**Practical No. 10**

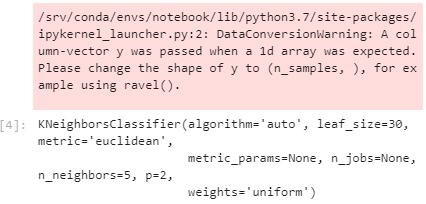
**Implementation of K NN Clustering on Jupyter Notebook using Python.**

import numpy as np  
import pandas as pd  
from matplotlib import pyplot as plt  
from sklearn.datasets import load\_breast\_cancer  
from sklearn.metrics import confusion\_matrix  
from sklearn.neighbors import KNeighborsClassifier  
from sklearn.model\_selection import train\_test\_split  
import seaborn as sns  
sns.set()

breast\_cancer = load\_breast\_cancer()  
X = pd.DataFrame(breast\_cancer.data, columns=breast\_cancer.feature\_names)  
X = X[['mean area', 'mean compactness']]  
y = pd.Categorical.from\_codes(breast\_cancer.target, breast\_cancer.target\_names)  
y = pd.get\_dummies(y, drop\_first=True)

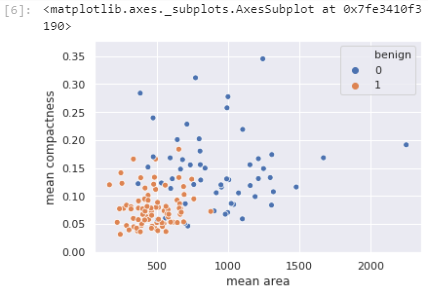
X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, random\_state=1)

knn = KNeighborsClassifier(n\_neighbors=5, metric='euclidean')  
knn.fit(X\_train, y\_train)



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

sns.scatterplot(  
x='mean area',  
y='mean compactness',  
hue='benign',  
data=X\_test.join(y\_test, how='outer')  
)



plt.scatter(  
X\_test['mean area'],  
X\_test['mean compactness'],  
c=y\_pred,  
cmap='coolwarm',  
alpha=0.7  
)

