Neural Networks & Deep Learning

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GitHub Link:

1. Implement Naïve Bayes method using scikit-learn library. Use dataset available with name glass, Use train\_test\_split to create training and testing part. Evaluate the model on test part using score.

A screenshot of a computer

Description automatically generated

I have imported Pandas Library as pd and read the data from "glass.csv" and stored it in data frame named.

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Description automatically generated

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Description automatically generated

Imported GaussianNB from the sklearn naive bayes model. An instance is created to the GaussianNB and assigned it to the variable gnb. Fit method of the scikit-learn is used to train the model on the train data. Predicted values are found for the test values and are stored in Y\_predict variable.

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Description automatically generated

Imported classification report from metrics of the sklearn library and found the accuracy of the model. The Accuracy I got for this model is 58.0 with test size (42) and random state (4).

2.Implement linear SVM method using scikit-learn Use the same dataset above Use train\_test\_split to create training and testing part Evaluate the model on test part using score.



I have imported Pandas Library as pd and read the data from "glass.csv" and stored it in data frame. Imported Support Vector Classifier from the sklearn Support Vector Machine model.An instance is created to the SVC and assigned it to the variable svm\_linear.Kernel is given as linear that divides the data and get the linear hyperplane. Fit method of the scikit-learn is used to train the model on the train data. Predicted values are found for the test values and are stored in Y\_predict variable.

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Description automatically generated

Imported classification report from metrics of the sklearn library and found the accuracy of the model. The Accuracy I got for this model is 58.0 with test size(42) and random state(4).

The performance of Support Vector Classifier of SVM model is better compared to GaussianNB classifier of Naive Bayes model. SVM is Geometric in nature where as Naive Bayes is Probabilistic in nature. And in SVM we have given a specific kernel as linear so it divides the data as a hyperplane which helps to predict the accurate output values.

3. Implement Linear Regression using scikit-learn

a) Import the given “Salary\_Data.csv”

b) Split the data in train\_test partitions, such that 1/3 of the data is reserved as test subset.

c) Train and predict the model.

d) Calculate the mean\_squared error.

e) Visualize both train and test data using scatter plot

A screenshot of a computer

Description automatically generated

Imported Pandas Library and renamed it as pd, Data is read from "Salary\_Data.csv" file and stored it in another Data Frame named salary\_data.

A screenshot of a computer

Description automatically generated

Predicted values are found for the test values and are stored in Y\_predict variable. Mean square error between the original output values and predicted values is found using mean\_squared\_error method from metrics.

A screen shot of a graph

Description automatically generated

The predicted values of the model and the original values are compared using scatter and plot methods.