Decision Trees

The goal of this project is to use a Decision Tree is to create a training model that can use to predict the class or value of the target variable by **learning simple decision rules** inferred from prior data (training data) and implement it on large dataset divided into two parts (training data + testing data)

Topic to be Cover –

We first see a brief introduction of decision trees and their types. After that the core algorithm for building decision trees. And then we will understand the important terminologies related to the decision trees. The next step is to understand how decision trees works and what are the assumptions that we are required in order to create the decision trees. Now we will discuss the two important factors 1. Entropy and 2. Information gain which are essential to construct a decision tree. Plus the pros and cons of decision tree and in last implement decision trees with the help of some examples(Car evaluation data, Iris Data set etc.)

Significance –

A significant advantage of a decision tree is that it forces the consideration of all possible outcomes of a decision and traces each path to a conclusion. It creates a comprehensive analysis of the consequences along each branch and identifies decision nodes that need further analysis. Decision trees assign specific values to each problem, decision path and outcome. Using monetary values makes costs and benefits explicit. This approach identifies the relevant decision paths, reduces uncertainty, clears up ambiguity and clarifies the financial consequences of various courses of action. When factual information is not available, decision trees use probabilities for conditions to keep choices in perspective with each other for easy comparisons.

Decision trees are easy to use and explain with simple math, no complex formulas. They present visually all of the decision alternatives for quick comparisons in a format that is easy to understand with only brief explanations. They are intuitive and follow the same pattern of thinking that humans use when making decisions.

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