

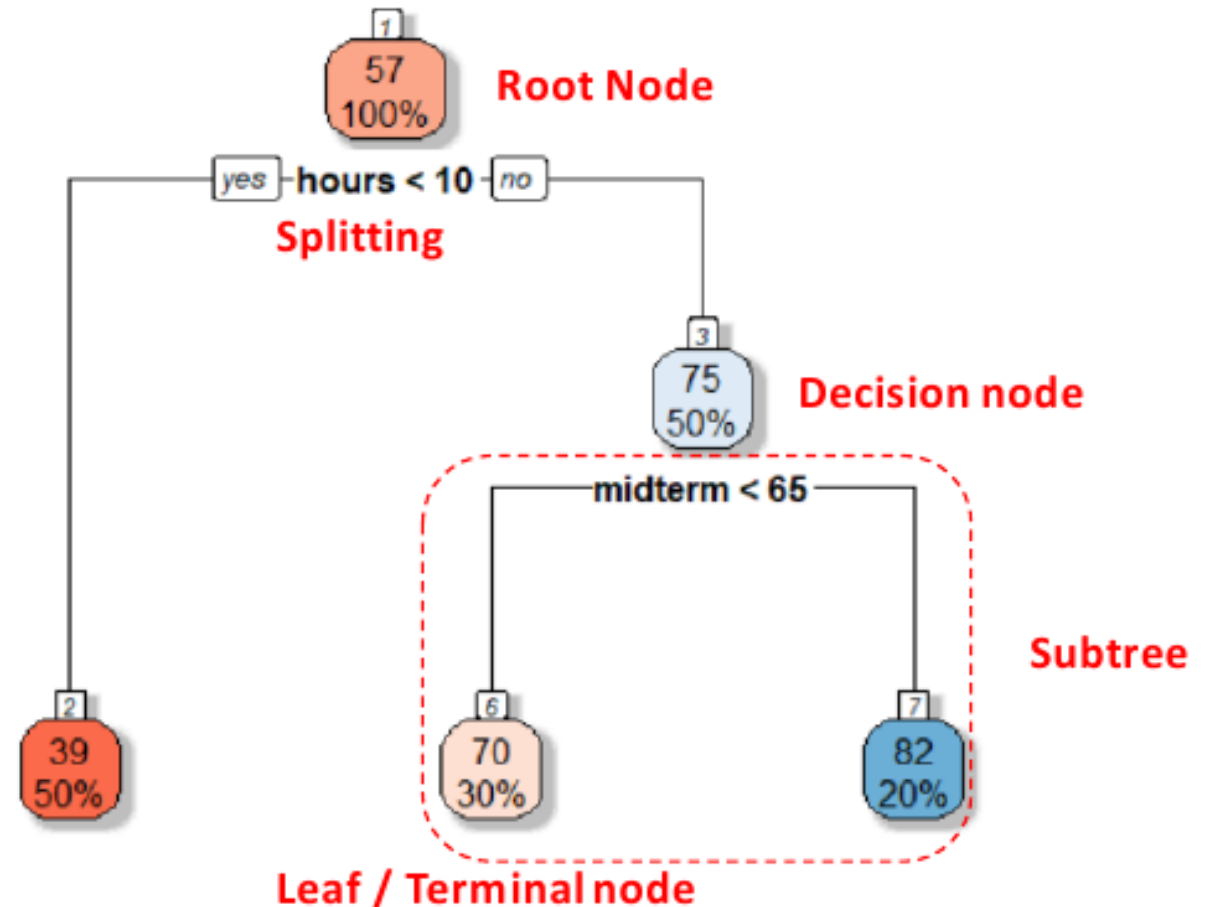
Trees based algorithms: Decision Tree, Random Forest, Gradient Boosting

Course

Applied Mathematical Modeling in Banking

Definition

A decision tree is a decision support tool that uses a tree-like model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility. It is one way to display an algorithm that only contains conditional control statements.



Regression Tree

- For continuous quantitative target variable.
- Eg. Predicting rainfall, predicting revenue, predicting marks etc.

