**# SVC Classification**

import numpy as np

import matplotlib.pyplot as plt

import matplotlib.image as maping

import pandas as pd

dataset = pd.read\_csv('/content/iris.csv')

dataset

dataset.head()

%matplotlib inline

img = maping.imread('/content/iris\_types.jpg')

plt.figure(figsize=(5,15))

plt.axis('off')

plt.imshow(img)

X = dataset.iloc[:,:4].values

y = dataset['species'].values

from sklearn.model\_selection import train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.20, random\_state=82)

from sklearn.preprocessing import StandardScaler

sc = StandardScaler()

X\_train = sc.fit\_transform(X\_train)

X\_test = sc.transform(X\_test)

print('X\_train', X\_train)

print('X\_test', X\_test)

from sklearn.svm import SVC

svcclassifier = SVC(kernel = 'linear', random\_state=0)

svcclassifier.fit(X\_train, y\_train)

y\_pred = svcclassifier.predict(X\_test)

print(y\_pred)

y\_compare = np.vstack((y\_test,y\_pred)).T

print(y\_compare[:5,:])

from sklearn.metrics import confusion\_matrix

cm = confusion\_matrix(y\_test, y\_pred)

print(cm)

a = cm.shape

corrPred = 0

falsePred = 0

for row in range(a[0]):

    for c in range(a[1]):

        if row == c:

            corrPred +=cm[row,c]

        else:

            falsePred += cm[row,c]

print('Correct predictions: ', corrPred)

print('False predictions', falsePred)

kernelLinearAccuracy = corrPred/(cm.sum())

print ('Accuracy of the SVC Clasification is: ', corrPred/(cm.sum()))

**Output:**

['virginica' 'virginica' 'setosa' 'setosa' 'setosa' 'virginica'

'versicolor' 'versicolor' 'virginica' 'versicolor' 'versicolor'

'virginica' 'setosa' 'setosa' 'setosa' 'setosa' 'virginica' 'versicolor'

'setosa' 'versicolor' 'setosa' 'virginica' 'setosa' 'virginica'

'virginica' 'versicolor' 'virginica' 'setosa' 'virginica' 'versicolor']

[['virginica' 'virginica']

['virginica' 'virginica']

['setosa' 'setosa']

['setosa' 'setosa']

['setosa' 'setosa']]

[[11 0 0]

[ 0 8 1]

[ 0 0 10]]

Correct predictions: 29

False predictions 1

Accuracy of the SVC Clasification is: 0.9666666666666667

