Aim:

To build and optimize Decision Tree Classifier for the given test datasets using Python Scikit-learn package.

Datasets

Classification Datasets:

1. Car Evaluation *(D1)*: Target attribute class: {unacc, acc, good, vgood}
2. Zoo *(D2):* Target attribute class: {7 classes of animals}

Exercise 1: Implement Decision Tree Classifier

1. Importing Required Libraries Let's first load the required libraries.
2. **Loading Data:** Let's first load the required dataset using pandas read CSV function.
3. **Feature Selection:** Here, you need to divide given columns into two types of variables dependent (or target variable) and independent variable (or feature variables).
4. **Splitting Data:** To understand model performance, dividing the dataset into a training set and a test set is a good strategy.
   - Let's split the dataset by using function train_test_split(). You need to pass 3 parameters features, target, and test_set size.
5. **Building Decision Tree Model:** Let's create a Decision Tree Model using Scikit-learn.
6. **Evaluating Model:** Let's estimate, how accurately the classifier or model can predict the different classes.
7. Accuracy can be computed by comparing actual test set values and predicted values.