Classification Tree

- For discrete categorical target variables
- Eg. Predicting High or Low, Win or Loss, Healthy or Unhealthy etc

CART

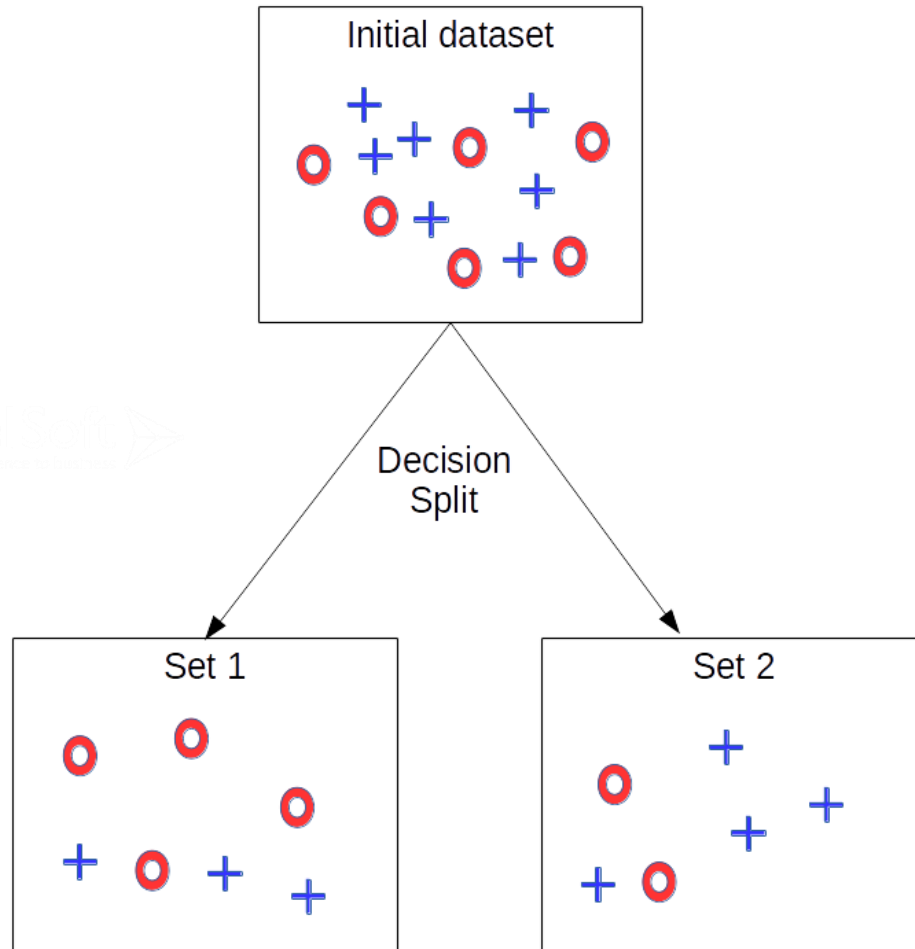
Decision
tree
algorithms

ID3

C5(4.5)

