

# EduMiner- An Automated Data Mining Tool for Intelligent Mining of Educational Data

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Data mining is a computer based information system that is devoted to scan huge data repositories, generate information and discover knowledge. Data mining pursues to find out patterns in data, organize information of hidden relationships, structure association rules and many more operations which cannot be performed using classic computer based information systems. Therefore, data mining outcomes represent a valuable support for decisions making in various industries. Data mining in education is not a novel area but, lives in its summer season. Educational data mining emerges as a paradigm oriented to design models, tasks, methods, and algorithms for exploring data from educational settings. It finds the patterns and make predictions that characterize learners' behaviors and achievements, domain knowledge content, assessments, educational functionalities, and applications. Educators and non-data mining experts are using different data mining tools to perform mining tasks on learners' data. There are a few tools available to carry out educational data mining tasks. However, they have several limitations. Their main issue is difficulty to use by non- data mining experts/ educators. Therefore, an automated tool is required that satisfies the data mining needs of different users. The "EduMiner" is introduced to make important predictions about students in the education domain using data mining techniques. R studio, R Shiny, data mining algorithms and several key functionalities of Knowledge Discovery in Databases have been used in the development of "EduMiner". The functionalities of the tool are very user-friendly and simple for novice users. The user has to configure the tool and provide the appropriate inputs for parameters such as the data set, the algorithms used for mining in advance to obtain the results of the analysis. The pre-processing will be done to clean the data prior to starting the analysis. The tool is capable of performing several analytical tasks. They are; student dropout prediction, student module performance prediction, module grade prediction, recommendations for students/ teachers, student enrollment criteria predictor and student grouping according to different characteristics. Apart from these features, the tool will consist of an intelligent execution of data analysis tasks with real time data as a background service. Finally, the results of the analysis are evaluated and visualized in order to easily understand by the user. Users of education industry can achieve a valuable gain by this tool since, it would be very user friendly to handle and easy to understand the mining results.

*Keywords:* Data mining, Educational Data Mining, Knowledge Discovery in Data Bases, Automated tool

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