MACHINE LEARNING(DECISION TREE)

Programming Language :- Python
Libraries Used :- Pandas, NumPy, Math

Created a DecisionTreeClassifier Class:

It consists of calculation of information gain for every feature in the dataset at each iteration.

The function Information gain calls the entropy of feature and eventually calculate the Information Gain by Entropy(target_col) - Entropy(feature)

$$IG(Y, X) = E(Y) - E(Y/X)$$

Entropy is calculated

$$E(S) = \Sigma - P_i \, log_2 \, P_i$$

Where 'P_i' is the Probability of a feature/target class 'i' in the dataset.
The class, in this case 'unacc' and 'acc'.
Feature that satisfies the specific class labels.

Build Tree:
Create the Decision Tree by adding the Node at every level Recursively.

Split Tree function:
Split the tree on the basis of the best Information gain attribute and delete the feature from the column.

Print Tree:
It prints the Tree by taking the features from the node and end up terminating when the leaf node is encounter.

Fit function:
It fits the train data to the DecisionTreeClassifier class.