# Cars class classification

* The csv file contains multi-class classification data set with 719 samples and 18 numerical features.
* The target variable is the class of the car which may be one of: 0 –bus, 1 – Opel Manta, 2 –Saab, 3 – Van.

* After importing the required libraries and the csv file, the data-frame is checked for missing values and unique values.
* The “ID” column is dropped as its not giving any information to the model.
* Each features are visualized using box plot for better understanding.
* The data-set is splitted into train and test for building the model.
* The models used are K-nearest neighbour,Decision Tree,support vector machine,linear regression,Random Forest.

|  |  |  |
| --- | --- | --- |
| **Learning Algorithm** | **Train Score** | **Test Score** |
| **Decision Tree** | 0.8226086956521739 | 0.7222222222222222 |
| ****K**-Nearest Neighbors** | 0.8382608695652174 | 0.6180555555555556 |
| **Support Vector Classification** | 0.8660869565217392 | 0.7708333333333334 |
| **Random Forest** | 0.8452173913043478 | 0.7777777777777778 |
| **Linear Regression** | 0.6656779236219386 | 0.6475047594038277 |

* Considered the support vector classification as my final model.
* The scores obtained by the model are Train Score=0.8660869565217392 ,Test Score=0.7708333333333334
* Accuracy: 0.7708333333333334
* F1 score: 0.7708333333333333
* Confusion matrix for the final model are obtained

