

Chapter 14¹

FUZZY LOGIC IN DISCOVERING ASSOCIATION RULES: AN OVERVIEW²

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Abstract: Associations reflect relationships among items in databases, and have been widely studied in the fields of knowledge discovery and data mining. Recent years have witnessed many efforts on discovering fuzzy associations, aimed at coping with fuzziness in knowledge representation and decision support processes. This chapter focuses on associations of three kinds: association rules, functional dependencies and pattern associations. Accordingly, it overviews major fuzzy logic extensions. Primary attention is paid (1) to fuzzy association rules in dealing with partitioning quantitative data domains, crisp taxonomic belongings, and linguistically modified rules, (2) to various fuzzy mining measures from different perspectives such as interestingness, statistics and logic implication, (3) to fuzzy/partially satisfied functional dependencies for handling data closeness and noise tolerance, and (4) to time-series data patterns that are associated with partial degrees.

Key Words: Data Mining, Association Rules, Functional Dependency, Pattern Association, Fuzzy Logic.

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