Machine Learning In Python

Subject : Classification Using LDA

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Classification

What is Classification In Machine Learning

- Classification is a process of categorizing a given set of data into classes.
- Classification is a functions of Supervised Learning.
- For 2 class problems, we have Binary Classification.
- For multiple class problems, we have Multiclass Classification.
- The classes are often referred to as target, label or categories.

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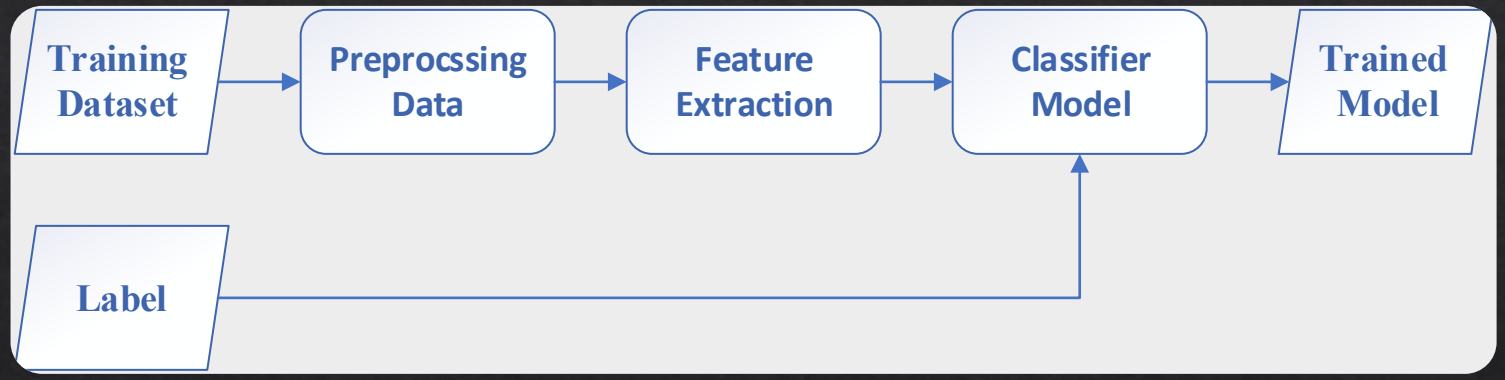
Classification

Classification In Supervised Learning Framework

Training Phase



Testing Phase

Classification Using LDA

Classifier Models :

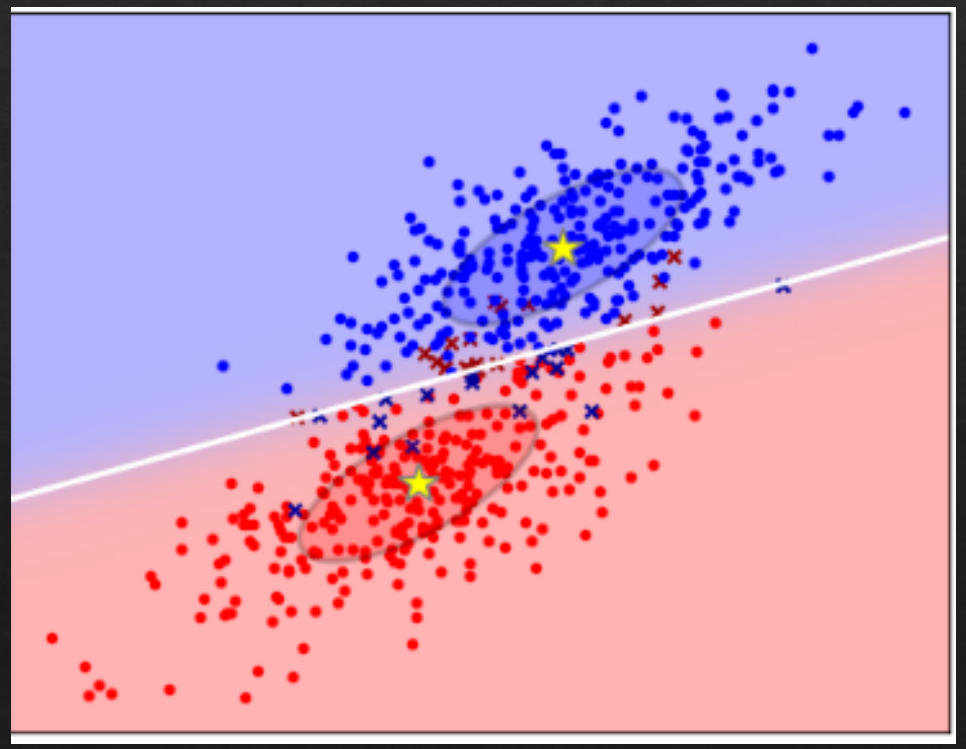
Linear Discriminant Analysis (LDA)

