

Application of association rules in Iranian Railways (RAI) accident data analysis

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The demand to travel by rail is ever increasing because it benefits both passengers and freight; therefore it is of utmost importance for railway administrators to carry passengers and freight safely to their destinations. Undergoing safety procedures and developing safety systems require awareness of what is causing unsafe conditions. This can be accomplished by learning from the past. This research has been performed to analyze the data from past accidents of the Iranian Railway (RAI) by applying association rules data mining techniques in order to discover and reveal unknown relationships and patterns among the data. By the application of CRISP-DM as the data mining methodology and utilizing Clementine 12.0 as the software tool, the mentioned objectives of this paper were fulfilled. For this research some 1000 accident records were selected from the accidents database from 1996 to 2000. The ultimate relationships and patterns extracted can be utilized to develop regulations and rules. This research considers accident conditions and relationships discovered among the most common accident factors (human error, wagon and track) with other fields of the database in order to prevent them from occurring in the future