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B2

import numpy as np

import pandas as pd

import matplotlib.pyplot as plt

from sklearn.datasets import load\_wine

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

from sklearn.metrics import accuracy\_score,precision\_score,recall\_score,f1\_score

from sklearn.naive\_bayes import BaseNB

from sklearn.svm import SVC

data=load\_wine()

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

print(df)

alc\_content=df["alcohol"]

malic\_acid=df["malic\_acid"]

plt.scatter(alc\_content,malic\_acid)

plt.title("alcohol content vs malic acid content")

plt.xlabel("alc content")

plt.ylabel("malic acid cotent")

plt.show()

alc\_content=df["alcohol"]

malic\_acid=df["magnesium"]

plt.scatter(alc\_content,malic\_acid)

plt.title("alcohol content vs magnesium")

plt.xlabel("alc content")

plt.ylabel("magnesium")

plt.show()

X=df

y=df["color\_intensity"]

x\_train,x\_test,y\_train,y\_test=train\_test\_split(X,y,test\_ratio=0.3)

svm\_clf=SVC()

svm\_clf.fit(x\_train,y\_train)

svm\_clf\_pred=svm\_clf.predict(x\_test)

nb\_clf=nb()

nb\_clf.fit(x\_train,y\_train)

nb\_clf\_pred(x\_test)

svm\_clf\_accuracy=accuracy\_score(svm\_clf\_pred,y\_test)

nb\_clf\_accuracy=accuracy\_score(nb\_clf,y\_test)

svm\_clf\_precision=precision\_score(svm\_clf\_pred,y\_test)

nb\_clf\_precision=precision\_score(nb\_clf,y\_test)

svm\_clf\_recall=recall\_score(svm\_clf\_pred,y\_test)

nb\_clf\_recall=recall\_score(nb\_clf,y\_test)

svm\_clf\_f1=f1\_score(svm\_clf\_pred,y\_test)

nb\_clf\_f1=f1\_score(nb\_clf,y\_test)

metric\_svm\_df=pd.DataFrame(svm\_clf\_accuracy,svm\_clf\_precision,svm\_clf\_recall,svm\_clf\_f1)

metric\_nb\_df=pd.DataFrame(nb\_clf\_accuracy,nb\_clf\_precision,nb\_clf\_recall,nb\_clf\_f1)