**Roll No.: - 102**

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**Assignment No.: - 5**

**Assignment :- Implement simple KNN using Euclidean distance in python.**

* **K-Nearest Neighbour –**
* **Code –**

import pandas as pd

from sklearn. datasets import load\_breast\_cancer

data = load\_breast\_cancer()

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

df ['target'] = data.target

x = df[ data.feature\_names]

y = df['target']

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

x\_train, x\_test, y\_train, y\_test = train\_test\_split(x,y,train\_size=80,random\_state=1)

import numpy as np

print("The unique output values(target) and their respective count is as given below:-")

print(np.unique(y\_train,return\_counts=True))

from sklearn.neighbors import KNeighborsClassifier

model = KNeighborsClassifier(n\_neighbors=15)

model.fit(x\_train,y\_train)

y\_pred = model.predict(x\_test)

from sklearn.metrics import confusion\_matrix

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

print("\nThe confusion matrix for above model is as given below:- \n",cm)

from sklearn.metrics import accuracy\_score

acc = accuracy\_score(y\_test,y\_pred)

print("\nThe accuracy ofabove model is:- ",acc)

* **Output –**

The unique output values(target) and their respective count is as given below:-

(array([0, 1]), array([31, 49], dtype=int64))

The confusion matrix for above model is as given below:-

[[162 19]

[ 31 277]]

The accuracy ofabove model is:- 0.8977505112474438