

ANL305 Association and Clustering

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

The course introduces key principles of association and clustering from an applied perspective, but with emphasis on merits and limitations of algorithms when employed in different situations. By the end of this course, participants should appreciate how algorithms are applied in different contexts, be able to execute the relevant computer commands for solving problems; interpret the generated solutions and provide insightful discussion on topics.

Topics:

- Association Rule Mining
- Apriori Algorithm and Rule Evaluation Measures
- Association Visualisation
- Continuous Association Rule Mining Algorithm (CARMA)
- Sequence Pattern Mining
- Sequence Pattern Mining using modeller
- Introduction to Clustering
- Partitional and Hierarchical Clustering
- Two-Step Algorithms
- Self-Organising Maps
- Practical Clustering Process
- Case Studies in Clustering

Learning Outcome:

- Discuss various aspects of association analysis, such as concepts, rule evaluation measures, advantages and limitations.
- Compare and contrast association rule mining algorithms.
- Distinguish sequential pattern mining from association rule mining.
- Discuss various aspects of clustering analysis, such as concepts, cluster validation, proximity measures, advantages and limitations.
- Compare and contrast advanced and traditional clustering algorithms.
- Construct an association rule mining solution, interpret and evaluate the rules.
- Implement a solution for a sequential pattern mining problem.
- Evaluate the suitability of rule mining methods for a given problem.
- Execute hierarchical clustering, K-means, Self-Organising Map and Two-Step clustering.
- Design a clustering analysis solution, verify and interpret clustering solutions.
- Evaluate the suitability of a clustering method for a given problem.
- Implement a clustering analytics solution to a business problem.
- Verify the clustering solutions with appropriate criteria and framework.
- Apply the above-mentioned data mining tasks using the software package specified in this course.

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
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Continuous Assessment Component	Weightage (%)
PRE-COURSE QUIZ	2
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
TUTOR-MARKED ASSIGNMENT	14
GROUP BASED ASSIGNMENT	30
Sub-Total	50

Examinable Component	Weightage (%)
Written Exam	50
Sub-Total	50

Weightage Total **100**