Abstract

Sequential data mining is a technology for acquiring useful information and patterns from large quantities of sequential data. Research into industrial and commercial applications of sequential data mining is flourishing. The aim of this study is to propose a new method for detecting groups of patterns that appear in a linked manner across multiple sequential data and repeat along a time axis. Such a set of pattern groups is called a “linkage pattern.” Linkage pattern is detected by using interval graphs that are generated from frequent patterns in multiple sequential data. The difference between this method and previous methods is that it does not assume similarity or correlation between patterns in different sequential data. If a pattern that frequently occurs in individual sequential data does not show similarity with patterns in different sequential data, these patterns will be detected as a linkage pattern as long as they are linked along a time axis. In this paper, this method is applied to artificial data with embedded linkage patterns and the detection accuracy is evaluated using three indexes (precision, recall, and F-measure). As a result, it is shown that embedded linkage patterns can be suitably detected and that detection accuracy increases as the window width for frequent pattern detection decreases.
Detection of Linkage Patterns Repeating across Multiple Sequential Data

References


Index Terms
Computer Science Pattern Recognition

Keywords
Sequential pattern mining Linkage pattern Interval graph