Abstract

This paper presents an educational data mining model for predicting student performance in programming courses. Identifying variables that predict student programming performance may help educators. These variables are influenced by various factors. The study engages factors like students' mathematical background, programming aptitude, problem solving skills, gender, prior experience, high school mathematics grade, locality, previous computer programming experience, and e learning usage. The proposed model includes three phases; data preprocessing, attribute selection and rule extraction algorithm.

References

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- L. Ozbakir, A. Baykasoglu, S. Kulluk and H. Yap被困, "TACO-miner", An ant colony based algorithm for rule extraction from trained neural networks
- L. E. Z_arate, S. M. Dias and M. A. J. Song, FCANN, A new approach for extraction and representation of knowledge from ANN trained via formal concept analysis
- R. Nayak, Generating rules with predicates, terms and variables from the pruned neural networks
- M. A. H. Farquad, V. Ravi and S. B. Raju, Support vector regression based hybrid rule extraction methods for forecasting
- KOJI FUJIMOTO* and SAMPEI NAKABAYASHI, Applying GMDH algorithm to extract rules from examples
- Nekuri Naveen, V. Ravi, and C. Raghavendra Rao, data Mining via Rules Extracted from GMDH: an application to predict churn in bank credit cards, KES 2010, part I
- A. Y. K. Chan, K. O. Chow, and K. S. Cheung, Online Course Refinement through Association Rule Mining
- C. Romero, S. Ventura, Educational data mining: A survey from 1995 to 2005
- E. Chandra, Knowledge Mining from Student Data
- B. Minaei-Bidgoli, D. A. Kashy, G. Kortemeyer and, W. F. Punch, Predicting student performance: an application of data mining methods with the educational web-based system LON-CAPA
- F. Castro, A. Vellido, A. Nebot, and F. Mugica, Applying Data Mining Techniques to e-Learning Problems
- E. Chandra, Knowledge Mining from Student Data
- B. Minaei-Bidgoli, D. A. Kashy, G. Kortemeyer and, W. F. Punch, Predicting student performance: an application of data mining methods with the educational web-based system LON-CAPA
- F. Castro, A. Vellido, A. Nebot, and F. Mugica, Applying Data Mining Techniques to e-Learning Problems
- S. Charles, L. Arockiam, and V. Kumar, Deriving Association between learning behavior and programming skills
- Luis de-la-Fuente-Valentín, Abelardo Pardo, Carlos Delgado Kloos, Addressing
drop-out and sustained effort issues with large practical groups using an automated delivery and assessment system; Computers & Education 61 (2013) 33–42.

- A. T. Chamillard, ”Using Student Performance Predictions in a Computer Science Curriculum”; ITiCSE’06, June 26–28, 2006, Bologna, Italy.
- Sally Fincher et al., ”Programmed to succeed?: A multi-national, multi-institutional study of introductory programming courses”; Technical Report No. 1-05, University of Kent, April 2005.
- Markku Tukiainen and Eero Mönkkönen, ”Programming aptitude testing as a prediction of learning to program”; 14th Workshop of the Psychology of Programming Interest Group, Brunel University, June 2002.
- Y. B. -D. Kolikant, S. Pollack, ”Improving mathematically oriented programming skills in computer science studies”; fiele, vol. 1, pp. T1G3-8, 32nd Annual Frontiers in Education (FIE’02), 2002.
- Stanley TenEyck Schuyler, ”Using Problematizing Ability to Predict Student
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Index Terms

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Keywords

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