- It is the simplest classifier model in supervised learning.
- In the training stage, It finds an optimum hyperplane with the most separability between classes
- It divides feature space into the different classes.

Classification Using LDA

Classifier Models :

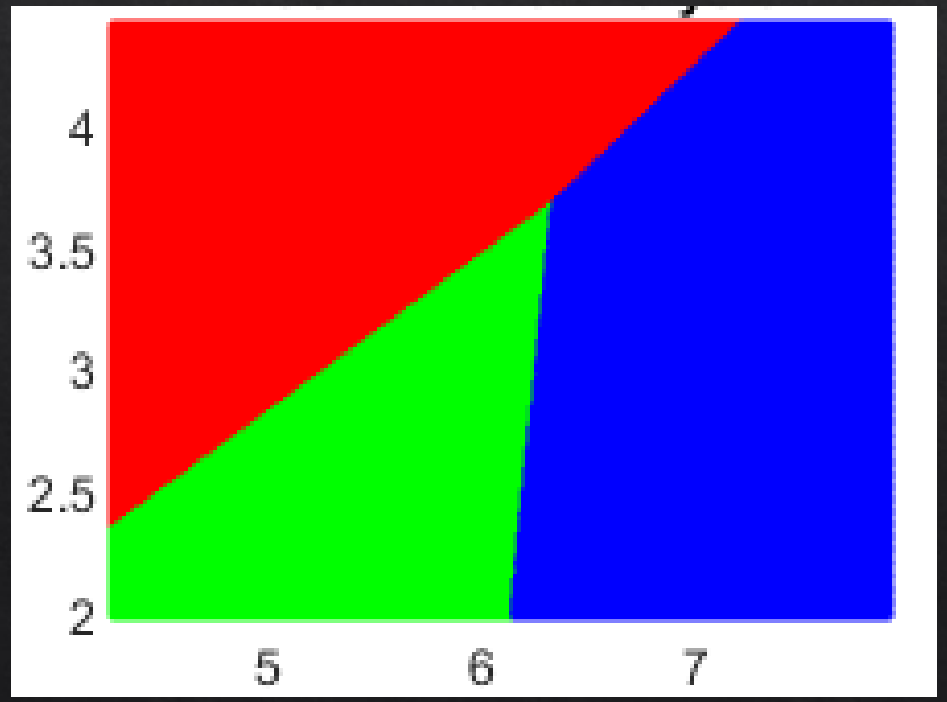
Linear Discriminant Analysis (LDA)



Classification Using LDA

Classifier Models :

