

Mastering Decision Trees: Theory and Applications with Reviews

Course Description:

This comprehensive course is a deep dive into the theory and application of decision tree algorithms, with a strong focus on practical implementation in R. Participants will learn how to construct, analyse, and optimize decision trees for classification, prediction, and data mining tasks. Through hands-on exercises and real-world case studies, we aim to equip participants with the skills needed to effectively deploy decision tree models in various scenarios, leveraging the robust capabilities of R software.

Target Audience:

- Data scientists and analysts looking to enhance their modelling techniques.
- Students and researchers in statistics, computer science, and engineering.
- Professionals in finance, healthcare, and marketing who must analyse complex datasets.

Prerequisites:

- Basic understanding of statistical concepts and data analysis.
- Familiarity with R programming is essential.
- Prior experience with machine learning concepts is beneficial but not required.

Course Objectives:

By the end of this course, participants will be able to:

1. Understand the theory and rationale behind decision trees.
2. Implement decision tree models in R, utilising packages like **rpart** and **party**.
3. Evaluate and interpret the results of decision trees.
4. Optimize decision trees for better accuracy and efficiency.
5. Apply decision trees to real-world problems in various domains.