

Gaussian Discriminant Analysis (GDA)

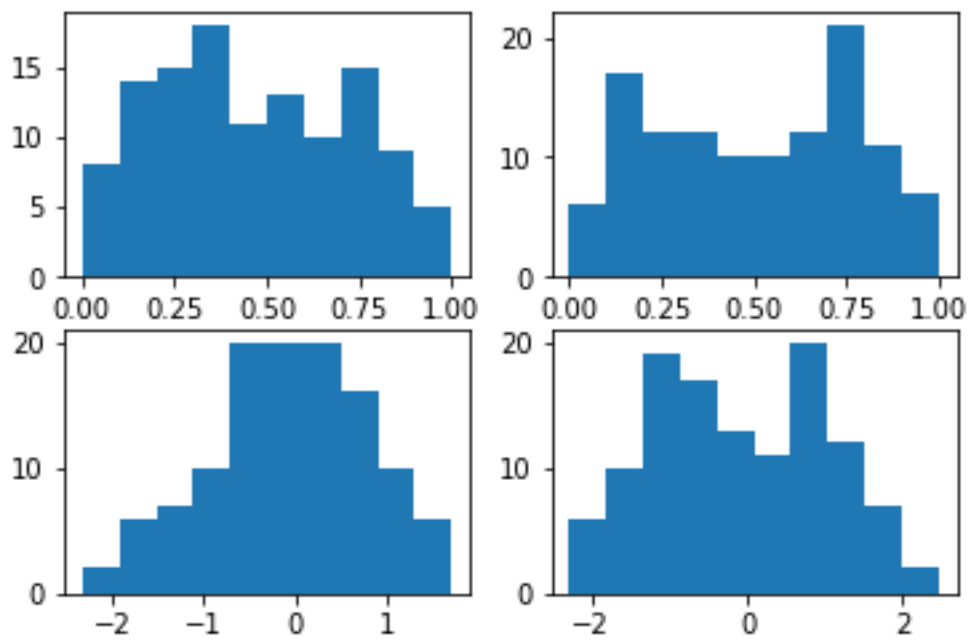
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GDA, is a method for data classification commonly used when data can be approximated with a Normal distribution.

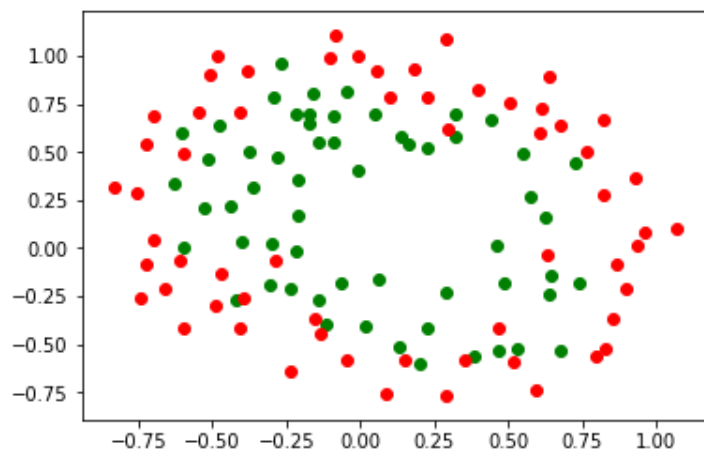
Dataset Used: Microchip dataset (70% train and 30% test data)

We have scaled up the data between 0 and 1, so that we can use it in the formula

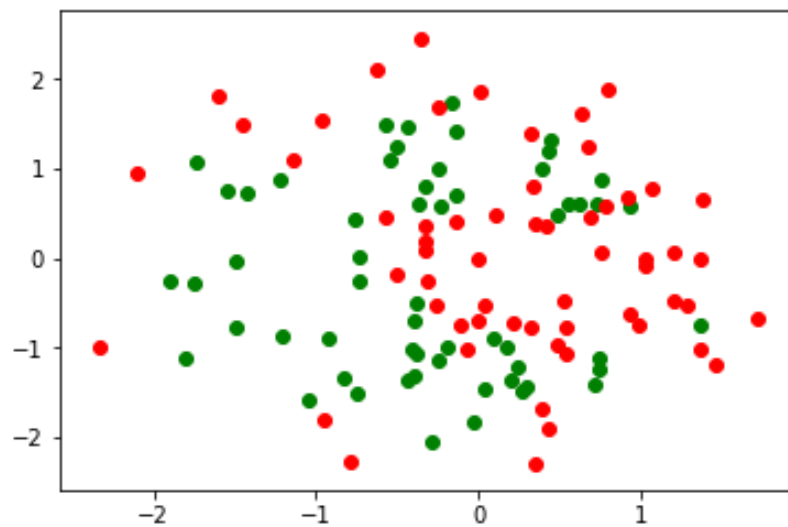
Before and After transforming the data: (upper one is before the transformation and lower one is after the transformation)



Scatter plot of raw data:



Scatter plot of transformed data:



Observation:

Box-Muller:

Max Accuracy: 88.23%

Confusion Matrix: $\begin{bmatrix} 7 & 1 \\ 1 & 8 \end{bmatrix}$

Without Box-Muller:

Max Accuracy: 72.72%

Confusion Matrix: $\begin{bmatrix} 11 & 7 \\ 2 & 13 \end{bmatrix}$