ABSTRACT

PULSAR STAR PREDICTION

Analysis:

Pulsars are a rare type of Neutron star that produce radio emission detectable here on Earth. They are of considerable scientific interest as probes of space-time, the interstellar medium, and states of matter .

Pulsar Star Dataset describes a sample of pulsar candidates collected during the High Time Resolution Universe Survey .

Correlation between the attributes is calculated and Box-Plot,Scatter-Plot for the attributes in dataset with Target Class is drawn.

Confusion Matrix is calculated for the different classification algorithms.Precision, Recall, F-measure, Accuracy are calculated using the confusion matrix and the best classification algorithm is found based on Accuracy.

Classification of data whether given data is pulsar star or not based on the input attributes.

Description:

Each candidate is described by 8 continuous variables, and a single class variable. The first four are simple statistics

obtained from the integrated pulse profile. This is an array of continuous variables that describe a longitude-resolved version of the signal that has been averaged in both time and frequency . The remaining four variables are similarly obtained from the DM-SNR curve

It is based on classification.

Class labels are 0(It is not a pulsar star) and 1(It is a pulsar star).

Attribute name		Attribute type
a)Mean of the integrated profile	-	numeric
b)Standard deviation of the integrated profile	-	numeric
c)Excess kurtosis of the integrated profile	-	numeric
d) Skewness of the integrated profile	-	numeric
e)Mean of the DM-SNR curve	-	numeric
f)Standard deviation of the DM-SNR curve	-	numeric
g)Excess kurtosis of the DM-SNR curve	-	numeric
h)Skewness of the DM-SNR curve	-	numeric

Algorithms: Naive Bayes classifier,SVM Classifier,Decision tree,KNN.

Pre Processing: Here there's no preprocessing required as there are no missing values in our dataset.