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## **Mining information technology competency level among nurse students at a selected non-state Higher Education Institute in Sri Lanka: A case study**

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Educational Data Mining (EDM) is an emerging field which is concerned with developing methods to discover useful information and knowledge from educational data in learning settings. Currently, the number of Higher Education Institutes (HEI) is growing rapidly in Sri Lanka. Therefore, EDM can be applied to analyze the collected data from HEIs for the purpose of improving the performance of the students as well as the status of the educational institutes. This study presents an analysis of Information Technology (IT) competency among the Nursing students who were following an IT preparatory course before commencing their Nursing degree program in HEI in Sri Lanka by using EDM tools and techniques. In this study, data was collected using two different ways. First, a questionnaire was used to collect data from 60 students at the end of the preparatory course. The questionnaire focused on student satisfaction with the preparatory course and it was tested and was validated by the expert group and finally, Cronbach's Alpha ( $\alpha = .903$ ) was used to check the reliability. Secondly, continuous assessment results ( $n = 58$ ) and final results ( $n = 56$ ) were collected from the HEI's database. After preprocessing the collected data, data mining (DM) techniques were applied to discover clustering, feature selection, and classification. Then, K-means algorithm was used to cluster students in the different group. Feature selection was used to discover the most influential attributes. Finally, J48 (78.57%), Bayes Net (76.78%) and Random Forest (73.21%) classifier was used for classification students' IT competency. The 10-fold cross-validation was selected as evaluation process. SPSS tool was used to determine the reliability of questionnaire and WEKA was used as a data mining tool to carry out the data mining process. The result of this study discloses that overall accuracy of the tested classifiers is above 70%. The J48 tree produces highest classification accuracy among other classifiers. It was also shown that selected data attributes influence the classification process. The EDM tools and techniques were used to discover the hidden knowledge that leads to providing quality higher education for students and achieving their goals and improving the status of the HEIs.

**Keywords:** Educational data mining, Information Technology, competency, nurse student, classification.

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