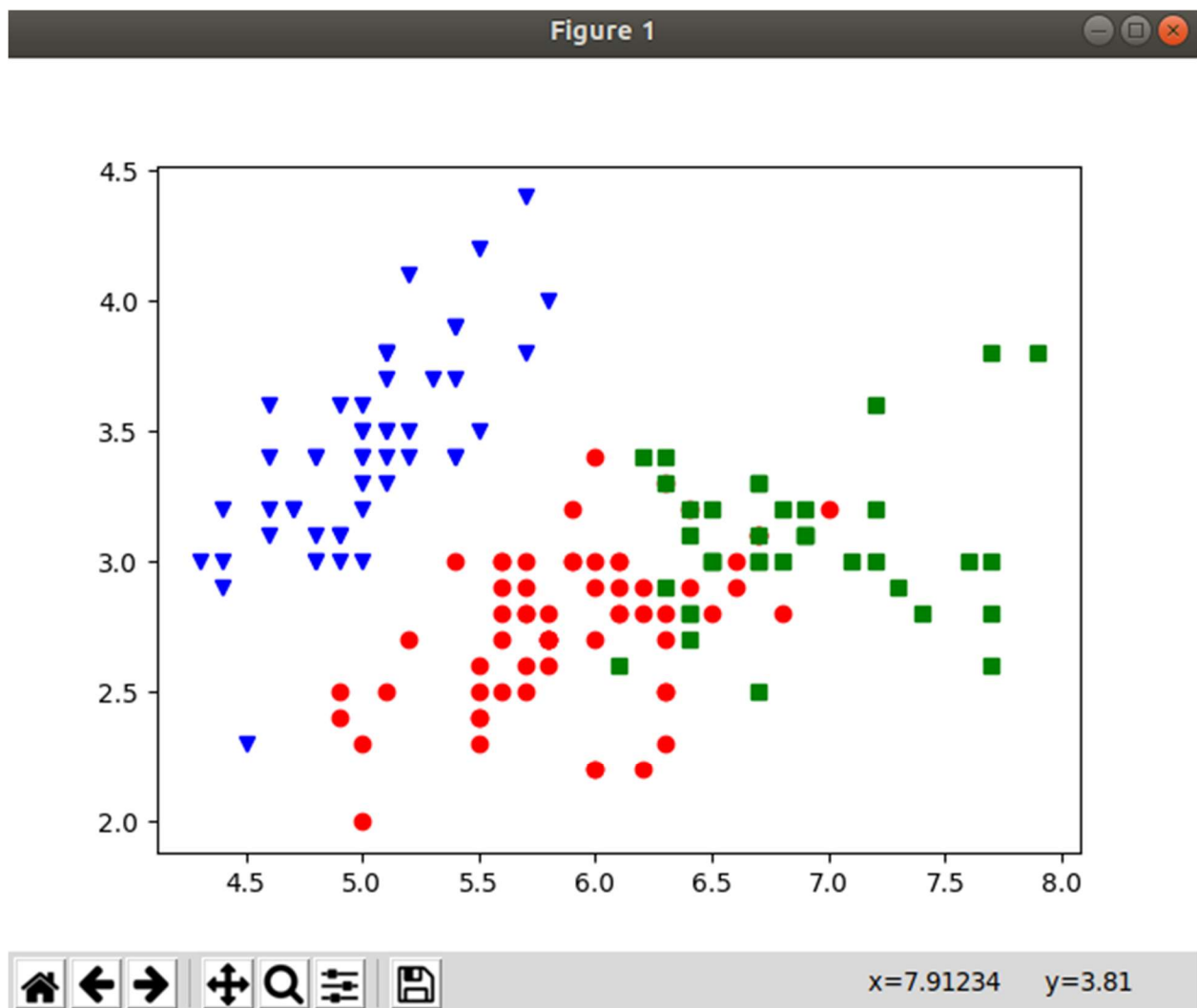


Figure 1