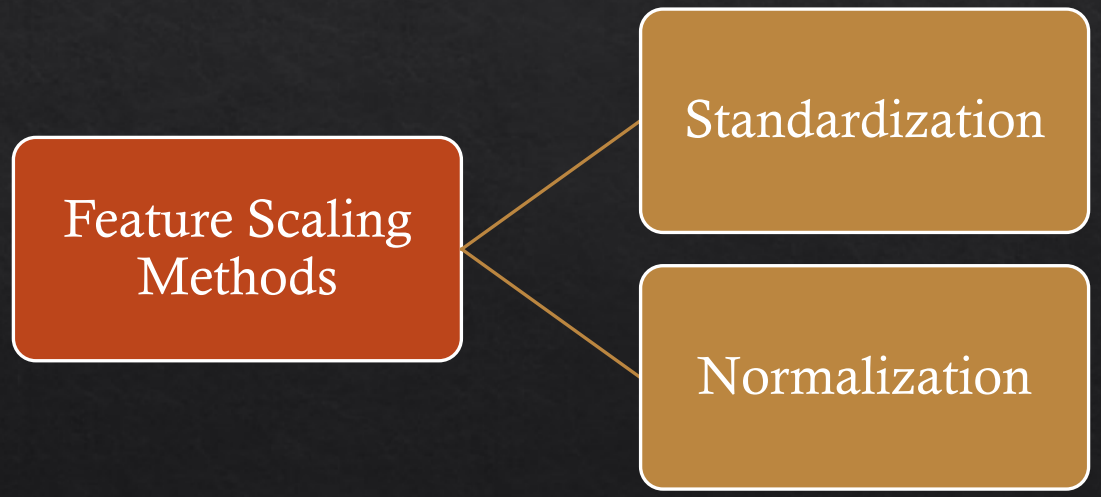
Linear Discriminant Analysis (LDA)



Classification Using LDA

Feature Scaling:

- In Machine Learning applications, conducting feature scaling is suggested for training and testing feature matrix.



Classification Using LDA

Feature Scaling:

Standardization

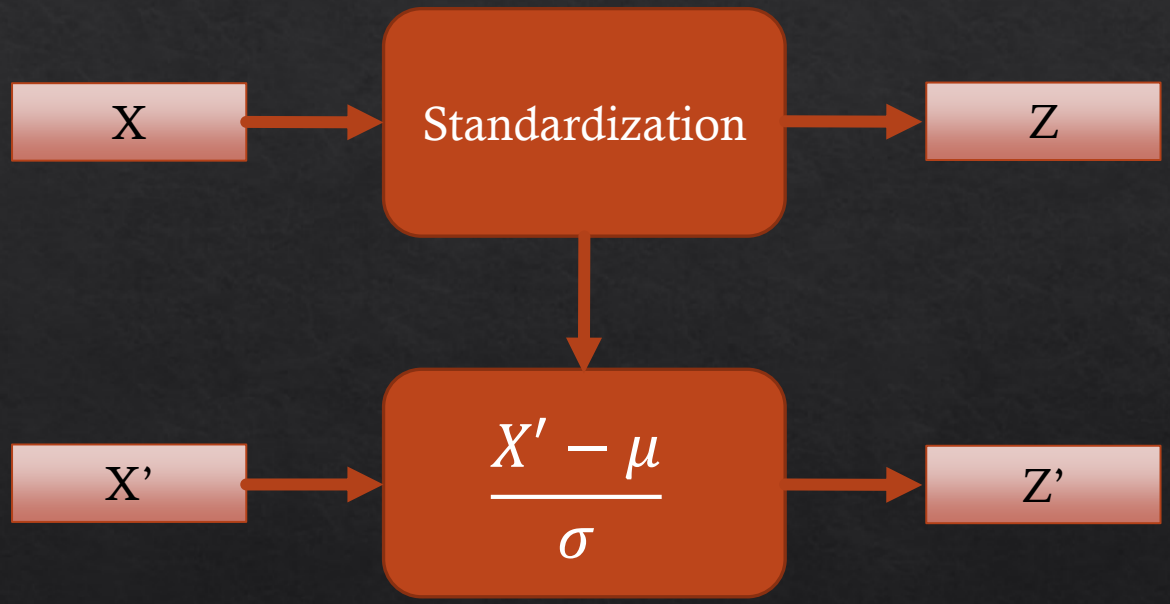
$$Z = \frac{X - \mu}{\sigma}$$

X is the training feature matrix

μ is the mean of the training feature matrix

σ is the standard deviation training feature matrix

$Z \sim N(0,1)$



Classification Using LDA

Feature Scaling:

Normalization

$$Z = \frac{X - \min(X)}{\max(X) - \min(x)}$$

X is the training feature matrix

$Z \sim [0,1]$