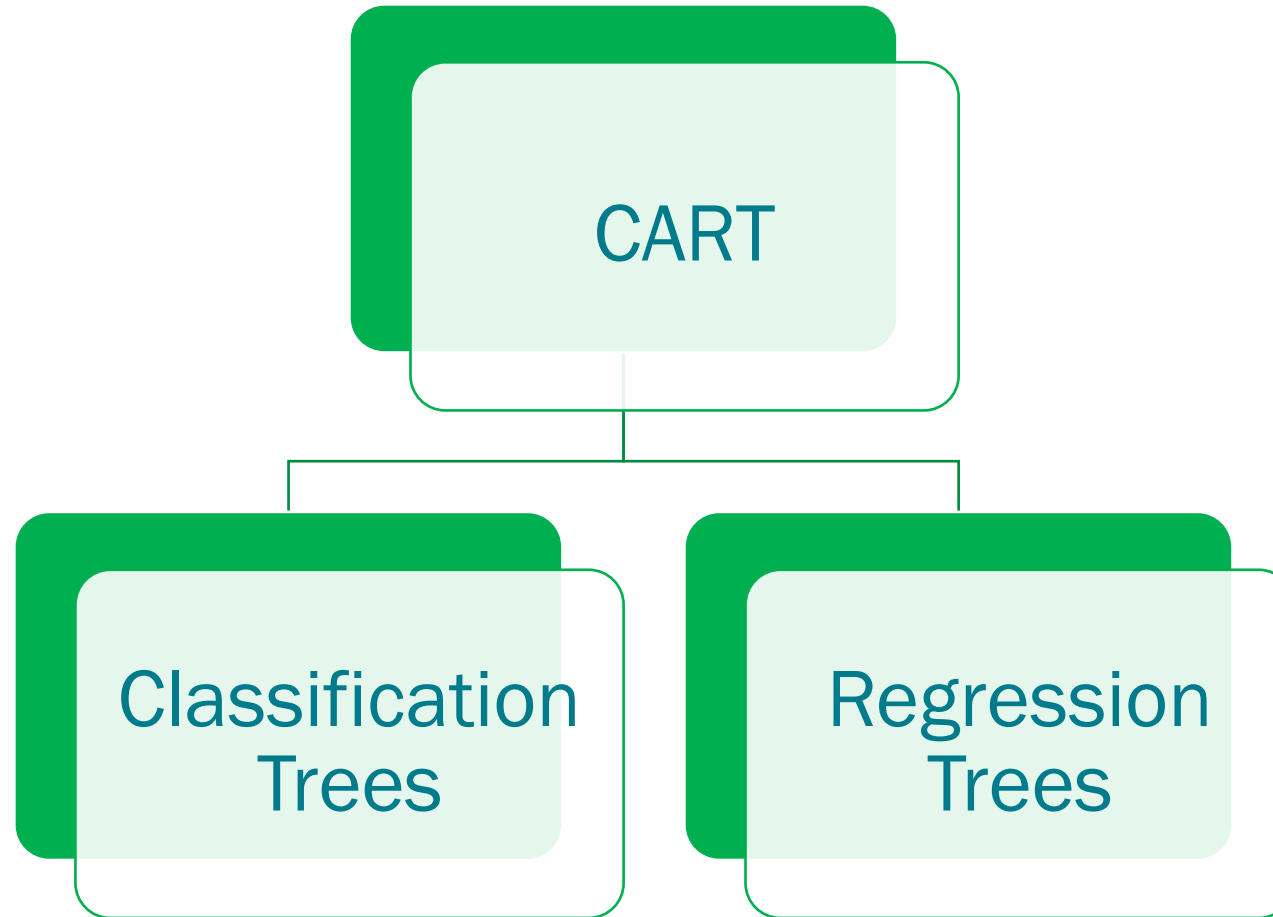
CART

Entropy (ID3, C5)



