Naïve-Bayes Classifier for prediction on PB1_test.csv:

To train the data using Naïve-Bayes classifier, import **GaussianNB()** from **sklearn.naive_bayes** package.
Let the given test data be X=(Height=h1, Age=a1, Weight=w1).

Using Naïve-Bayes classifier:

Find P(X|Class=0) = P(h1|Class=0) + P(a1|Class=0) + P(w1|Class=0)

P(X|Class=1) = P(h1|Class=1) + P(a1|Class=1) + P(w1|Class=1)

P(0|X) = (P(X|0) * P(0))/P(X)

P(1|X) = (P(X|1) * P(1))/P(X)

If P(0|X) > P(1|X) then, Class = 0, else Class=1 for the given test data.

The prediction values and accuracy are shown below.

Predicted Values on PB1_test.csv: [1. 1. 0. 1. 0. 1. 0. 0. 1. 0. 0. 1. 0. 1. 1. 1. 0. 1. 0. 0.]

Accuracy: 100.0 %

SVM Classifier for prediction on PB1_test.csv:

To train the data using SVM classifier, import **svm** from **sklearn** package.
Support Vector Machines (SVM) uses different kernels to train the data and to classify the test data.
In **linear** SVM, a largest margin hyperplane is searched. This margin is determined by the relation,

w.x + b = 0

where x corresponds to attributes of training dataset and w & b are parameters of the model.
In **polynomial** kernel, a polynomial relation of certain **degree** is determined for the given training dataset.
In radial basis function (**rbf**) kernel, an exponential relation is determined for the given training dataset.
and accuracies are shown below.

Predicted Values on PB1_test.csv using SVM kernel=linear: [0. 1. 0. 0. 1. 0. 1. 1. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]

Accuracy: 40.0 %

Predicted Values on PB1_test.csv using SVM kernel=poly: [0. 0. 0. 0. 0. 0. 1. 1. 0. 0. 0. 0. 0. 0. 1. 0. 1. 1. 1. 1.]

Accuracy: 35.0 %

Predicted Values on PB1_test.csv using SVM kernel=rbf: [0. 0. 0. 0. 1. 0. 1. 1. 0. 0. 1. 0. 1. 0. 1. 1. 1. 1. 1. 1.]

Accuracy: 25.0 %

Naïve-Bayes Classifier for prediction on PB2_test.csv:

To train the data using Naïve-Bayes classifier, import **GaussianNB()** from **sklearn.naive_bayes** package.
Let the given test data be X=(Height=h1, Age=a1, Weight=w1).

Using Naïve-Bayes classifier:

Find P(X|Class=0) = P(h1|Class=0) + P(a1|Class=0) + P(w1|Class=0)

P(X|Class=1) = P(h1|Class=1) + P(a1|Class=1) + P(w1|Class=1)

P(0|X) = (P(X|0) * P(0))/P(X)

P(1|X) = (P(X|1) * P(1))/P(X)

If P(0|X) > P(1|X) then, Class = 0, else Class=1 for the given test data.

The prediction and accuracy values are shown below:

Predicted Values on PB2_test.csv: [0. 0. 0. 0. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

1. 1. 1. 1. 1. 1.]

Accuracy: 43.333333333333336 %

SVM Classifier for prediction on PB2_test.csv:

To train the data using SVM classifier, import **svm** from **sklearn** package.
Support Vector Machines (SVM) uses different kernels to train the data and to classify the test data.
In **linear** SVM, a largest margin hyperplane is searched. This margin is determined by the relation,

w.x + b = 0

where x corresponds to attributes of training dataset and w & b are parameters of the model.
In **polynomial** kernel, a polynomial relation of certain **degree** is determined for the given training dataset.
In radial basis function (**rbf**) kernel, an exponential relation is determined for the given training dataset.
The prediction values and accuracies are shown below.

Predicted Values on PB1_test.csv using SVM kernel=linear: [0. 0. 0. 1. 1. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

1. 1. 1. 1. 1. 1.]

Accuracy: 43.333333333333336 %

Predicted Values on PB1_test.csv using SVM kernel=poly: [1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

1. 1. 1. 1. 1. 1.]

Accuracy: 36.666666666666664 %

Predicted Values on PB1_test.csv using SVM kernel=rbf: [1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

1. 1. 1. 1. 1. 1.]

Accuracy: 36.666666666666664 %