8) Program to apply Support Vector Machine classifier on the iris dataset and generate a confusion matrix of the classifier

'''

Source for theory

https://scikit-learn.org/stable/modules/svm.html

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# Ceated on 22-03-2024 at 10:00am

from sklearn import datasets, decomposition

import pandas as pd

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

from sklearn.svm import SVC

from sklearn.metrics import confusion\_matrix

from sklearn.model\_selection import cross\_val\_score

# Import the dataset

iris = datasets.load\_iris()

# data = pd.DataFrame(data=iris.data, columns=iris.feature\_names)

X = iris.data

y = iris.target

# Split the data into training and test sets

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

# Create an instance of SVM classifier

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

# Fit the model to the training data

SVM\_classifier.fit(X\_train, y\_train)

# Calculate the cross validation score

accuracy = cross\_val\_score(estimator=SVM\_classifier, X=X\_train, y=y\_train, cv=10)

print("Accuracy: {:.2f} %".format(accuracy.mean()\*100))

# Make predictions on the test set

y\_pred = SVM\_classifier.predict(X\_test)

# Evaluate the model using confusion matrix

SVM\_cm = confusion\_matrix(y\_test, y\_pred)

print("The confusion matrix is:")

print(SVM\_cm)

'''

Model output

[[10 0 0]

[ 0 9 0]

[ 0 0 11]]

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