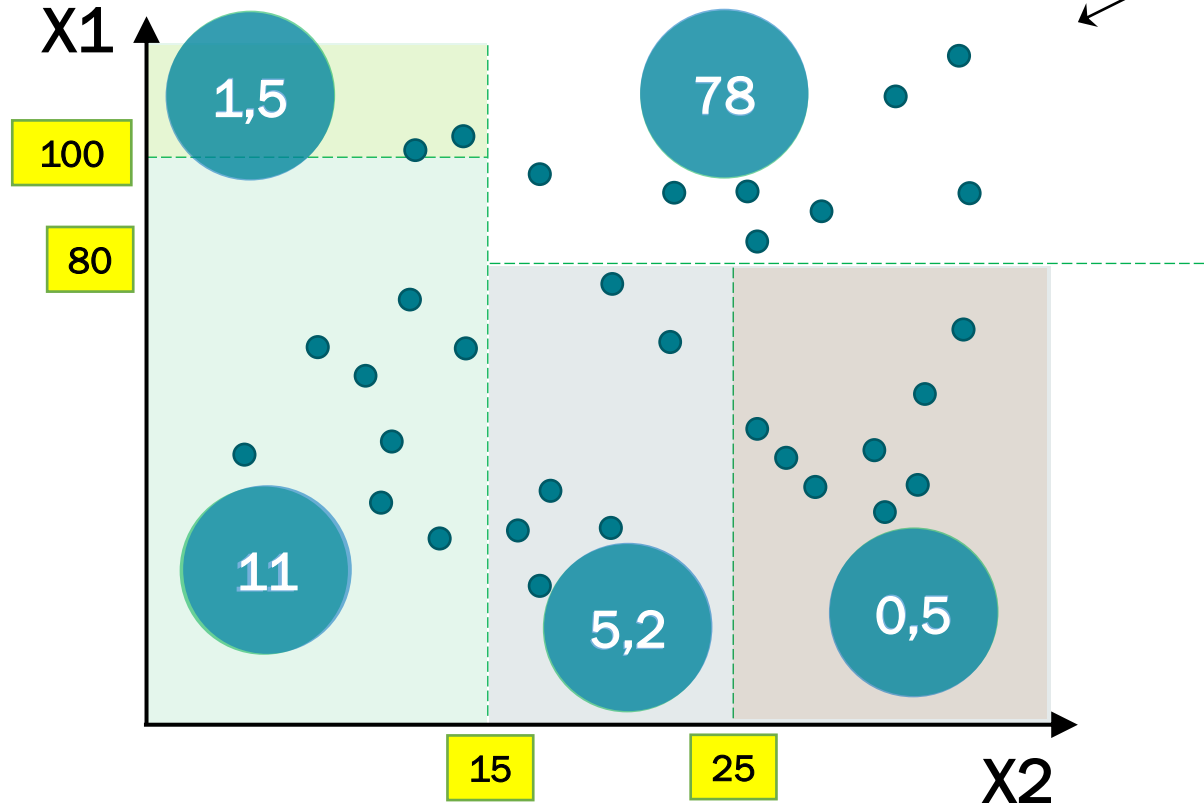
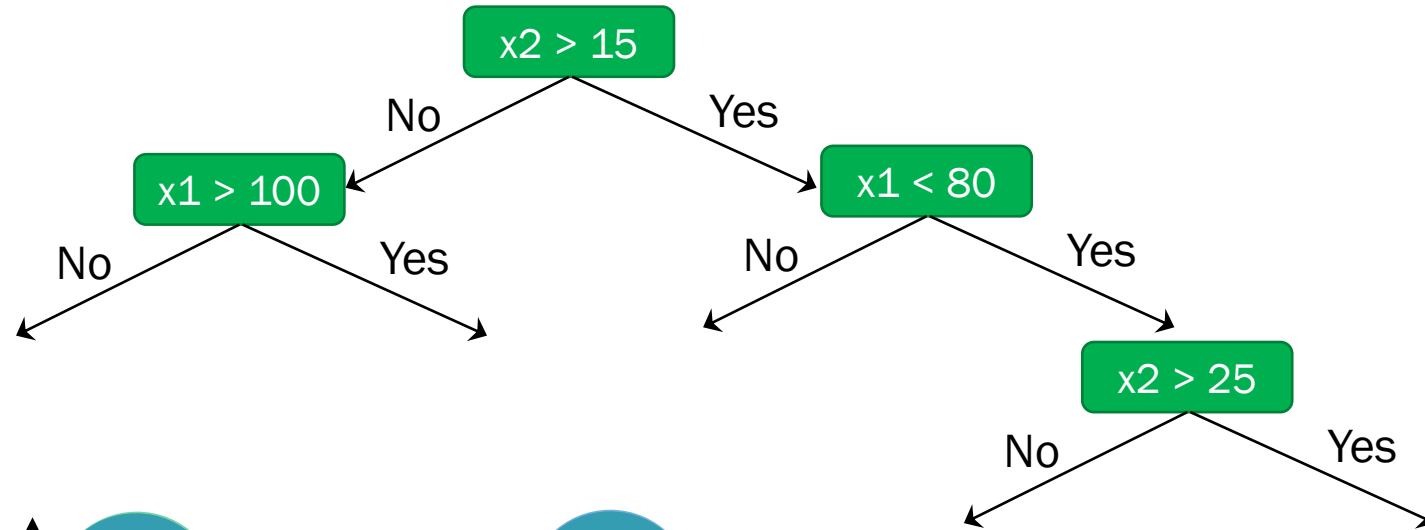
Entropy is an indicator of how messy your data is.

CART



RERESSION

$$y = f(x_1, x_2)$$



$$y_i = \frac{\sum f(x_{i1}, x_{i2})}{n}$$

CLASSIFICATION

