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**WEEK 8**





# Q1.



import numpy as np

from scipy import sparse

eye = np.eye(4)

print("NumPy array:\n", eye)

sparse\_matrix = sparse.csr\_matrix(eye)

print("\nSciPy sparse matrix in CSR format:\n", sparse\_matrix)



# Q2.

from google.colab import files

files.upload()



import pandas as pd

df = pd.read\_csv("Iris (2).csv")

df.describe()



df



# Q3.

import pandas as pd

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



df.drop('Id',axis=1,inplace=True)



y= df['Species']

X=df.drop('Species',axis=1)



X.shape,y.shape



X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.30)



print("\n70% train data:")

print(X\_train)

print(y\_train)

print("\n30% test data:")

print(X\_test)

print(y\_test)



# Q4.



new\_X\_train,new\_X\_test,new\_Y\_train,new\_Y\_test=train\_test\_split(X,y,test\_size=0.20)



from sklearn.neighbors import KNeighborsClassifier

from sklearn.metrics import accuracy\_score



neigh =KNeighborsClassifier(n\_neighbors=3)

neigh.fit(new\_X\_train, new\_Y\_train)

pred = neigh.predict(new\_X\_test)

print ("KNeighbors accuracy score :",accuracy\_score(new\_Y\_test, pred))



# Q5.



from sklearn.datasets import load\_boston

boston\_dataset = load\_boston()

boston\_dataset



X,y=boston\_dataset['data'],boston\_dataset['target']



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

X\_train, X\_test, y\_train, y\_test =train\_test\_split(X,y,random\_state=0)



from sklearn.linear\_model import LinearRegression

reg = LinearRegression().fit(X\_train, y\_train)



from sklearn.metrics import mean\_absolute\_error

pred=reg.predict(X\_test)

print(mean\_absolute\_error(pred,y\_test))